
The AAS Historical Astronomy Division and the AAS High Energy Astrophysics Division are also meeting in conjunction with the AAS/AAPT.

Washington State Convention and Trade Center
7th and Pike Streets
Seattle, WA
IN GRATITUDE

Sponsors

Ball Aerospace
John Wiley and Sons, Inc.
National Academies
Northrup Grumman
PASCO
Springer

AAS Paper Sorters

The Executive Office extends thanks to those who sorted meeting papers into scientific sessions: Tom Armstrong, Ginger Bryngelson, Joan Centrella, Mark Claussen, Susana Deustua, Mariam Dittmann, Jonathan Gardner, Shaul Hanany, Lynne Jones, Lucas Marci, Kevin Marvel, Julie McEnery, Lee Rickard and Kartik Sheth.

AAPT Paper Sorters

The National Office extends thanks to those who sorted meeting papers into sessions: Janelle Bailey, JD Garcie, Lila Adair, Rachel Scherr and Carol Heimpel.

AAS Council

Paul Vanden Bout NRAO Vice-President (6/2005-6/2008)
Peter Stockman STScI Treasurer (6/2005-6/2008)
Kevin Marvel AAS Executive Officer (6/2006-)
Alan Title LMSAL (6/2004-6/2007)
Margaret M. Hanson U. Cincinnati (6/2006-6/2009)

Press Officers

Stephen P. Maran AAS Press Officer (1/1985-)
Lynn Cominsky Sonoma State Deputy Press Officer
Larry Marshall Gettysburg Coll. Deputy Press Officer
AAPT Executive Board

Kenneth Heller  U. Minnesota  President (2007)
Harvey S. Leff  California State Polytechnic U.  President Elect (2007)
Lila M. Adair  Piedmont Coll.  Vice President (2007)
Mary Beth Monroe  Southwest Texas Junior Coll.  Secretary (2007)
Richard W. Peterson  Bethel Univ.  Past President (2007)
Randolph S. Peterson  U. of the South  Section Representatives Chair (2007)
Alan M. Gibson  Connec2Science  Section Representatives Vice Chair (2007)
John L. Roeder  Calhoun School  At Large (High School Rep.) (2008)
Ruth W. Chabay  North Carolina State Univ.  At Large (Four-Year College Rep.) (2007)
Dwain M. Desbien  Estrella Mountain Comm Coll.  At Large (Two-Year College Rep.) (2009)
Karl C. Mamola  Appalachian State Univ.  Ex Officio (Editor, *The Physics Teacher*) (2007)
Toufic M. Hakim  AAPT  Ex Officio (Executive Officer) (2007)

FOR FURTHER INFORMATION

AAS Scientific Programming, Meeting Logistics:
Kelli Gilmore, 202-328-2010 ext. 111, gilmore@aas.org.

AAPT Scientific Programming, Meeting Logistics:
Gale Quilter, 301-209-3340, gquilter@aapt.org

AAS Registration:
Laronda Boyce, 202-328-2010 ext. 110, reg-help@aas.org

AAPT Registration:
Natasha Randall, 301-209-3340, aapt-meet@aapt.org

AV Equipment:
Rick Matthews, 703-573-6910, speakerready@aas.org

Exhibits:
Jacqueline Determan, 301-209-3340, jdeterma@aapt.org

Onsite Registration Desk:
206-219-4650

Paper Submission:
support@abstractsonline.com, 217-398-1792

Press:
Prior to Meeting, Steve Maran 202-328-2010 ext.116.,
Important Notes

**PLEASE NOTE**

**Meeting Format**
The Seattle Meeting days differ from the normal AAS Meeting format. AAPT Workshops begin on Friday, 5 January 2007. The Opening Reception will be held Saturday, 6 January 2007. Scientific sessions begin Sunday, 7 January 2007 and will end on Wednesday, 10 January 2007.

Invited talks will be held in joint AAS/AAPT plenary sessions. Registrants will have access to all AAS, HAD, HEAD and AAPT sessions. Additional registration fees are required for extra events such as Workshops and the Banquet.

**Audiovisual Equipment**
Audiovisual equipment MUST be ordered via email at least 24 hours prior to your presentation or personally handed to the American Audio Video technician in the speaker ready room (603-04). You may not project from your own laptop. See AV instructions under Saturday's listings.

**Awards at Banquet**
The following award will be presented at the Banquet:
- AAS Education Prize for 2006
  - Dr. Sidney Wolff, National Optical Astronomy Observatory

**Cyber Café**
The Cyber Café, will open Sunday, opening at the beginning of the morning coffee break and closing Wednesday after the evening poster sessions. In addition to computers, there will be open lines for your laptops. There will be an open area with wireless connectivity. Please be advised that users need to bring their own wireless cards and review the connection process with their system administrators. In order to provide continuous network connectivity to all of our attendees and exhibitors, we will ask you to adhere to the following rules.
  - If there is a waiting line for computers, please limit your time to 15 minutes.
  - All attached devices will be required to be running the most up-to-date Virus Protection Software and Virus Definitions, IP Filtering, Anti-Ad and Anti-Spyware Software.
  - We recommend turning off automatic updates to your operating system, this will prevent bottlenecks in the network during the morning hours.
  - No device should be running as a server for offsite clients.
  - Absolutely no routers can be attached to the network without prior authorization from the AAS IT Staff.

The network will be monitored throughout the meeting and the AAS Staff reserves the right to disconnect any device that is causing overall network problems.

**Late Papers**
A Late Paper Schedule will be included in the Program Update distributed at the meeting. Late papers are scheduled as poster presentations on Wednesday, 10 January 2007 and published in a subsequent issue of the B.A.A.S.

**Paper Presentation Instructions**
Poster Presentations: Posters should fit within an approximate 44” x 44” square area. Please bring your own thumbtacks. Posters may be set up after 7:30am and must be removed by the end of the evening cocktail hour ~7:00pm. Posters left after these times will be discarded.

Oral Presentation: Five minutes are allowed for the normal oral presentation and three minutes for open discussion. Timing for other talks (Invited, Special, etc.) are at the discretion of the Session Organizer.

Dissertation Abstracts: Dissertation Abstracts are oral presentations of 15 minutes plus a few minutes for discussion.
EXHIBITS
The following will be furnishing exhibits of displays at the meeting. Be sure to stop by their booths during exhibit hours: Sunday - Tuesday 9:20am - 6:30pm, and Wednesday 9:20am - 4:00pm.

AAS Sustaining Member
Springer

AAPT Sustaining Members
Addison Wesley
Centre Pointe Learning
Daedalon Corporation
Educational Innovations, Inc.
John Wiley and Sons, Inc.
Kinetic Books
PASCO Scientific
Physics2000.com
Prentice Hall
Sargent Welch
TEACHSPIN, Inc.
Turning Technologies LLC
Vernier Software & Technology
W.H. Freeman & Company
WebAssign

AAS Corporate Member, Publisher Affiliate and Associated AAS/AAPT Exhibits
AAS/AAPT
American Physical Society
Apogee Instruments Inc.
Astronomical Consultants & Equipment Inc
AURA
Ball Aerospace
Blackwell Publishing
Cambridge University Press
comPADRE
Elsevier
Gemini Observatory
Lockheed Martin
McDonald Observatory
NOAO Gemini Science Center
Northrop Grumman
NRAO
Princeton University Press
The National Optical Astronomy Observatory
The Society of Physics Students
University of Chicago Press
University Science Books

Non-Member and Government Exhibits
Acadia Sinica Institute of Astronomy and Astrophysics
Barr Associates, Inc.
Beyond Einstein
Brooks/Cole, Thomson
Cavendish Science Org
CHANDRA X-ray Center
Computing in Science & Engineering
Delight's Earthly Delights
Digitalis Education Solutions, Inc.
Embry-Riddle Aeronautical University
ESO
Far Ultraviolet Spectroscopic Explorer
Galaxy Evolution Explorer
HEASARC
Hextek Corporation
IOP Publishing
It's About Time
James Webb Space Telescope
Jet Propulsion Laboratory - PLANCK
JPL Navigator Program
Kendall/Hunt Publishing Co.
Kepler Mission
Large Synoptic Survey Telescope
McGraw-Hill Higher Education
MEETING REGISTRATION

Meeting registration was processed by both the AAS and AAPT. All sessions are open to all registrants. Extra meeting events are also open but additional registration fees may apply.

Contact the individual Society for assistance.

**AAS Registration:**
Laronda Boyce, 202-328-2010 ext. 110, reg-help@aas.org, http://www.aas.org/meetings/registration.html

**AAPT Registration:**
Natasha Randall, 301-209-3340, aapt-meet@aapt.org http://www.aapt.org/Events/Secure/prereg.cfm
LOCATION AND LODGING

Housing Information
The 2007 AAS/AAPT Joint Meeting will be held at Washington State Convention and Trade Center (7th and Pike Streets, Seattle, WA).

Reservations for rooms are made through the Seattle Housing Bureau.

Seattle Housing Bureau  
One Convention Place  
701 Pike Street, Suite 800  
Seattle, WA 98101  
Phone: 888-877-0255 or 206-461-5881  
FAX: 206-461-5853

Make reservations by **15 December 2006** to ensure the special rate.

* Sheraton, 1400 Sixth Ave., *one block ($144 Single, $164 Double)*  
* Hyatt, 721 Pine St., *two blocks ($144 Single, $164 Double)*  
* Hilton, 1301 6th Ave., *two blocks ($136 King/Double)*  
* Summerfield Suites, 1011 Pike St., *three blocks ($134 Suites)*  
* Hotel Max, 620 Stewart St., *four blocks ($129 King/Double)*  
* Paramount, 724 Pine St., *three blocks ($129 King/Double)*  
* Roosevelt, 1531 7th Ave., *two blocks ($129 King/Double)*  
* Marriott, 515 Madison St., *three blocks ($136 Single, $136 Double)*  
* Red Lion

Online:  
https://resweb.passkey.com/Resweb.do?mode=welcome_ei_new&eventID=32718


Acknowledgements: The Seattle Housing Bureau will acknowledge all reservations. If you do not receive confirmation within 10-14 days or have questions regarding your reservation contact the Seattle Housing Bureau at 888-877-0255 or hotelres@seaseattle.org. You will not receive a confirmation from the hotel.

Reservations may be changed or cancelled with the Seattle Housing Bureau up to 15 December 2006. After 15 December contact the hotel directly regarding changes or cancellations.

Importance of Staying in the Conference Hotels
In order to book the Seattle meeting, the AAS had to contract for a blocks of sleeping rooms in area hotels. If we do not fill these blocks, financial penalties will be incurred. This ultimately impacts the health of the AAS and consequently registration fees.

*All hotels are within walking distance of the Convention Center. Approximate distance is noted. A Seattle tour map is available online at www.tourmap.com

Roommate Search
An informal forum is provided for those interested in sharing a hotel room, www.aas.org/meetings/roommatesearch.php

Childcare

PANDA Dial-A-Sitter
Group child care at event site. Licensed/insured. Caregivers CPR & ECE trained. PO Box 33636, Seattle, WA 98133, Suzan M. Shayler, President, (206) 325-2327

Babysitter Sharing
A forum is posted for those interested in sharing childcare in Seattle, www.aas.org/meetings/childcaresharing.php

Childcare Grants
$100 grants are available to defray childcare costs at the Seattle Meeting. The online application www.aas.org/meetings/childcaregrants.php must be submitted by 6 December 2006. If requests exceed available funding, preference will be given to those in the early stages of their careers.

Visa Information
Foreign meeting attendees need to apply for their visas as early as possible and no later than three months before the meeting. Visa processing information is posted on the National Academy’s International Visitors website: http://national-academies.org/visas.
**Local Information**
The average temperature for Seattle in January is 46 degrees Fahrenheit. The Seattle Convention and Visitor’s Bureau website, www.seeseeattle.org includes an online Visitor’s Guide and a downloadable Dining Guide. A Seattle tour map is available online at www.tourmap.com

**Scooter Rentals**
Access Mobility Systems, electric scooters and wheelchair accessible van rentals. 21104 70th Ave W, Edmonds, WA 98026, (425) 771-4659, (800) 854-4176, Fax: (425) 771-3946, info@accessams.com, www.accessams.com

**Special Airfares**
- **American Airlines**
  - www.aa.com or 1-800-433-1790
  - Authorization Number/Discount Code: A0217AK

- **Northwest Airlines**
  - www.nwa.com or 800-328-1111
  - World File # NYUSJ

**Car Rental**
- **Avis Rent a Car**
  - 1-800-331-1600 or www.avis.com
  - Code for AAS: AWD#J659136 (Avis Worldwide Discount)
  - Code for AAPT: AWD#J945158

- **Hertz**
  - 1-800-654-2240 or hertz.com
  - Code: CV#03YY002

**Travel from Airports**
- **Taxi**
  - A taxi from the airport to downtown will cost approximately $35.

- **Gray Line Downtown Airporter**
  - 206-626-6088, 1-800-426-7532

**Location**
- Serves the following AAS Meeting Seattle hotels: Hilton Hotel, Seattle Sheraton, Grand Hyatt. Connector Service to Hotel Max is available at no extra cost by calling 206-255-7159 one hour prior to pick-up.
- $10.25 one way, $17 roundtrip.
- Reservations are not accepted. Purchase tickets from the driver, the Gray Line desk located at the south end of the Seattle-Tacoma International Airport main terminal, just beyond baggage carousel #1 or from your hotel concierge.
- Board the Gray Line Airporter outside Door 00 on the Baggage Claim (lower) level.
- Departs twice an hour from 5:30 a.m. - 11:00 p.m.

**Shuttle Express**
- 425-981-7000, 1-800-487-7433
- $28.75 one-way
- Reservations are not required from the airport to the hotels. Reservations are needed to return to the airport.
- Passengers are picked up and dropped off on the third floor of the Airport Garage on the inner drive.

**Parking**
- WSCTC Parking Garage entrances on 8th and Pike Street are open daily 5:30 a.m. - 12 midnight. 1 hour = $4, 2 hrs = $5, 3 hrs = $7, 4 hrs = $9, 4-8 hrs = $10, 8-12 hrs = $11, 12-overnight = $16, evening (in after 5pm) = $6.
- Freeway Park Garage (located on Hubbell Street) is open Monday -Friday 6:00 a.m. - 8:00 p.m. 1 hour = $3, 2 hrs = $4, 3 hrs = $6, 4 hrs = $8, 4-8 hrs = $9, 8-12 hrs = $10, 12-overnight = $15, no separate evening rate.

**Hotels**
- Sheraton: valet parking for hotel guests only $28.29
- Hyatt: valet parking: $31.55 per night (in/out privileges included), self parking: $22 per night, not owned by Hyatt but is connected to hotel (does not include in/out privileges)
- Hilton: self parking $23.00 (in/out privileges included)
### SCHEDULE OF EVENTS

Except where noted meeting rooms are in the Washington State Convention and Trade Center. Workshops held at the University of Washington, Physics-Astronomy Building, Northside, Wing B are indicated by UW PAB.

<table>
<thead>
<tr>
<th>Start Time</th>
<th>End Time</th>
<th>Event Type</th>
<th>Session Number</th>
<th>Session/Event Title</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fri 7:00 AM</td>
<td>03:00 PM</td>
<td>Attendee Services</td>
<td></td>
<td>Registration (workshops only)</td>
<td>South Lobby</td>
</tr>
<tr>
<td>Fri 8:00 AM</td>
<td>12:00 PM</td>
<td>AAPT Workshop</td>
<td>W01</td>
<td>Video Based Motion Analysis for Homework and Classroom</td>
<td>UW PAB B108</td>
</tr>
<tr>
<td>Fri 8:00 AM</td>
<td>12:00 PM</td>
<td>AAPT Workshop</td>
<td>W02</td>
<td>Building TYC/University Partnerships in Teacher Preparation</td>
<td>306</td>
</tr>
<tr>
<td>Fri 8:00 AM</td>
<td>12:00 PM</td>
<td>AAPT Workshop</td>
<td>W03</td>
<td>Intuitive Quantum Physics for Non-Science Majors</td>
<td>309</td>
</tr>
<tr>
<td>Fri 8:00 AM</td>
<td>12:00 PM</td>
<td>AAPT Workshop</td>
<td>W04</td>
<td>Grant Opportunities for Two-Year Colleges, Part 2</td>
<td>UW PAB B110</td>
</tr>
<tr>
<td>Fri 8:00 AM</td>
<td>12:00 PM</td>
<td>AAPT Workshop</td>
<td>W05</td>
<td>Case Studies for the Laboratory</td>
<td>212</td>
</tr>
<tr>
<td>Fri 8:00 AM</td>
<td>12:00 PM</td>
<td>AAPT Workshop</td>
<td>W06</td>
<td>Making Pretty Pictures: How Astronomers Make Images</td>
<td>211</td>
</tr>
<tr>
<td>Fri 8:00 AM</td>
<td>12:00 PM</td>
<td>AAPT Workshop</td>
<td>W07</td>
<td>Energy: What It Is, What It Isn’t, and How We Know</td>
<td>310</td>
</tr>
<tr>
<td>Fri 8:00 AM</td>
<td>12:00 PM</td>
<td>AAPT Workshop</td>
<td>W08</td>
<td>Physics of Supernovae</td>
<td>307</td>
</tr>
<tr>
<td>Fri 8:00 AM</td>
<td>05:00 PM</td>
<td>AAPT Workshop</td>
<td>W09</td>
<td>Using Large Data Sets to Teach Astronomy</td>
<td>UW PAB B128</td>
</tr>
<tr>
<td>Fri 8:00 AM</td>
<td>05:00 PM</td>
<td>AAPT Workshop</td>
<td>W10</td>
<td>Problem Solving</td>
<td>213</td>
</tr>
<tr>
<td>Fri 8:00 AM</td>
<td>05:00 PM</td>
<td>AAPT Workshop</td>
<td>W11</td>
<td>InterActions in Physical Science: A Standards-based, Inquiry-oriented Middle School Curriculum</td>
<td>214</td>
</tr>
<tr>
<td>Fri 9:00 AM</td>
<td>05:00 PM</td>
<td>AAS Workshop</td>
<td></td>
<td>Strategies for Creating a Learner-Centered Introductory College Astronomy Course</td>
<td>608</td>
</tr>
<tr>
<td>Fri 10:00 AM</td>
<td>06:00 PM</td>
<td>Attendee Services</td>
<td></td>
<td>Speaker Ready Room</td>
<td>603-04</td>
</tr>
<tr>
<td>Fri 01:00 PM</td>
<td>05:00 PM</td>
<td>AAPT Workshop</td>
<td>W12</td>
<td>Energy in the 21st Century</td>
<td>UW PAB B108</td>
</tr>
<tr>
<td>Fri 01:00 PM</td>
<td>05:00 PM</td>
<td>AAPT Workshop</td>
<td>W13</td>
<td>Designing a Diagnostic Environment in the Pre-College Classroom</td>
<td>UW PAB B110</td>
</tr>
<tr>
<td>Fri 01:00 PM</td>
<td>05:00 PM</td>
<td>AAPT Workshop</td>
<td>W14</td>
<td>General Relativity Labs</td>
<td>UW PAB B176</td>
</tr>
<tr>
<td>Fri 01:00 PM</td>
<td>05:00 PM</td>
<td>AAPT Workshop</td>
<td>W15</td>
<td>Make Your Own Haunted Physics Lab</td>
<td>212</td>
</tr>
<tr>
<td>Fri 01:00 PM</td>
<td>05:00 PM</td>
<td>AAPT Workshop</td>
<td>W16</td>
<td>Teaching Physics to Middle School Teachers with Light and Sound Toys</td>
<td>204</td>
</tr>
<tr>
<td>Fri 01:00 PM</td>
<td>05:00 PM</td>
<td>AAPT Event</td>
<td></td>
<td>Area Chairs’ Meeting</td>
<td>303</td>
</tr>
<tr>
<td>Fri 1:00 PM</td>
<td>07:00 PM</td>
<td>AAS Workshop</td>
<td></td>
<td>NSF Astronomy &amp; Astrophysics Postdoctoral Fellow Symposium</td>
<td>605</td>
</tr>
<tr>
<td>Fri 02:00 PM</td>
<td>04:00 PM</td>
<td>AAPT Tutorial</td>
<td>T01</td>
<td>Mining the Internet</td>
<td>208</td>
</tr>
<tr>
<td>Fri 06:00 PM</td>
<td>09:00 PM</td>
<td>AAPT Event</td>
<td></td>
<td>Executive Board I</td>
<td>Douglas Brdrm, Grand Hyatt</td>
</tr>
<tr>
<td>Start Time</td>
<td>End Time</td>
<td>Event Type</td>
<td>Session Number</td>
<td>Session/Event Title</td>
<td>Location</td>
</tr>
<tr>
<td>------------</td>
<td>----------</td>
<td>------------------</td>
<td>----------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Saturday, January 06, 2007</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sat 7:00 AM</td>
<td>09:00 PM</td>
<td>Attendee Services</td>
<td></td>
<td>Registration (workshops reg. am, all reg. pm)</td>
<td>South Lobby</td>
</tr>
<tr>
<td>Sat 8:00 AM</td>
<td>12:00 PM</td>
<td>AAPT Workshop</td>
<td>W17</td>
<td>Environmental Physics &amp; Global Warming</td>
<td>UW PAB B110</td>
</tr>
<tr>
<td>Sat 8:00 AM</td>
<td>12:00 PM</td>
<td>AAPT Workshop</td>
<td>W18</td>
<td>Exploring Special and General Relativity with Interactive Curricular Material</td>
<td>UW PAB B128</td>
</tr>
<tr>
<td>Sat 8:00 AM</td>
<td>12:00 PM</td>
<td>AAPT Workshop</td>
<td>W19</td>
<td>A Primer for Doing Astronomy Education Research</td>
<td>213</td>
</tr>
<tr>
<td>Sat 8:00 AM</td>
<td>12:00 PM</td>
<td>AAPT Workshop</td>
<td>W20</td>
<td>Physics by Inquiry</td>
<td>212</td>
</tr>
<tr>
<td>Sat 8:00 AM</td>
<td>12:00 PM</td>
<td>AAPT Workshop</td>
<td>W21</td>
<td>Beyond Clickers: Using Interactive Learning Devices for Student Collaboration in the Classroom</td>
<td>214</td>
</tr>
<tr>
<td>Sat 8:00 AM</td>
<td>12:00 PM</td>
<td>AAPT Workshop</td>
<td>W22</td>
<td>Physics for Elementary Teachers and Physical Science for Elementary Teachers</td>
<td>309</td>
</tr>
<tr>
<td>Sat 8:00 AM</td>
<td>05:00 PM</td>
<td>AAPT Workshop</td>
<td>W23</td>
<td>Using Research-based Curricula and Tools to Revitalize Your Introductory Course</td>
<td>UW PAB B108</td>
</tr>
<tr>
<td>Sat 8:00 AM</td>
<td>05:00 PM</td>
<td>AAPT Workshop</td>
<td>W24</td>
<td>Teaching Astronomy with Technology</td>
<td>UW PAB B356</td>
</tr>
<tr>
<td>Sat 8:00 AM</td>
<td>11:00 AM</td>
<td>AAPT Event</td>
<td>W25</td>
<td>Piaget Beyond</td>
<td>307</td>
</tr>
<tr>
<td>Sat 8:30 AM</td>
<td>03:00 PM</td>
<td>AAS Splinter Meeting</td>
<td>T02</td>
<td>Publications Committee</td>
<td>303</td>
</tr>
<tr>
<td>Sat 9:00 AM</td>
<td>11:00 AM</td>
<td>AAPT Tutorial</td>
<td>T03</td>
<td>NURO</td>
<td>606</td>
</tr>
<tr>
<td>Sat 9:00 AM</td>
<td>04:00 PM</td>
<td>AAS Workshop</td>
<td></td>
<td>Civic Engagement and Service Learning</td>
<td>305</td>
</tr>
<tr>
<td>Sat 9:00 AM</td>
<td>05:00 PM</td>
<td>AAS Workshop</td>
<td></td>
<td>Online DL Science Courses &amp; Virtual Labs</td>
<td>306</td>
</tr>
<tr>
<td>Sat 9:00 AM</td>
<td>07:00 PM</td>
<td>AAS Workshop</td>
<td></td>
<td>Career Workshop</td>
<td>610</td>
</tr>
<tr>
<td>Sat 9:30 AM</td>
<td>11:30 AM</td>
<td>AAS Workshop</td>
<td></td>
<td>Strategies for Creating a Learner-Centered Introductory College Astronomy Course</td>
<td>608</td>
</tr>
<tr>
<td>Sat 10:00 AM</td>
<td>06:00 PM</td>
<td>Attendee Services</td>
<td></td>
<td>NSF Astronomy &amp; Astrophysics Postdoctoral Fellow Symposium</td>
<td>605</td>
</tr>
<tr>
<td>Sat 11:30 AM</td>
<td>02:30 PM</td>
<td>AAPT Event</td>
<td></td>
<td>ComPADRE in the K-12 Classroom</td>
<td>613</td>
</tr>
<tr>
<td>Sat 12:00 PM</td>
<td>04:00 PM</td>
<td>AAS Workshop</td>
<td></td>
<td>Speaker Ready Room</td>
<td>603-04</td>
</tr>
<tr>
<td>Sat 12:30 PM</td>
<td>04:30 PM</td>
<td>AAPT Event</td>
<td></td>
<td>Resource Letters Editorial Board</td>
<td>209</td>
</tr>
<tr>
<td>Sat 01:00 PM</td>
<td>05:00 PM</td>
<td>AAPT Workshop</td>
<td>W26</td>
<td>EPO Programs by NASA Research Grant Awardees</td>
<td>609</td>
</tr>
<tr>
<td>Sat 01:00 PM</td>
<td>05:00 PM</td>
<td>AAPT Workshop</td>
<td>W27</td>
<td>Executive Board II</td>
<td>213</td>
</tr>
<tr>
<td>Sat 01:00 PM</td>
<td>05:00 PM</td>
<td>AAPT Workshop</td>
<td>W28</td>
<td>Intermediate Mechanics Tutorials</td>
<td>309</td>
</tr>
<tr>
<td>Sat 01:00 PM</td>
<td>05:00 PM</td>
<td>AAPT Workshop</td>
<td>W29</td>
<td>Not Your Usual Powerpoint</td>
<td>UW PAB B110</td>
</tr>
<tr>
<td>Sat 01:00 PM</td>
<td>05:00 PM</td>
<td>AAPT Workshop</td>
<td></td>
<td>Experiencing the Pedagogical Process</td>
<td>UW PAB B128</td>
</tr>
<tr>
<td>Sat 01:00 PM</td>
<td>05:00 PM</td>
<td>AAPT Workshop</td>
<td></td>
<td>Exploring Easy &amp; Effective Ways to Use PhET's Web-Based Interactive Simulations in Your Physics Course</td>
<td>UW PAB B176</td>
</tr>
<tr>
<td>Start Time</td>
<td>End Time</td>
<td>Event Type</td>
<td>Session Number</td>
<td>Session/Event Title</td>
<td>Location</td>
</tr>
<tr>
<td>------------</td>
<td>----------</td>
<td>---------------------</td>
<td>----------------</td>
<td>------------------------------------------------------------------------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>Sat 01:00 PM</td>
<td>05:00 PM</td>
<td>AAPT Workshop</td>
<td>W30</td>
<td>The Physics Teaching Web Advisory, Online Advice for Teaching Physics</td>
<td>UW PAB B180</td>
</tr>
<tr>
<td>Sat 01:00 PM</td>
<td>05:00 PM</td>
<td>AAPT Workshop</td>
<td>W31</td>
<td>Cosmic Evolution: the “Astro” in Astrobiology</td>
<td>211</td>
</tr>
<tr>
<td>Sat 01:00 PM</td>
<td>05:00 PM</td>
<td>AAPT Workshop</td>
<td>W32</td>
<td>Tutorials in Introductory Physics</td>
<td>212</td>
</tr>
<tr>
<td>Sat 01:00 PM</td>
<td>05:00 PM</td>
<td>AAPT Workshop</td>
<td>W33</td>
<td>Franklin and Electrostatics</td>
<td>308</td>
</tr>
<tr>
<td>Sat 01:00 PM</td>
<td>05:00 PM</td>
<td>AAPT Workshop</td>
<td>W34</td>
<td>Teaching Tailored Tutorials</td>
<td>310</td>
</tr>
<tr>
<td>Sat 01:00 PM</td>
<td>03:00 PM</td>
<td>AAS Workshop</td>
<td></td>
<td>ComPADRE in Undergraduate Physics</td>
<td>613</td>
</tr>
<tr>
<td>Sat 01:00 PM</td>
<td>05:00 PM</td>
<td>AAS Workshop</td>
<td></td>
<td>Exploring Magnetism in Earth and Space Science</td>
<td>607</td>
</tr>
<tr>
<td>Sat 02:30 PM</td>
<td>05:30 PM</td>
<td>AAS Splinter Meeting</td>
<td></td>
<td>Astro 101 - Cancelled</td>
<td>612</td>
</tr>
<tr>
<td>Sat 03:00 PM</td>
<td>05:00 PM</td>
<td>AAS Workshop</td>
<td></td>
<td>ComPADRE, AstronomyCenter</td>
<td>613</td>
</tr>
<tr>
<td>Sat 04:30 PM</td>
<td>05:30 PM</td>
<td>AAPT Event</td>
<td></td>
<td>Programs I</td>
<td>620</td>
</tr>
<tr>
<td>Sat 05:30 PM</td>
<td>06:30 PM</td>
<td>AAPT Event</td>
<td></td>
<td>Examinations Ed. Board (closed)</td>
<td>210</td>
</tr>
<tr>
<td>Sat 05:30 PM</td>
<td>06:30 PM</td>
<td>AAPT Event</td>
<td></td>
<td>Section Officers’ Exchange</td>
<td>615</td>
</tr>
<tr>
<td>Sat 06:00 PM</td>
<td>07:00 PM</td>
<td>AAS Event</td>
<td></td>
<td>Undergraduate Orientation</td>
<td>N. Galleria Lobby - 2nd Floor</td>
</tr>
<tr>
<td>Sat 06:30 PM</td>
<td>07:30 PM</td>
<td>AAPT Event</td>
<td></td>
<td>Teacher Prep Committee</td>
<td>211</td>
</tr>
<tr>
<td>Sat 06:30 PM</td>
<td>08:00 PM</td>
<td>AAPT Event</td>
<td></td>
<td>Section Representatives</td>
<td>615</td>
</tr>
<tr>
<td>Sat 06:30 PM</td>
<td>08:00 PM</td>
<td>AAPT Event</td>
<td></td>
<td>HS Share-a-thon</td>
<td>6C</td>
</tr>
<tr>
<td>Sat 07:00 PM</td>
<td>08:00 PM</td>
<td>AAPT Event</td>
<td></td>
<td>Center for Astronomy Learner-centered Teaching Workshop Participant Reunion</td>
<td>618</td>
</tr>
<tr>
<td>Sat 07:00 PM</td>
<td>010:00 PM</td>
<td>Joint Event</td>
<td></td>
<td>Opening Reception</td>
<td>Grand Hyatt</td>
</tr>
</tbody>
</table>

**Sunday, January 07, 2007**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sun 7:00 AM</td>
<td>AAPT Event</td>
<td>307-08</td>
</tr>
<tr>
<td>Sun 7:30 AM</td>
<td>Attendee Services</td>
<td>South Lobby</td>
</tr>
<tr>
<td>Sun 7:30 AM</td>
<td>Attendee Services</td>
<td>Speaker Ready Room</td>
</tr>
<tr>
<td>Sun 8:00 AM</td>
<td>Attendee Services</td>
<td>Cyber Café</td>
</tr>
<tr>
<td>Sun 8:15 AM</td>
<td>Plenary</td>
<td>Ballroom 6</td>
</tr>
<tr>
<td>Sun 8:30 AM</td>
<td>Plenary</td>
<td>Ballroom 6</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>AAPT Poster</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>AAS Poster</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>AAS Poster</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>AAS Poster</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>AAS Poster</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Start Time</td>
<td>End Time</td>
<td>Event Type</td>
</tr>
<tr>
<td>------------</td>
<td>------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>05:00 PM</td>
<td>Attendee Services</td>
</tr>
<tr>
<td>Sun 9:20 AM</td>
<td>05:00 PM</td>
<td>Attendee Services</td>
</tr>
<tr>
<td>Sun 9:30 AM</td>
<td>11:00 AM</td>
<td>AAPT Event</td>
</tr>
<tr>
<td>Sun 10:00 AM</td>
<td>11:30 AM</td>
<td>AAS Special</td>
</tr>
<tr>
<td>Sun 10:00 AM</td>
<td>11:30 AM</td>
<td>AAS Special</td>
</tr>
<tr>
<td>Sun 10:00 AM</td>
<td>11:30 AM</td>
<td>HAD Special</td>
</tr>
<tr>
<td>Sun 10:00 AM</td>
<td>11:30 AM</td>
<td>AAS Oral</td>
</tr>
<tr>
<td>Sun 10:00 AM</td>
<td>11:30 AM</td>
<td>AAS Oral</td>
</tr>
<tr>
<td>Sun 10:00 AM</td>
<td>11:30 AM</td>
<td>AAS Oral</td>
</tr>
<tr>
<td>Sun 10:00 AM</td>
<td>11:30 AM</td>
<td>AAS Oral</td>
</tr>
<tr>
<td>Start Time</td>
<td>End Time</td>
<td>Event Type</td>
</tr>
<tr>
<td>------------------</td>
<td>----------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Sun 10:00 AM</td>
<td>11:30 AM</td>
<td>AAS Oral</td>
</tr>
<tr>
<td>Sun 10:00 AM</td>
<td>11:30 AM</td>
<td>AAS Oral</td>
</tr>
<tr>
<td>Sun 10:00 AM</td>
<td>11:30 AM</td>
<td>AAS Oral</td>
</tr>
<tr>
<td>Sun 10:00 AM</td>
<td>11:30 AM</td>
<td>AAPT Invited</td>
</tr>
<tr>
<td>Sun 10:00 AM</td>
<td>11:30 AM</td>
<td>AAPT Invited</td>
</tr>
<tr>
<td>Sun 10:00 AM</td>
<td>11:30 AM</td>
<td>AAPT Special</td>
</tr>
<tr>
<td>Sun 10:00 AM</td>
<td>11:30 AM</td>
<td>AAPT Panel</td>
</tr>
<tr>
<td>Sun 11:30 AM</td>
<td>12:30 PM</td>
<td>AAS Splinter Meeting</td>
</tr>
<tr>
<td>Sun 11:30 AM</td>
<td>12:30 PM</td>
<td>AAPT Event</td>
</tr>
<tr>
<td>Sun 11:30 AM</td>
<td>12:30 PM</td>
<td>AAPT Oral</td>
</tr>
<tr>
<td>Sun 12:30 PM</td>
<td>01:00 PM</td>
<td>AAPT Event</td>
</tr>
<tr>
<td>Sun 12:30 PM</td>
<td>01:00 PM</td>
<td>AAPT Event</td>
</tr>
<tr>
<td>Sun 12:30 PM</td>
<td>01:00 PM</td>
<td>AAPT Crackerbarrel</td>
</tr>
<tr>
<td>Sun 12:30 PM</td>
<td>01:00 PM</td>
<td>AAPT Crackerbarrel</td>
</tr>
<tr>
<td>Sun 12:30 PM</td>
<td>01:00 PM</td>
<td>AAPT Crackerbarrel</td>
</tr>
<tr>
<td>Sun 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Special</td>
</tr>
<tr>
<td>Sun 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Special</td>
</tr>
<tr>
<td>Sun 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Special</td>
</tr>
<tr>
<td>Sun 02:00 PM</td>
<td>03:40 PM</td>
<td>HAD Special</td>
</tr>
<tr>
<td>Sun 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
</tr>
<tr>
<td>Sun 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
</tr>
<tr>
<td>Sun 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
</tr>
<tr>
<td>Sun 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
</tr>
<tr>
<td>Start Time</td>
<td>End Time</td>
<td>Event Type</td>
</tr>
<tr>
<td>-------------</td>
<td>------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>Sun 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
</tr>
<tr>
<td>Sun 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
</tr>
<tr>
<td>Sun 02:00 PM</td>
<td>03:30 PM</td>
<td>AAPT Oral</td>
</tr>
<tr>
<td>Sun 02:00 PM</td>
<td>03:30 PM</td>
<td>AAPT Oral</td>
</tr>
<tr>
<td>Sun 02:00 PM</td>
<td>03:30 PM</td>
<td>AAPT Poster</td>
</tr>
<tr>
<td>Sun 02:30 PM</td>
<td>03:30 PM</td>
<td>AAPT Event</td>
</tr>
<tr>
<td>Sun 02:30 PM</td>
<td>03:30 PM</td>
<td>AAPT Event</td>
</tr>
<tr>
<td>Sun 03:40 PM</td>
<td>04:30 PM</td>
<td>Plenary</td>
</tr>
<tr>
<td>Sun 04:30 PM</td>
<td>06:30 PM</td>
<td>AAPT Event</td>
</tr>
<tr>
<td>Sun 04:40 PM</td>
<td>05:30 PM</td>
<td>Plenary</td>
</tr>
<tr>
<td>Sun 05:30 PM</td>
<td>06:30 PM</td>
<td>AAS Town Hall Meeting</td>
</tr>
<tr>
<td>Sun 06:30 PM</td>
<td>07:45 PM</td>
<td>AAS Splinter Meeting</td>
</tr>
<tr>
<td>Sun 06:30 PM</td>
<td>08:00 PM</td>
<td>AAPT Invited</td>
</tr>
<tr>
<td>Sun 06:30 PM</td>
<td>08:00 PM</td>
<td>AAPT Invited</td>
</tr>
<tr>
<td>Sun 06:30 PM</td>
<td>08:00 PM</td>
<td>AAPT Special</td>
</tr>
<tr>
<td>Sun 06:30 PM</td>
<td>07:30 PM</td>
<td>AAPT Special</td>
</tr>
<tr>
<td>Sun 06:30 PM</td>
<td>08:00 PM</td>
<td>AAPT Oral</td>
</tr>
<tr>
<td>Sun 06:30 PM</td>
<td>08:00 PM</td>
<td>AAPT Oral</td>
</tr>
<tr>
<td>Sun 07:00 PM</td>
<td>08:30 PM</td>
<td>Plenary</td>
</tr>
<tr>
<td>Sun 07:00 PM</td>
<td>09:00 PM</td>
<td>Joint Event</td>
</tr>
<tr>
<td>Sun 08:00 PM</td>
<td>09:30 PM</td>
<td>AAPT Event</td>
</tr>
<tr>
<td>Sun 08:00 PM</td>
<td>09:30 PM</td>
<td>AAPT Event</td>
</tr>
<tr>
<td>Sun 08:00 PM</td>
<td>09:30 PM</td>
<td>AAPT Event</td>
</tr>
<tr>
<td>Sun 08:00 PM</td>
<td>09:30 PM</td>
<td>AAPT Event</td>
</tr>
<tr>
<td>Sun 08:00 PM</td>
<td>09:30 PM</td>
<td>AAPT Event</td>
</tr>
<tr>
<td>Sun 08:00 PM</td>
<td>09:30 PM</td>
<td>AAPT Event</td>
</tr>
<tr>
<td>Sun 08:00 PM</td>
<td>09:30 PM</td>
<td>AAPT Event</td>
</tr>
<tr>
<td>Start Time</td>
<td>End Time</td>
<td>Event Type</td>
</tr>
<tr>
<td>------------</td>
<td>----------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Mon 7:00 AM</td>
<td>8:30 AM</td>
<td>AAPT Event</td>
</tr>
<tr>
<td>Mon 7:00 AM</td>
<td>8:30 AM</td>
<td>AAPT Event</td>
</tr>
<tr>
<td>Mon 7:30 AM</td>
<td>06:00 PM</td>
<td>Attendee Services</td>
</tr>
<tr>
<td>Mon 8:00 AM</td>
<td>05:00 PM</td>
<td>Attendee Services</td>
</tr>
<tr>
<td>Mon 8:00 AM</td>
<td>06:30 PM</td>
<td>Attendee Services</td>
</tr>
<tr>
<td>Mon 8:30 AM</td>
<td>9:20 AM</td>
<td>Plenary</td>
</tr>
<tr>
<td>Mon 9:20 AM</td>
<td>06:30 PM</td>
<td>AAPT Poster</td>
</tr>
<tr>
<td>Mon 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Mon 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Mon 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Mon 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Mon 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Mon 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Mon 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Mon 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Mon 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Mon 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Mon 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Mon 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Mon 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Mon 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Mon 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Mon 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Mon 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Mon 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Mon 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Mon 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Mon 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Mon 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Mon 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Mon 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
</tr>
<tr>
<td>Start Time</td>
<td>End Time</td>
<td>Event Type</td>
</tr>
<tr>
<td>-----------</td>
<td>---------</td>
<td>------------</td>
</tr>
<tr>
<td>Mon 9:20 AM 06:30 PM</td>
<td>AAS Poster</td>
<td>96</td>
</tr>
<tr>
<td>Mon 9:20 AM 06:30 PM</td>
<td>AAS Poster</td>
<td>97</td>
</tr>
<tr>
<td>Mon 9:20 AM 06:30 PM</td>
<td>AAS Poster</td>
<td>98</td>
</tr>
<tr>
<td>Mon 9:20 AM 06:30 PM</td>
<td>AAS Poster</td>
<td>99</td>
</tr>
<tr>
<td>Mon 9:20 AM 06:30 PM</td>
<td>AAS Poster</td>
<td>100</td>
</tr>
<tr>
<td>Mon 9:20 AM 06:30 PM</td>
<td>AAS Poster</td>
<td>101</td>
</tr>
<tr>
<td>Mon 9:20 AM 06:30 PM</td>
<td>AAS Poster</td>
<td>102</td>
</tr>
<tr>
<td>Mon 9:20 AM 06:30 PM</td>
<td>AAS Poster</td>
<td>103</td>
</tr>
<tr>
<td>Mon 9:20 AM 06:30 PM</td>
<td>AAS Poster</td>
<td>104</td>
</tr>
<tr>
<td>Mon 9:20 AM 06:30 PM</td>
<td>AAS Poster</td>
<td>105</td>
</tr>
<tr>
<td>Mon 9:20 AM 05:00 PM</td>
<td>Attendee Services</td>
<td>106</td>
</tr>
<tr>
<td>Mon 9:20 AM 05:00 PM</td>
<td>Attendee Services</td>
<td>107</td>
</tr>
<tr>
<td>Mon 9:30 AM 10:30 AM</td>
<td>AAPT Event</td>
<td>108</td>
</tr>
<tr>
<td>Mon 9:30 AM 11:00 AM</td>
<td>Commercial Workshop</td>
<td>109</td>
</tr>
<tr>
<td>Mon 9:30 AM 11:00 AM</td>
<td>Commercial Workshop</td>
<td>110</td>
</tr>
<tr>
<td>Mon 10:00 AM 11:30 AM</td>
<td>AAS Special</td>
<td>111</td>
</tr>
<tr>
<td>Mon 10:00 AM 11:30 AM</td>
<td>AAS Special</td>
<td>112</td>
</tr>
<tr>
<td>Mon 10:00 AM 11:30 AM</td>
<td>AAS Oral</td>
<td>113</td>
</tr>
<tr>
<td>Mon 10:00 AM 11:30 AM</td>
<td>AAS Oral</td>
<td>114</td>
</tr>
<tr>
<td>Mon 10:00 AM 11:30 AM</td>
<td>AAS Oral</td>
<td>115</td>
</tr>
<tr>
<td>Mon 10:00 AM 11:30 AM</td>
<td>AAS Oral</td>
<td>116</td>
</tr>
<tr>
<td>Mon 10:00 AM 11:30 AM</td>
<td>AAS Oral</td>
<td>117</td>
</tr>
<tr>
<td>Mon 10:00 AM 11:30 AM</td>
<td>AAS Oral</td>
<td>118</td>
</tr>
<tr>
<td>Mon 10:00 AM 11:30 AM</td>
<td>AAS Oral</td>
<td>119</td>
</tr>
<tr>
<td>Mon 10:00 AM 11:30 AM</td>
<td>AAS Oral</td>
<td>120</td>
</tr>
<tr>
<td>Mon 10:00 AM 11:30 AM</td>
<td>AAS Oral</td>
<td>121</td>
</tr>
<tr>
<td>Mon 10:00 AM 11:30 AM</td>
<td>AAPT Invited</td>
<td>122</td>
</tr>
<tr>
<td>Mon 10:00 AM 11:30 AM</td>
<td>AAPT Special</td>
<td>123</td>
</tr>
<tr>
<td>Mon 10:00 AM 11:30 AM</td>
<td>AAPT Special</td>
<td>124</td>
</tr>
</tbody>
</table>
## Schedule of Events

<table>
<thead>
<tr>
<th>Start Time</th>
<th>End Time</th>
<th>Event Type</th>
<th>Session Number</th>
<th>Session/Event Title</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mon 10:00 AM</td>
<td>11:30 AM</td>
<td>AAPT Special</td>
<td>120</td>
<td>Significant Advances in Low Temperature Physics</td>
<td>307-08</td>
</tr>
<tr>
<td>Mon 10:00 AM</td>
<td>11:30 AM</td>
<td>AAPT Oral</td>
<td>121</td>
<td>SPS Undergraduate Research Outreach</td>
<td>617</td>
</tr>
<tr>
<td>Mon 11:40 AM</td>
<td>12:30 PM</td>
<td>Plenary</td>
<td>122</td>
<td>Warner Prize for Astronomy</td>
<td>Ballroom 6</td>
</tr>
<tr>
<td>Mon 12:30 PM</td>
<td>02:00 PM</td>
<td>AAS Splinter Meeting</td>
<td>123</td>
<td>Accessing and Using Sloan Digital Sky Survey Data</td>
<td>608</td>
</tr>
<tr>
<td>Mon 12:45 PM</td>
<td>01:45 PM</td>
<td>AAS Town Hall Meeting</td>
<td>124</td>
<td>Extended FUSE Operations Beyond FY08</td>
<td>607</td>
</tr>
<tr>
<td>Mon 01:00 PM</td>
<td>02:00 PM</td>
<td>AAPT Invited</td>
<td>125</td>
<td>NASA Town Hall</td>
<td>6B</td>
</tr>
<tr>
<td>Mon 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Special</td>
<td>126</td>
<td>NRAO Town Meeting</td>
<td>6A</td>
</tr>
<tr>
<td>Mon 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Special</td>
<td>127</td>
<td>Presidential Address and Awards Presentation</td>
<td>Ballroom 6</td>
</tr>
<tr>
<td>Mon 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
<td>128</td>
<td>Formation and Detection of Habitable Planets</td>
<td>611-12</td>
</tr>
<tr>
<td>Mon 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
<td>129</td>
<td>Galactic and Extragalactic Surveys Using AzTEC</td>
<td>204</td>
</tr>
<tr>
<td>Mon 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
<td>130</td>
<td>Job Applicants: Top 10 Questions You Should Ask</td>
<td>201</td>
</tr>
<tr>
<td>Mon 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
<td>131</td>
<td>Circumstellar Disks: Not So Early</td>
<td>608-10</td>
</tr>
<tr>
<td>Mon 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
<td>132</td>
<td>Education Across the Spectrum</td>
<td>605-07</td>
</tr>
<tr>
<td>Mon 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
<td>133</td>
<td>Galaxy Clusters II</td>
<td>6B</td>
</tr>
<tr>
<td>Mon 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
<td>134</td>
<td>Instrumentation for Ground-Based and Airborne Observatories</td>
<td>3B</td>
</tr>
<tr>
<td>Mon 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
<td>135</td>
<td>Pulsars and White Dwarfs II</td>
<td>3A</td>
</tr>
<tr>
<td>Mon 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
<td>136</td>
<td>UDF, GOODS and High Redshift Galaxies</td>
<td>613-14</td>
</tr>
<tr>
<td>Mon 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
<td>137</td>
<td>YSOs and Early Type Stars</td>
<td>6A</td>
</tr>
<tr>
<td>Mon 02:00 PM</td>
<td>03:30 PM</td>
<td>AAPT Invited</td>
<td>138</td>
<td>Recruiting the Next Generation of Physics Teachers</td>
<td>310</td>
</tr>
<tr>
<td>Mon 02:00 PM</td>
<td>03:30 PM</td>
<td>AAPT Invited</td>
<td>139</td>
<td>Student Difficulties with Mathematics in Upper-Division Physics</td>
<td>307-08</td>
</tr>
<tr>
<td>Mon 02:00 PM</td>
<td>03:30 PM</td>
<td>AAPT Oral</td>
<td>140</td>
<td>Physics Teaching Around the World</td>
<td>619</td>
</tr>
<tr>
<td>Mon 02:00 PM</td>
<td>03:30 PM</td>
<td>AAPT Oral</td>
<td>141</td>
<td>Undergraduates Research Astronomy and Physics</td>
<td>616</td>
</tr>
<tr>
<td>Mon 02:00 PM</td>
<td>03:30 PM</td>
<td>AAPT Crackerbarrel</td>
<td>142</td>
<td>Professional Concerns of Women in Physics Crackerbarrel</td>
<td>615</td>
</tr>
<tr>
<td>Mon 02:00 PM</td>
<td>03:30 PM</td>
<td>AAPT Crackerbarrel</td>
<td></td>
<td>The Double Simplex: Envisioning Particles &amp; Interactions</td>
<td>618</td>
</tr>
<tr>
<td>Mon 03:30 PM</td>
<td>04:30 PM</td>
<td>AAPT Event</td>
<td></td>
<td>Nominating Committee III (closed)</td>
<td>608</td>
</tr>
<tr>
<td>Mon 03:40 PM</td>
<td>04:30 PM</td>
<td>Plenary</td>
<td>143</td>
<td>Hypervelocity Stars</td>
<td>Ballroom 6</td>
</tr>
<tr>
<td>Mon 04:40 PM</td>
<td>05:30 PM</td>
<td>Plenary</td>
<td>144</td>
<td>Probing the Gas Content of Galaxy Groups: A Radio Perspective</td>
<td>Ballroom 6</td>
</tr>
<tr>
<td>Mon 06:00 PM</td>
<td>08:00 PM</td>
<td>AAPT Invited</td>
<td>145</td>
<td>Hot Topics in Nanoscience</td>
<td>616</td>
</tr>
<tr>
<td>Mon 06:00 PM</td>
<td>08:00 PM</td>
<td>AAPT Invited</td>
<td>146</td>
<td>Learning Sciences and Learning Technologies: A Convergence</td>
<td>303</td>
</tr>
<tr>
<td>Mon 06:00 PM</td>
<td>08:00 PM</td>
<td>AAPT Invited</td>
<td>147</td>
<td>Women Using Physics: Alternative Career Paths</td>
<td>615</td>
</tr>
<tr>
<td>Start Time</td>
<td>End Time</td>
<td>Event Type</td>
<td>Session Number</td>
<td>Session/Event Title</td>
<td>Location</td>
</tr>
<tr>
<td>-----------</td>
<td>---------</td>
<td>------------------</td>
<td>----------------</td>
<td>------------------------------------------------------------------------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>Mon 06:00 PM</td>
<td>08:00 PM</td>
<td>AAPT Special</td>
<td>143</td>
<td>Electronic Journaling: Fostering Reflection &amp; Building Community</td>
<td>310</td>
</tr>
<tr>
<td>Mon 06:00 PM</td>
<td>08:00 PM</td>
<td>AAPT Oral</td>
<td>144</td>
<td>Bringing Physics by Inquiry to K-12 Classrooms, Part I</td>
<td>211</td>
</tr>
<tr>
<td>Mon 06:00 PM</td>
<td>08:00 PM</td>
<td>AAPT Oral</td>
<td>145</td>
<td>Students’ Use of Mathematics in Physics Contexts</td>
<td>307-08</td>
</tr>
<tr>
<td>Mon 06:00 PM</td>
<td>08:00 PM</td>
<td>AAPT Poster</td>
<td>146</td>
<td>Apparatus for Astronomy Education</td>
<td>617</td>
</tr>
<tr>
<td>Mon 06:00 PM</td>
<td>07:30 PM</td>
<td>AAS Splinter Meeting</td>
<td></td>
<td>CTIO Blanco Telescope Dark Energy Camera</td>
<td>611</td>
</tr>
<tr>
<td>Mon 06:00 PM</td>
<td>08:00 PM</td>
<td>AAS Splinter Meeting</td>
<td></td>
<td>Future of NASA Scientific Ballooning in Astronomical Research</td>
<td>6A</td>
</tr>
<tr>
<td>Mon 06:00 PM</td>
<td>09:00 PM</td>
<td>AAS Town Hall Meeting</td>
<td></td>
<td>Meet JWST Reception and Talks</td>
<td>6E</td>
</tr>
<tr>
<td>Mon 06:30 PM</td>
<td>07:30 PM</td>
<td>AAS Event</td>
<td></td>
<td>Graduate Student - Employer Networking</td>
<td>N. Galleria Lobby - 2nd Floor</td>
</tr>
<tr>
<td>Mon 07:00 PM</td>
<td>09:30 PM</td>
<td>AAS Splinter Meeting</td>
<td></td>
<td>Herschel: The Coming of Observing Opportunities</td>
<td>605-07</td>
</tr>
<tr>
<td>Mon 08:00 PM</td>
<td>09:30 PM</td>
<td>AAPT Event</td>
<td></td>
<td>Educational Technologies Committee</td>
<td>303</td>
</tr>
<tr>
<td>Mon 08:00 PM</td>
<td>09:30 PM</td>
<td>AAPT Event</td>
<td></td>
<td>Goals Planning Meeting</td>
<td>210</td>
</tr>
<tr>
<td>Mon 08:00 PM</td>
<td>09:30 PM</td>
<td>AAPT Event</td>
<td></td>
<td>Interest of Senior Physicists Committee</td>
<td>212</td>
</tr>
<tr>
<td>Mon 08:00 PM</td>
<td>09:30 PM</td>
<td>AAPT Event</td>
<td></td>
<td>International Education Committee</td>
<td>214</td>
</tr>
<tr>
<td>Mon 08:00 PM</td>
<td>09:30 PM</td>
<td>AAPT Event</td>
<td></td>
<td>Laboratories Committee</td>
<td>211</td>
</tr>
<tr>
<td>Mon 08:00 PM</td>
<td>09:30 PM</td>
<td>AAPT Event</td>
<td></td>
<td>Minorities in Physics Committee</td>
<td>616</td>
</tr>
<tr>
<td>Mon 08:00 PM</td>
<td>09:30 PM</td>
<td>AAPT Event</td>
<td></td>
<td>Pre-High School Committee</td>
<td>615</td>
</tr>
<tr>
<td>Mon 08:00 PM</td>
<td>09:30 PM</td>
<td>AAPT Event</td>
<td></td>
<td>Professional Concerns Committee</td>
<td>213</td>
</tr>
<tr>
<td>Mon 08:00 PM</td>
<td>09:30 PM</td>
<td>AAPT Event</td>
<td></td>
<td>Research in Physics Ed Committee</td>
<td>307-08</td>
</tr>
<tr>
<td>Mon 08:00 PM</td>
<td>09:30 PM</td>
<td>AAPT Event</td>
<td></td>
<td>Science Ed for the Public Committee</td>
<td>620</td>
</tr>
<tr>
<td>Mon 08:00 PM</td>
<td>09:30 PM</td>
<td>AAPT Event</td>
<td></td>
<td>Undergraduate Ed Committee</td>
<td>617</td>
</tr>
</tbody>
</table>

**Tuesday, January 09, 2007**

<table>
<thead>
<tr>
<th>Start Time</th>
<th>End Time</th>
<th>Event Type</th>
<th>Session Number</th>
<th>Session/Event Title</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tue 7:00 AM</td>
<td>9:00 AM</td>
<td>AAPT Event</td>
<td></td>
<td>Programs II</td>
<td>620</td>
</tr>
<tr>
<td>Tue 7:30 AM</td>
<td>06:00 PM</td>
<td>Attendee Services</td>
<td></td>
<td>Speaker Ready Room</td>
<td>603-04</td>
</tr>
<tr>
<td>Tue 8:00 AM</td>
<td>05:00 PM</td>
<td>Attendee Services</td>
<td></td>
<td>Registration</td>
<td>South Lobby</td>
</tr>
<tr>
<td>Tue 8:00 AM</td>
<td>06:30 PM</td>
<td>Attendee Services</td>
<td></td>
<td>Cyber Café</td>
<td>South Lobby</td>
</tr>
<tr>
<td>Tue 8:30 AM</td>
<td>9:20 AM</td>
<td>Plenary</td>
<td>147</td>
<td>Supernova Neutrino Astrophysics</td>
<td>Ballroom 6</td>
</tr>
<tr>
<td>Tue 9:00 AM</td>
<td>10:00 AM</td>
<td>AAPT Event</td>
<td></td>
<td>Venture Fund</td>
<td>507</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAPT Poster</td>
<td>148</td>
<td>Poster Session III</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
<td>149</td>
<td>AGNs, QSOs and Active Galaxies 2</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
<td>150</td>
<td>And Yet More Supernovae</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
<td>151</td>
<td>Binary Stars</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
<td>152</td>
<td>Extrasolar Planets V: Host Stars</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Start Time</td>
<td>End Time</td>
<td>Event Type</td>
<td>Session Number</td>
<td>Session/Event Title</td>
<td>Location</td>
</tr>
<tr>
<td>------------</td>
<td>-----------</td>
<td>------------------</td>
<td>----------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
<td>153</td>
<td>GLAST</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
<td>154</td>
<td>Ground-Based Instrumentation III</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
<td>155</td>
<td>Observations and Models of Extragalactic LMXBs</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
<td>156</td>
<td>Planetary Nebulae &amp; Supernova Remnants</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
<td>157</td>
<td>Professional Development for Scientists and Educators</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
<td>158</td>
<td>Properties of Hot Stars</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
<td>159</td>
<td>Pulsars</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
<td>160</td>
<td>SAGE</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
<td>161</td>
<td>Science from the NDWFS Bootes Field</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
<td>162</td>
<td>Search for Variables Through Surveys, Databases and Archives</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
<td>163</td>
<td>Extrasolar Planets VI: Observed Systems</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
<td>164</td>
<td>Space-Based Instrumentation I</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
<td>165</td>
<td>Star Clusters III</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
<td>166</td>
<td>Tests of Gravity, and Alternative Theories of Gravity</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
<td>167</td>
<td>Stars, Gas and their Motions in Dwarfs and Irregulars</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
<td>168</td>
<td>Stellar Populations II</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
<td>169</td>
<td>Extrasolar Planets VII: Surveys</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
<td>170</td>
<td>The Undergraduate Astronomy Course for Non-Majors</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
<td>171</td>
<td>UDF and DEEP2</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
<td>172</td>
<td>The Milky Way</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
<td>173</td>
<td>Instrumentation and Community Analysis</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Poster</td>
<td>174</td>
<td>Impact of Intelligent Design and Responses to It</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Special</td>
<td>175</td>
<td>Observations and Models of Extragalactic LMXBs</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>HEAD Special</td>
<td>176</td>
<td>GLAST Science and Opportunities at All Wavelengths</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Oral</td>
<td>177</td>
<td>Andromeda All the Time</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Oral</td>
<td>178</td>
<td>Dwarf Galaxies: Don’t Let Their Size Fool You</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Oral</td>
<td>179</td>
<td>Extrasolar Planets I</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Tue 9:20 AM</td>
<td>06:30 PM</td>
<td>AAS Oral</td>
<td>180</td>
<td>Galaxy Clusters III</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Start Time</td>
<td>End Time</td>
<td>Event Type</td>
<td>Session Number</td>
<td>Session/Event Title</td>
<td>Location</td>
</tr>
<tr>
<td>------------</td>
<td>------------</td>
<td>--------------------</td>
<td>----------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Tue 10:00 AM</td>
<td>11:30 AM</td>
<td>AAS Oral</td>
<td>181</td>
<td>Galaxy Evolution with DEEP2</td>
<td>608-10</td>
</tr>
<tr>
<td>Tue 10:00 AM</td>
<td>11:30 AM</td>
<td>AAS Oral</td>
<td>182</td>
<td>Novae/Cataclysmic Variables</td>
<td>6A</td>
</tr>
<tr>
<td>Tue 10:00 AM</td>
<td>11:30 AM</td>
<td>AAS Oral</td>
<td>183</td>
<td>SDSS and GALEX</td>
<td>3A</td>
</tr>
<tr>
<td>Tue 10:00 AM</td>
<td>11:30 AM</td>
<td>AAPT Panel</td>
<td>184</td>
<td>Helping Faculty/Teachers Become More Adept at Working with Under-represented Groups</td>
<td>615</td>
</tr>
<tr>
<td>Tue 10:00 AM</td>
<td>11:30 AM</td>
<td>AAPT Panel</td>
<td>185</td>
<td>NAEP Science 2009: Why Should Physics Teachers Care?</td>
<td>310</td>
</tr>
<tr>
<td>Tue 10:00 AM</td>
<td>11:30 AM</td>
<td>AAPT Special</td>
<td>186</td>
<td>1957: the Legacy of Sputnik</td>
<td>303</td>
</tr>
<tr>
<td>Tue 10:00 AM</td>
<td>11:30 AM</td>
<td>AAPT Special</td>
<td>187</td>
<td>Virtual Observatories</td>
<td>618</td>
</tr>
<tr>
<td>Tue 10:00 AM</td>
<td>11:30 AM</td>
<td>AAPT Oral</td>
<td>188</td>
<td>PER: Student Understanding and Student Reasoning</td>
<td>307-08</td>
</tr>
<tr>
<td>Tue 10:00 AM</td>
<td>11:30 AM</td>
<td>AAPT Oral</td>
<td>189</td>
<td>Techniques in Introductory Physics Teaching</td>
<td>616</td>
</tr>
<tr>
<td>Tue 10:00 AM</td>
<td>11:00 AM</td>
<td>AAPT Event</td>
<td></td>
<td>Lotze Scholarship Committee</td>
<td>508</td>
</tr>
<tr>
<td>Tue 11:40 AM</td>
<td>12:30 PM</td>
<td>Plenary</td>
<td>190</td>
<td>Heineman Prize Lecture</td>
<td>Ballroom 6</td>
</tr>
<tr>
<td>Tue 12:30 PM</td>
<td>02:00 PM</td>
<td>Commercial Workshop</td>
<td></td>
<td>Begin With Special Relativity</td>
<td>302</td>
</tr>
<tr>
<td>Tue 12:45 PM</td>
<td>01:45 PM</td>
<td>AAS Splinter Meeting</td>
<td></td>
<td>HEAD Business Meeting</td>
<td>609</td>
</tr>
<tr>
<td>Tue 12:45 PM</td>
<td>01:45 PM</td>
<td>AAS Town Hall Meeting</td>
<td></td>
<td>Decadal Survey Town Hall</td>
<td>613</td>
</tr>
<tr>
<td>Tue 01:00 PM</td>
<td>02:00 PM</td>
<td>AAPT Crackerbarrel</td>
<td></td>
<td>Astronomy Education Research Town Hall</td>
<td>620</td>
</tr>
<tr>
<td>Tue 01:00 PM</td>
<td>02:00 PM</td>
<td>AAPT Crackerbarrel</td>
<td></td>
<td>High Performance Computing for Undergraduate Physics and Astronomy - Let's talk about it</td>
<td>618</td>
</tr>
<tr>
<td>Tue 01:00 PM</td>
<td>02:00 PM</td>
<td>AAPT Crackerbarrel</td>
<td></td>
<td>Physics and Society Education</td>
<td>619</td>
</tr>
<tr>
<td>Tue 01:00 PM</td>
<td>02:00 PM</td>
<td>AAPT Event</td>
<td></td>
<td>AAPT Town Hall Meeting</td>
<td>617</td>
</tr>
<tr>
<td>Tue 01:00 PM</td>
<td>02:30 PM</td>
<td>AAPT Event</td>
<td></td>
<td>Awards Committee (closed)</td>
<td>507</td>
</tr>
<tr>
<td>Tue 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Special</td>
<td>191</td>
<td>Next Generation Radial Velocity Planet Surveys</td>
<td>3B</td>
</tr>
<tr>
<td>Tue 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Special</td>
<td>192</td>
<td>SAGE: Surveying the Agents of a Galaxy's Evolution</td>
<td>201</td>
</tr>
<tr>
<td>Tue 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Special</td>
<td>193</td>
<td>Science from the NDWFS Bootes Field</td>
<td>3A</td>
</tr>
<tr>
<td>Tue 02:00 PM</td>
<td>03:30 PM</td>
<td>HEAD Special</td>
<td>194</td>
<td>Short Gamma-Ray Bursts</td>
<td>205</td>
</tr>
<tr>
<td>Tue 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
<td>195</td>
<td>AGN, Starbursts and Sub-mm Galaxies</td>
<td>6C</td>
</tr>
<tr>
<td>Tue 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
<td>196</td>
<td>Extrasolar Planets III</td>
<td>605-07</td>
</tr>
<tr>
<td>Tue 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
<td>197</td>
<td>Galaxy Clusters IV</td>
<td>608-10</td>
</tr>
<tr>
<td>Tue 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
<td>198</td>
<td>ISM/Star Formation</td>
<td>611-12</td>
</tr>
<tr>
<td>Tue 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
<td>199</td>
<td>Kinematics of Galaxies - Internal and External</td>
<td>204</td>
</tr>
<tr>
<td>Tue 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
<td>200</td>
<td>Supernovae Ia, Ib, Ic &amp; II</td>
<td>613-14</td>
</tr>
<tr>
<td>Tue 02:00 PM</td>
<td>03:30 PM</td>
<td>AAPT Invited</td>
<td>201</td>
<td>Effective Mentoring of Women and Minority Students in Physics and Astronomy</td>
<td>615</td>
</tr>
<tr>
<td>Start Time</td>
<td>End Time</td>
<td>Event Type</td>
<td>Session Number</td>
<td>Session/Event Title</td>
<td>Location</td>
</tr>
<tr>
<td>------------</td>
<td>----------</td>
<td>-----------------</td>
<td>----------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>Tue 02:00 PM</td>
<td>03:30 PM</td>
<td>AAPT Invited</td>
<td>202</td>
<td>Visualizing and Simulating the Cosmos with Computers</td>
<td>616</td>
</tr>
<tr>
<td>Tue 02:00 PM</td>
<td>03:30 PM</td>
<td>AAPT Panel</td>
<td>203</td>
<td>Panel on Choosing a Keypad System</td>
<td>303</td>
</tr>
<tr>
<td>Tue 02:00 PM</td>
<td>03:40 PM</td>
<td>AAPT Special</td>
<td>204</td>
<td>University Supervisors and Cooperating Teachers: Their Critical Roles for Student Teaching</td>
<td>310</td>
</tr>
<tr>
<td>Tue 02:00 PM</td>
<td>03:30 PM</td>
<td>AAPT Oral</td>
<td>205</td>
<td>Implementing Reform Instruction</td>
<td>307-08</td>
</tr>
<tr>
<td>Tue 02:00 PM</td>
<td>03:30 PM</td>
<td>AAPT Event</td>
<td></td>
<td>Nominating Committee IV (closed)</td>
<td>508</td>
</tr>
<tr>
<td>Tue 03:40 PM</td>
<td>04:30 PM</td>
<td>Plenary</td>
<td>206</td>
<td>Stardust Mission</td>
<td>Ballroom 6</td>
</tr>
<tr>
<td>Tue 04:40 PM</td>
<td>05:30 PM</td>
<td>Plenary</td>
<td>207</td>
<td>Richtmyer Memorial Lecture</td>
<td>Ballroom 6</td>
</tr>
<tr>
<td>Tue 07:15 PM</td>
<td>09:30 PM</td>
<td>Joint Event</td>
<td></td>
<td>Banquet</td>
<td>Sheraton</td>
</tr>
<tr>
<td>Wed 7:30 AM</td>
<td>04:00 PM</td>
<td>Attendee Services</td>
<td></td>
<td>Speaker Ready Room</td>
<td>603-04</td>
</tr>
<tr>
<td>Wed 8:00 AM</td>
<td>02:00 PM</td>
<td>Attendee Services</td>
<td></td>
<td>Registration</td>
<td>South Lobby</td>
</tr>
<tr>
<td>Wed 8:00 AM</td>
<td>03:30 PM</td>
<td>Attendee Services</td>
<td></td>
<td>Cyber Café</td>
<td>South Lobby</td>
</tr>
<tr>
<td>Wed 8:30 AM</td>
<td>04:00 PM</td>
<td>Attendee Services</td>
<td></td>
<td>Rossi Prize Lecture</td>
<td>Ballroom 6</td>
</tr>
<tr>
<td>Wed 9:20 AM</td>
<td>04:00 PM</td>
<td>AAS Poster</td>
<td>209</td>
<td>Poster Session IV</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Wed 9:20 AM</td>
<td>04:00 PM</td>
<td>AAS Poster</td>
<td>210</td>
<td>Space-Based Instrumentation II</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Wed 9:20 AM</td>
<td>04:00 PM</td>
<td>AAS Poster</td>
<td>211</td>
<td>Studying Galaxy Evolution with Nearby Galaxies</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Wed 9:20 AM</td>
<td>04:00 PM</td>
<td>AAS Poster</td>
<td>212</td>
<td>Gamma-Ray Bursts</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Wed 9:20 AM</td>
<td>04:00 PM</td>
<td>AAS Poster</td>
<td>213</td>
<td>How To ... Resources for Scientist Educators</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Wed 9:20 AM</td>
<td>04:00 PM</td>
<td>AAS Poster</td>
<td>214</td>
<td>It's All About Clear Skies</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Wed 9:20 AM</td>
<td>04:00 PM</td>
<td>AAS Poster</td>
<td>215</td>
<td>Optical Cluster Finding</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Wed 9:20 AM</td>
<td>04:00 PM</td>
<td>AAS Poster</td>
<td>216</td>
<td>Modelling Variable and Binary Stars</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Wed 9:20 AM</td>
<td>04:00 PM</td>
<td>AAS Poster</td>
<td>217</td>
<td>Starbursts &amp; Interacting Galaxies</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Wed 9:20 AM</td>
<td>04:00 PM</td>
<td>AAS Poster</td>
<td>218</td>
<td>The 3Ts: Telescopes, Technologies and Techniques for Astronomy Education</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Wed 9:20 AM</td>
<td>04:00 PM</td>
<td>AAS Poster</td>
<td>219</td>
<td>YSO / Star Formation III</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Wed 9:20 AM</td>
<td>04:00 PM</td>
<td>AAS Poster</td>
<td>220</td>
<td>Fortune and Fame: Fellowships, Textbooks, Cartoons</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Wed 9:20 AM</td>
<td>12:00 PM</td>
<td>Attendee Services</td>
<td></td>
<td>Job Center</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Wed 9:20 AM</td>
<td>01:00 PM</td>
<td>Attendee Services</td>
<td></td>
<td>Gadgets and Gizmos</td>
<td>South Lobby</td>
</tr>
<tr>
<td>Wed 10:00 AM</td>
<td>11:30 AM</td>
<td>AAS Special</td>
<td>221</td>
<td>Biology of Astrobiology I Extremes of Earth Life</td>
<td>611-12</td>
</tr>
<tr>
<td>Wed 10:00 AM</td>
<td>11:30 AM</td>
<td>AAS Special</td>
<td>222</td>
<td>Optical Cluster Finding: SDSS, RCS, DEEP</td>
<td>613-14</td>
</tr>
<tr>
<td>Wed 10:00 AM</td>
<td>11:30 AM</td>
<td>AAS Oral</td>
<td>223</td>
<td>AGN General Properties and Relativistic Jet Acceleriation.</td>
<td>6A</td>
</tr>
<tr>
<td>Wed 10:00 AM</td>
<td>11:30 AM</td>
<td>AAS Oral</td>
<td>224</td>
<td>CMB Theory and 21 cm Cosmology</td>
<td>6B</td>
</tr>
<tr>
<td>Start Time</td>
<td>End Time</td>
<td>Event Type</td>
<td>Session Number</td>
<td>Session/Event Title</td>
<td>Location</td>
</tr>
<tr>
<td>------------</td>
<td>----------</td>
<td>------------</td>
<td>----------------</td>
<td>---------------------</td>
<td>----------</td>
</tr>
<tr>
<td>Wed 10:00 AM</td>
<td>11:30 AM</td>
<td>AAS Oral</td>
<td>225</td>
<td>COSMOS and Other Surveys</td>
<td>605-07</td>
</tr>
<tr>
<td>Wed 10:00 AM</td>
<td>11:30 AM</td>
<td>AAS Oral</td>
<td>226</td>
<td>Extrasolar Planets II</td>
<td>608-10</td>
</tr>
<tr>
<td>Wed 10:00 AM</td>
<td>11:30 AM</td>
<td>AAS Oral</td>
<td>227</td>
<td>Gamma-Ray Bursts</td>
<td>3B</td>
</tr>
<tr>
<td>Wed 10:00 AM</td>
<td>11:30 AM</td>
<td>AAS Oral</td>
<td>228</td>
<td>Star Clusters I</td>
<td>204</td>
</tr>
<tr>
<td>Wed 10:00 AM</td>
<td>11:30 AM</td>
<td>AAS Oral</td>
<td>229</td>
<td>The Supernova Legacy Survey and other SN Ia Surveys</td>
<td>3A</td>
</tr>
<tr>
<td>Wed 10:00 AM</td>
<td>11:30 AM</td>
<td>AAS Oral</td>
<td>230</td>
<td>Variable and Binary Stars</td>
<td>201</td>
</tr>
<tr>
<td>Wed 10:00 AM</td>
<td>11:30 AM</td>
<td>AAS Oral</td>
<td>231</td>
<td>Physics in Art and Art in Physics</td>
<td>211</td>
</tr>
<tr>
<td>Wed 10:00 AM</td>
<td>11:30 AM</td>
<td>AAS Oral</td>
<td>232</td>
<td>Demonstrations for Teaching Astronomy</td>
<td>617</td>
</tr>
<tr>
<td>Wed 10:00 AM</td>
<td>11:30 AM</td>
<td>AAS Oral</td>
<td>233</td>
<td>Bringing Physics by Inquiry to K-12 Classrooms, Part II</td>
<td>303</td>
</tr>
<tr>
<td>Wed 10:00 AM</td>
<td>11:30 AM</td>
<td>AAS Oral</td>
<td>234</td>
<td>Introductory Physics Curriculum and Delivery</td>
<td>616</td>
</tr>
<tr>
<td>Wed 10:00 AM</td>
<td>11:30 AM</td>
<td>AAS Oral</td>
<td>235</td>
<td>Teacher Learning</td>
<td>310</td>
</tr>
<tr>
<td>Wed 11:40 AM</td>
<td>12:30 PM</td>
<td>Plenary</td>
<td>236</td>
<td>Cannon Award in Astronomy</td>
<td>Ballroom 6</td>
</tr>
<tr>
<td>Wed 12:30 PM</td>
<td>01:00 PM</td>
<td>AAPT Event</td>
<td></td>
<td>Great Book Giveaway</td>
<td>Exhibit Hall 4</td>
</tr>
<tr>
<td>Wed 12:30 PM</td>
<td>03:00 PM</td>
<td>AAPT Event</td>
<td></td>
<td>1st Annual AAPT Symposium on Physics Education</td>
<td>618-20</td>
</tr>
<tr>
<td>Wed 12:45 PM</td>
<td>01:45 PM</td>
<td>AAS Town Hall Meeting</td>
<td></td>
<td>Revealing the Hidden Nature of Space and Time (EPP2010)</td>
<td>609</td>
</tr>
<tr>
<td>Wed 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Special</td>
<td>237</td>
<td>Biology of Astrobiology II History of Earth's Life</td>
<td>611-12</td>
</tr>
<tr>
<td>Wed 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Special</td>
<td>238</td>
<td>Ground-Based Mid-IR Astronomy in the Spitzer Era</td>
<td>613-14</td>
</tr>
<tr>
<td>Wed 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
<td>239</td>
<td>AGN Jets</td>
<td>3B</td>
</tr>
<tr>
<td>Wed 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
<td>240</td>
<td>CMB-Experiments</td>
<td>6A</td>
</tr>
<tr>
<td>Wed 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
<td>241</td>
<td>Extrasolar Planets IV</td>
<td>605-07</td>
</tr>
<tr>
<td>Wed 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
<td>242</td>
<td>Milky Way Topics</td>
<td>3A</td>
</tr>
<tr>
<td>Wed 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
<td>243</td>
<td>SNR, Cosmic Rays and Neutron Stars</td>
<td>201</td>
</tr>
<tr>
<td>Wed 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
<td>244</td>
<td>Star Clusters II</td>
<td>204</td>
</tr>
<tr>
<td>Wed 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
<td>245</td>
<td>Instructional Technology in Physics and Astronomy Courses</td>
<td>303</td>
</tr>
<tr>
<td>Wed 02:00 PM</td>
<td>03:30 PM</td>
<td>AAS Oral</td>
<td>246</td>
<td>Physics and Society Education</td>
<td>617</td>
</tr>
<tr>
<td>Wed 02:00 PM</td>
<td>03:30 PM</td>
<td>AAPT Oral</td>
<td>247</td>
<td>Teacher Professional Development Programs and Assessments</td>
<td>310</td>
</tr>
<tr>
<td>Wed 02:00 PM</td>
<td>03:30 PM</td>
<td>AAPT Oral</td>
<td>248</td>
<td>Theoretical and Diagnostic Issues</td>
<td>307-08</td>
</tr>
<tr>
<td>Wed 03:40 PM</td>
<td>04:30 PM</td>
<td>Plenary</td>
<td>249</td>
<td>Oersted Medal Lecture</td>
<td>Ballroom 6</td>
</tr>
<tr>
<td>Wed 04:40 PM</td>
<td>05:30 PM</td>
<td>Plenary</td>
<td>250</td>
<td>New Planets</td>
<td>Ballroom 6</td>
</tr>
<tr>
<td>Wed 05:30 PM</td>
<td>09:30 PM</td>
<td>AAPT Event</td>
<td></td>
<td>Executive Board III</td>
<td>Douglas Board-room, Grand Hyatt</td>
</tr>
</tbody>
</table>
**FRIDAY**

**W01 Video Based Motion Analysis for Homework and Classroom**
AAPT Workshop, Friday, 8:00am-12:00pm, UW PAB B108
This workshop is for physics teachers who wish to explore the use of video-based motion analysis in a wide range of applications including the teaching laboratory, projects and homework. Participants will learn how to make digital video clips for analysis, as well as how to use video analysis for homework problems and in the classroom. We will discuss educationally effective uses of video analysis being developed in the LivePhoto Physics project, the Workshop Physics project and in other settings. Evaluation copies of analysis software, selected digital video clips and homework assignments will be provided to the participants for their use after the workshop. The software used in this workshop is available for both Mac and Windows computers. Participants in this workshop may find that some prior, hands-on experience with basic video analysis using software such as VideoPoint or VideoGraph will be helpful but is not required. (Format: Mac/PC)

Chair, Robert Teese¹
¹Rochester Institute of Technology.

**W02 Building TYC/University Partnerships in Teacher Preparation**
AAPT Workshop, Friday, 8:00am-12:00pm, 306
Half of our K-12 teachers begin their educations at two-year colleges. Whether you are trying to start a program at your TYC or trying to forge links between your university and TYCs in your area, you can learn new ideas and share your own at this workshop. Green River CC’s Project TEACH has been hailed as a national model for teacher prep by the NSF, AAPT, AACC, and the National Association of Community College Teacher Education Programs. Hear from Project TEACH founder and physics teacher Keith Clay, Project TEACH Center Director Leslie Heizer, Central Washington University partner Bruce Palmquist, and GRCC grant-writing guru Anne Baunach how this project grew from an idea into million-dollar grants and then into an institutionalized part of our college, our partner university, and our state community and technical college system.

Chair, Keith Clay¹
¹Green River Community College.

**W03 Intuitive Quantum Physics for Non-Science Majors**
AAPT Workshop, Friday, 8:00am-12:00pm, 309
Our course is designed to help students with little mathematics and science background gain an understanding of some of the basic ideas and results of quantum physics. Where possible, we have students build an understanding of physics from easily observable phenomena, giving students touchstone concepts to use when dealing with more complicated topics. The course contains three instructional units in which students develop skills prerequisite to understanding quantum physics, create a “toolbox” with which to study the quantum world, and discuss applications of quantum physics. Concepts studied in the course include: superposition and interference, wave-particle duality, probability, energy, bound states, and tunneling. We use little algebra and emphasize graphical analysis and qualitative reasoning. Most material is introduced in three-hour lab-tutorial periods. The lab-tutorial includes individual, small-group, and large-group (full class) activities. Participants will work through activities, discuss instructional formats, and get a full set of lab-tutorials.

Chair, Michael Wittmann¹
¹University of Maine.

**W04 Grant Opportunities for Two-Year Colleges, Part 2**
AAPT Workshop, Friday, 8:00am-12:00pm, UW PAB B110
This workshop is a continuation of Grant Opportunities for Two-Year Colleges Part 1 offered at Syracuse. Participants need not have attended Part 1 in order to attend Part 2. Topics include locating funding sources, writing the proposal, building a budget, and how to revise for re-submission.

Chair, Steve Budd¹
¹Springfield Technical Community College.

**W05 Case Studies for the Laboratory**
AAPT Workshop, Friday, 8:00am-12:00pm, 212
Participants will be provided with four case study laboratory activities and work through one of them during the workshop. Participants will be asked to bring their own ideas for either a physics topic or case scenario to be developed into their own case. During the workshop participants will develop a first draft of the case notes and instructor notes.

Chair, Mary Creason¹
¹Duke University.
W06 Making Pretty Pictures: How Astronomers Make Images  
AAPT Workshop, Friday, 8:00am-12:00pm, 211  
Learn how astronomers make those great posters. LEARN TO MAKE YOUR OWN. This hands-on workshop is designed to increase students’ interest in astronomy and its many wonderful images, like the Crab Nebula. We will start with the basics of image processing and then learn how to use images with different filters from The STScI Digitized Sky Survey. We will learn how to manipulate color, stack, title the data and print the image using Photoshop Elements computer program. The next step will be to use data taken at Kitt Peak National observatory from NOAO’s TLRBSE program (each image is about 16 Mb fits image) to make a poster-size quality image. CD with directions/files will be distributed. Some knowledge of Photoshop Elements will be helpful but not required. If available bring USB memory stick. This workshop is a synthesis of information gained through Murdock’s Partners in Science, NOAO’s TLRBSE, Liftoff Summer institute.

Chair, David McDonald¹  
¹Sidney High School.

W07 Energy: What It Is, What It Isn’t, and How We Know  
AAPT Workshop, Friday, 8:00am-12:00pm, 310  
We will present a model “chapter on energy” for an introductory physics course. Then we will consider it both in parts and as a whole, showing where most such chapters currently in texts lack or differ. We will examine why they fail in the “How we know” department, why they seem unable to tell what energy “is,” and how they differ due to a number of “booby traps” that have currency in the physics teaching literature. These include confusion about friction and its place in energy conservation, the fundamental role of the Work-Energy principle in our understanding of energy. We will justify teaching energy within the framework of Newtonian physics, legitimizing the derivation of energy relations from Newton’s Laws, and what this implies. The discussions are illustrated with Flash-animated snippets, contained in a CD that participants take home. Examples are worked out by participants.

Chair, Walter Scheider¹  
¹Cavendish Science Organization.

W08 Physics of Supernovae  
AAPT Workshop, Friday, 8:00am-12:00pm, 307  
Supernovae explosions can be utilized as an exciting topic to begin a year of physics. The catastrophic destruction of stars involves topics and equations taught in physics. The electromagnetic spectrum, spectroscopy, scientific notation, gravitation, rotation, circular motion, the work-energy equation, the impulse-momentum relationship, phases of matter, and nuclear reactions are a few of the concepts that can be taught with supernovae events. This workshop will provide the materials and resources to introduce supernovae and stellar evolution into an existing physics curriculum. A PowerPoint presentation with images and animations with a separate descriptive text to introduce supernovae, and activities that range from pencil and paper to sophisticated image analysis software will be provided, along with a set of problems that use specific mathematical equations and relationships studied in a typical physics classroom. The problems will relate to supernovae, and can be inserted into an existing physics course at the instructor’s discretion. This workshop is being fully subsidized by Chandra X-Ray.

Chair, Donna L. Young¹  
¹Tufts University.

W09 Using Large Data Sets to Teach Astronomy  
AAPT Workshop, Friday, 8:00am-5:00pm, UW PAB B128  
In 2005, scientists collected more data than in all previous human history. Much of these data are online, including astronomy data for hundreds of millions of sky objects. Many of these datasets have teacher-friendly interfaces for viewing and searching their information, and many include lesson plans that guide students through the process of data discovery. I will show several projects that have tools that make data available to teachers, including the Sloan Digital Sky Survey and the National Virtual Observatory. I will also provide examples of lesson plans that teachers have designed that incorporate these data.

Chair, Jordan Raddick¹  
¹Johns Hopkins University.

W10 Problem Solving  
AAPT Workshop, Friday, 8:00am-5:00pm, 213  
Accumulating research on problem solving in physics clearly indicates that traditional end-of-chapter numerical exercises in physics texts are not useful, and may actually be counterproductive, for helping students learn important physics concepts. The research also raises significant questions
about the efficacy of such tasks for helping students develop “problem solving skills.” In light of these results the natural question is: What alternative tasks can we use to help our students develop problem solving skills and a legitimate conceptual understanding? This workshop will review the research and then provide examples of several alternative tasks and their use. The alternatives presented will run a gamut from tasks which can easily be incorporated into essentially any instructor’s current structure to those that require a restructuring of an instructor’s pedagogy.

Chair, Thomas M. Foster
1Southern Illinois University Edwardsville.

W11 InterActions in Physical Science: A Standards-based, Inquiry-oriented Middle School Curriculum
AAPT Workshop, Friday, 8:00am-5:00pm, 214
What is appropriate middle-school physical science? What content is required in middle-school to prepare students for high-school physics. Can it reflect the nature of scientific inquiry? What does the research-base tell us about the ability of the pre-high school student to learn physical science concepts? Do you work with prospective and in-service middle school science teachers and desire material that is inquiry-oriented and research based? These are some of the questions that the developers of InterActions in Physical Science considered during the development of this NSF-supported physical science curriculum. The primary aim of InterActions is to promote both a deep understanding of fundamental physical science concepts and the nature of scientific inquiry. The curriculum actively engages students in doing science by conducting interesting investigations and participating in sense-making discussions in small groups and with the whole class. InterActions achieves these goals by helping students to pose scientific questions, doing hands-on investigations, and making claims that they can support with evidence. In this session you will learn how this curriculum supports a classroom environment that engages students in doing science, learning how to make claims supported by evidence, and then persuading themselves and their peers that these claims are valid and useful ways of understanding the world around them.

Chair, Robert Poel
1Western Michigan University.

W12 Energy in the 21st Century
AAPT Workshop, Friday, 1:00-5:00pm, UW PAB B108
We have found that engaging students in predictions of what form and how much energy will be used in the future is a very successful way to generate enthusiasm and further investigation of physics. Participants of this workshop will be introduced by way of experience to two different group projects that involve designing energy systems. These modeling exercises look at past energy consumption patterns and develop a plan for energy usage in the 21st Century. Other considerations such as population, costs and efficiencies are also used to further expand the discussion and decision making that takes place.

Chair, Pat Keefe
1Clatsop Community College.
identify students’ understanding and reasoning such that a teacher can decide what might be troublesome about that thinking and address the specific difficulty with targeted instruction. While many teachers assess all the time, typically this means they identify whether the student has the “right” idea, and if not, the instruction presents more of the right idea. What we mean by a diagnostic learning environment closely parallels the diagnosis and prescription that a medical doctor does. The doctor doesn’t just find out that you are not healthy. She/he assesses to find out, as specifically as possible, what the trouble is and then prescribes treatment to address that specific difficulty. Participants of this workshop will learn about and experience a diagnostic learning environment. In addition, participants will learn about the Diagnoser Project’s free instructional tools to help diagnose pre-college student thinking.

Chair, Stamatis Vokos1
1Seattle Pacific University.

W14 General Relativity Labs
AAPT Workshop, Friday, 1:00-5:00pm, UW PAB B176
“A new generation of lab-based tests of gravity” The workshop will take place at the NPL/CENPA building on the Univ. Washington campus, and would involve both presentations and lab tours. We will discuss tests of Einstein’s Equivalence Principle, and of the Newtonian Inverse-square law at very small (less than 100 microns) and also large (orbit of the Moon) separations, as well astests involving quantum-mechanical spin. We will also give a presentation about LISA (proposed GravityWave Observatory in Space). Our experiments are primarily table-top and simple to understand without requiring much mathematical sophistication but the physics is really interesting and contemporary.
Co-leaders for this workshop are Eric Adelberger, Blayan Heckel, and Jens Gundlach.

Chair, Mary Creason1
1Duke University.

W15 Make Your Own Haunted Physics Lab
AAPT Workshop, Friday, 1:00-5:00pm, 212
“Hook” younger students into the physics lab and keep their attention for an afternoon with the promise of some spooky science. Once there, they and their parents are intrigued to find out how things really work. Come learn how to put together an attractive, stimulating experience for children and parents that has the added benefit of getting your students involved in physics in a way they never anticipated. Haunted Physics Labs can be set up at any level, elementary through university. Build some of your own displays and see many more in person. A DVD with activity sheets, instructions and photographs will be provided to each participant in addition to the materials to construct some airline-friendly interactive displays. See our HPL set up at an elementary school at http://www.physics.niu.edu/~frontier/wyp/hpl_pec/index.html Support for this workshop provided by Arbor Scientific.

Chair, Patricia Sievert1
1Northern Illinois University.

W16 Teaching Physics to Middle School Teachers with Light and Sound Toys
AAPT Workshop, Friday, 1:00-5:00pm, 204
This workshop is based on a physics course for middle school teachers using toys to introduce physics concepts (and lower anxiety). The hands-on activities support a constructivist approach to teaching, emphasizing collaboration, modelling and embedded assessments. Participants will make simple toys such as kaleidoscopes and acoustical phones, receive sample toys and a copy of the book by the presenter, “Toying With Physics, II- Light an Sound.”

Chair, Karen A. Bouffard1
1Newton’s Rule, Inc.

NSF Astronomy & Astrophysics Postdoctoral Fellows
AAS Workshop, Friday, 1:00pm-7:00pm, 605
Chair, Nate McCrady1
1UC, Los Angeles.

T01 Mining the Internet
AAPT Tutorial, Friday, 2:00-4:00pm, 208
The Internet is a rich source of science information. In this tutorial, I will demonstrate some excellent resources. In this very informal setting, we can all learn from each other. Come prepared with questions and suggestions.

Chair, Pat Viele1
1Cornell University.
SATURDAY Events, Sessions and Paper Titles

**SATURDAY**

**Registration (workshop reg. am, all reg. pm)**
Attendee Services, Saturday, 7:00am-9:00pm, South Lobby

**W17 Environmental Physics & Global Warming**
AAPT Workshop, Saturday, 8:00am-12:00pm, UW PAB B110
An overview of the science of global climate with related classroom activities. An introduction to online research to learn the state of our understanding of global climate change will also be included. Following this will be The Thermodynamics of Clothing Unit, is a hands-on activity-based unit adaptable to teaching grades 7-12. The Solar House Design Project involves an understanding of Solar Geometry, and Energy Use including software to evaluate the performance of the house throughout the year. The Sustainability Unit will have your students wondering how they can best protect their future on Earth. You may bring your own laptop computer.

Chair, David Gewanter¹
¹Georgetown University.

**W18 Exploring Special and General Relativity with Interactive Curricular Material**
AAPT Workshop, Saturday, 8:00am-12:00pm, UW PAB B128
There are many reasons to use computer-based material for teaching relativity. Both the special and general theories are full of (apparent) paradoxes and captivate students’ interest in physics. Because these topics focus on abstract and unfamiliar concepts, visualization is especially valuable. This workshop will emphasize both the special and general theory and the interactive software with which you and your students can explore spacetime. Special relativity examples include: visualizing simultaneity, length contraction, time dilation, and spacetime diagrams. General relativity examples include the gravitational red shift, trajectories of particles and light rays, and the observer’s view in the vicinity of non-spinning black holes. Each participant will receive a CD containing Java applets, programs, and source code developed by the Open Source Physics Project. This workshop is supported in part by NSF DUE-0442581.

Chair, Mario Belloni¹
¹Davidson College.

**W19 A Primer for Doing Astronomy Education Research**
AAPT Workshop, Saturday, 8:00am-12:00pm, 213
Are you running an E/PO project and are concerned about the evaluation? Are you implementing a new astronomy curriculum and want more data than just student evaluations? Have you been reading astronomy education research articles with too much uncertainty about the methods and results reported? Then this is the workshop for you. This primer will introduce you to the core philosophies and methods of astronomy education research to help you become a better user and consumer of AER.

Chair, Thomas M. Foster¹
¹Southern Illinois University Edwardsville.

**W20 Physics by Inquiry**
AAPT Workshop, Saturday, 8:00am-12:00pm, 212
This workshop focuses on how college and university physics faculty can contribute to the professional development of pre-college (K-12) teachers. Participants will have an opportunity to gain hands-on experience with instructional materials (Physics by Inquiry) designed to provide teachers with the background needed to teach physics and physical science as a process of inquiry. (1) Excerpts from a video produced by WGBH will be used to illustrate interactions between teachers and instructors during a course based on these instructional materials. (2) Participants will also gain an understanding of how physics education research has guided the design of the curriculum. In addition, there will be a discussion of various intellectual and practical issues. Volumes I and II will be provided to participants. (1) L.C. McDermott and the Physics Education Group at the University of Washington, Physics by Inquiry: An Introduction to Physics and Physical Science, Volumes I and II (Wiley, New York, 1996). Development was supported, in part, by the National Science Foundation. 2. Physics by Inquiry: A Video Resource (WGBH, Boston, 2000). Development was supported, in part, by the National Science Foundation.

Chair, Lillian McDermott¹
¹University of Washington.

**W21 Beyond Clickers: Using Interactive Learning Devices for Student Collaboration in the Classroom**
AAPT Workshop, Saturday, 8:00am-12:00pm, 214
In this workshop participants will learn how to use a new generation of soft-
ware that promotes student engagement with collaborative learning activities. For anyone excited about the promise of classroom response systems (‘clickers’) but frustrated by their limitations - this project offers new avenues for users and developers alike. Visit the project website http://tuples.sri.com/ for software downloads prior to the workshop. You are encouraged to bring your own laptop, Tablet PC or Windows Mobile device.

Chair, S. R. Chaudhury¹
¹Christopher Newport University.

W22 Physics for Elementary Teachers and Physical Science for Elementary Teachers
AAPT Workshop, Saturday, 8:00am-12:00pm, 309

Physics for Elementary Teachers (PET) and Physical Science for Elementary Teachers (PSET) are each one-semester courses for prospective and practicing elementary teachers. Both PET and PSET engage students in four types of activities: (1) standards-based physics or physical science content, (2) nature of science, (3) learning about one’s own learning, and (4) learning about the learning of elementary students. PET and PSET use a similar course pedagogy and activity sequence that is guided by research on student learning of physical science. The PET course content focuses on the themes of interactions, energy, forces and fields. PSET focuses on interactions, energy, forces and both macro and micro (small particle model) descriptions of the properties of matter. Specially designed computer simulators are used both during class and as part of web-based homework. After developing their own understanding of ideas in the PET or PSET class, students then analyze video of children discussing similar ideas in elementary classrooms. During the workshop participants will view and discuss video from college PET and PSET classrooms, and from elementary classrooms. This workshop will provide participants with a substantial introduction to both the PET and PSET curricula (with a greater emphasis on PET). *Supported in part by NSF Grant ESI-0096856. PET is published by, and PSET will be published by, It’s About ‘Time, Herff Jones Education Division.

Chair, David Goldberg¹
¹San Diego State University.

W23 Using Research-based Curricula and Tools to Revitalize Your Introductory Course
AAPT Workshop, Saturday, 8:00am-5:00pm, UW PAB B108

This hands-on workshop is designed for those interested in making learning in their introductory courses more active within the context of lectures, labs, and recitation hours. Participants will be introduced to physics education research-based strategies for each of these components: Interactive Lecture Demonstration (ILDs), Web-Based ILDs, RealTime Physics labs, Activity Based Tutorials and Collaborative Problem-Solving Tutorials, as well as modeling and video analysis tools. The tools and software used in this workshop are available for Macintosh and Windows computers.

Chair, Kevin Lee¹
¹University of Nebraska–Lincoln.

W24 Teaching Astronomy with Technology
AAPT Workshop, Saturday, 8:00am-5:00pm, UW PAB B356

This workshop will survey a variety of educational technologies useful for engaging students in both high school and introductory college classrooms. Special emphasis will be placed on simulation usage and peer instruction. Participants will work on computers gaining familiarity with the astrophysical simulations of the Nebraska Astronomy Applet Project (NAAP) and its web-based assessment capabilities. Participants will also design peer instruction sequences to be used in the classroom using the computer-based modules of the ClassAction Project. A lighter emphasis will be placed on using computerized ranking tasks and on comparing available options for online homework, astronomy laboratories, and desktop planetariums. All participants will receive NAAP, ClassAction, and computerized ranking task materials on CD.

Chair, Kevin Lee¹
¹University of Nebraska–Lincoln.

W25 Piaget Beyond
AAPT Workshop, Saturday, 8:00am-5:00pm, 307

While early work of the Swiss Genetic Epistemologist, Jean Piaget, and co-workers in Geneva was being “rediscovered” in the 1970’s in physics education, Piaget and his co-workers were advancing understanding of origins and development of human understanding of the world several decades beyond the works we were studying at the time. We were just grappling with Piaget’s notion of developmental “stages,” while Piaget and his co-workers moved beyond “stages,” explaining how, why and under what circumstances human understanding changes. Physics educators realized...
Piaget’s method of evidence collection, the individual interview, revealed the nature of interviewee understanding. Such interviews became the origins of physics education research (PER) in student conceptions. Work of the Geneva group on understanding change in human understanding has not been extensively studied in physics education and PER. This later work, with significant implications for physics learning and teaching, will be the subject of this workshop.

Chair, Dewey Dykstra, Jr. ¹
¹Boise State University.

T02 Civic Engagement and Service Learning
AAPT Tutorial, Saturday, 9:00-11:00am, 305
This tutorial is aimed at those interested in improving physics education within the context of civic engagement (including service learning). During the tutorial we will describe a national dissemination program that connects science and civic engagement by teaching “through” complex, capacious, and unresolved public issues and ways to participate in its activities. We will also discuss ways to include service learning in the physics curriculum using examples from across the country, and engage in group activities that will provide a springboard for making curricular changes that will make civic engagement an integral part of the physics curriculum.

Chair, Theo Koupelis ¹
¹University of Wisconsin Colleges.

T03 Online DL Science Courses & Virtual Labs
AAPT Tutorial, Saturday, 9:00-11:00am, 306
Online learning will play an increasingly important role in educating tomorrow’s scientists and engineers. To be both pedagogically and cost effective, the challenge of offering inquiry-based, highly interactive, asynchronous or synchronous laboratory-based courses must be met. These courses must be based on proven pedagogy and include decision-making, selection of instrumentation, data collection and analysis, the ability to make realistic mistakes and transferable lab skills. Central to the laboratory environment is the dialog between user and virtual tutor; branching based on student answers permit nearly one-to-one guidance. A back end database permits extensive research on cognitive learning. This approach can be used for Just in Time Learning (JITL), Remediation, Tutorials, Interactive Assessment and Problem-Based Learning. You will be given an account to see how this novel approach works. Participants are encouraged to bring wireless-enabled laptops.

Chair, Gerald Meisner ¹
¹University of North Carolina at Greensboro.

Career Workshop
AAS Workshop, Saturday, 9:00am-4:00pm, 610
Registrants for this special workshop (attendance is limited) will learn how to market themselves in today’s challenging employment environment. Ms. Jennifer Giesler, program officer for mentoring programs at the Geological Society of America, will spend the morning portion (9am-12noon) of the workshop providing insight into the current job market for astronomers, how to capitalize on unique skills and abilities to land a job, unveil the interview process and discuss other topics based on questions from participants. The afternoon portion (1-4pm) of the workshop is direct one-on-one review of participant resumes with special emphasis on resume customization. The registration fee for this event is $35 and may be paid with your meeting registration.

Chair, Jennifer Giesler ¹
¹Geological Society of America.

Strategies for Creating a Learner-Centered Introductory College Astronomy Course
AAS Workshop, Saturday, 9:00am-5:00pm, 608
See Friday’s listing for details.

NSF Astronomy & Astrophysics Postdoctoral Fellows
AAS Workshop, Saturday, 9:00am-7:00pm, 605

Chair, Nate McCrady ¹
¹UC, Los Angeles.

ComPADRE in the K-12 Classroom
AAS Workshop, Saturday, 9:30-11:30am, 613
ComPADRE is an ongoing collaboration to provide community collections and tools for sharing teaching and learning resources in Physics and Astronomy. This workshop will introduce ComPADRE’s network of websites, the
materials it contains, submission tools for contributing resources, editorial tools for managing and reviewing materials, and, the communication tools for sharing expertise. Participants will use the ComPADRE’s collections to gather content and materials for a class and share their ideas for using the materials. Topics covered include information databases submitting resources, reviewing materials, and developing new collections. depending on the interests of the audience. ComPADRE is partially funded by the National Science Foundation.

ComPADRE has three two-hour sessions each focused on different audiences 1) pre-college science, 2) undergraduate physics, 3) introductory undergraduate astronomy. Participants may sign up for one, two or three sessions. Some computing facilities will be available, but participants are strongly encouraged to bring a computer to work with the collections.

Chair, Susana E. Deustua
1American Astronomical Society.

Speaker Ready Room
Attendee Services, Saturday, 10:00am-6:00pm, 603-04

AV EQUIPMENT
Audiovisual equipment MUST be ordered via email (speakerready@aas.org) at least 24 hours prior to your presentation or personally handed to the American Audio Video technician in the speaker ready room.

- VCRs/Monitors: must be ordered and cost $85. Payment may be made with registration and must be paid for by the start of the meeting.

- 35mm and Overhead Projectors: are free but must be ordered 24 hours in advance from the speaker ready room technician.

- Microphones: Each oral session room will have two microphones: a wireless lapel microphone, and a hard mounted podium microphone. You do not need to place an order for microphones.

- LCD Projectors and Laptops: will be provided in every oral session room, free of charge. YOU MAY NOT USE YOUR OWN. There will be one Mac laptop and one PC laptop in each room. You do not need to place an order to use the LCD Projector, but the following requirements must be strictly adhered to:

PRESENTATION: PowerPoint, Keynote, or Adobe Acrobat are the only accepted formats. Your presentation must be compatible with Office XP (2003) for PC or OS X for Mac. The PCs in the session rooms will be loaded with Windows XP Professional with Office XP, and the Macs will be loaded with OS X (10.46 Leopard) with Keynote and PowerPoint for Mac. All presentations must be in one of these formats.

MOVIES: Movie files should be linked to your presentation rather than embedded like a picture or drawing. If your presentation has linked files, you must copy the linked files as well as the presentation to your passoff media (see Drop Off below). QuickTime Movie files (.mov) or uncompressed Tiff files will not work as linked movies in the PC version of PowerPoint. Please convert these types of files into MPEG (.mpg, .mpeg) or AVI (.avi) formats if you wish to link them to your PowerPoint file.

LABEL: Your presentation file must be labeled with the session number, speaker number, and your last name (for example “35.03_smith”). Please double check your file name before dropping off your file.

DROP OFF: At least one day in advance of your session, bring your presentation on a CD-ROM or USB Flash Disk (PC formatted) to the Speaker Ready Room (Room 603-4).

SPEAKER READY ROOM: The Speaker Ready Room is located room 603-4. The computers in the speaker ready room and each of the session rooms are EXACTLY alike. If your presentation presents correctly in the Speaker Ready Room, it will present correctly in any Session Room. A technician will be in the Speaker Ready Room all day to assist you. Please feel free to drop by and ask questions.

IN THE SESSION: You will control your presentation on the computer in the session room. There will be a laptop for you to use. Please do not attempt to load your presentation on this laptop as it may be deleted remotely.

Questions: Prior to the meeting, contact Rick Mathews with American Audio Video, speakerready@aas.org, 703-573-6910, 703-569-6701. Onsite, a technician will be in the Speaker Ready Room (603-4) all day to assist you.

Chair, Rick Matthews
1American Audio Video.
**EPO Programs by NASA Research Grant Awardees**

AAS Workshop, Saturday, 12:00-4:00pm, 609

This session is intended to highlight and serve those NASA research grant awardees who have conducted programs in education and public outreach (EPO). It is also intended to provide introductory information for space scientists who have yet to get involved in EPO but are interested in doing so. The session will include oral presentations on NASA's Science Mission Directorate EPO program, current EPO grant opportunities, and ways to navigate the proposal process. It will also include contributed oral and poster presentations by NASA research grant awardees whose programs describe their EPO programs.

Chair, William H. Waller1
1Tufts Univ.

**W26 Intermediate Mechanics Tutorials**

AAPT Workshop, Saturday, 1:00-5:00pm, 309

Ongoing research in physics education has demonstrated that physics majors often do not develop a working knowledge of basic concepts in mechanics, even after standard instruction in upper-level mechanics courses. This workshop will focus on Intermediate Mechanics Tutorials (IMT), a suite of research-based materials that provides an innovative instructional approach that supplements traditional lectures. These materials are designed to address persistent student difficulties and to guide students to make appropriate connections between the physics and mathematics. Workshop participants will learn about recent results from the research and obtain firsthand experience with selected tutorials. Because intermediate mechanics courses vary in format and content from institution to institution, we will also discuss how IMT can be tailored appropriately. A copy of all IMT materials, which include conceptual, derivation, and computer-based tutorials, will be given to each participant.

Chair, Bradley Ambrose1
1Grand Valley State University.

**W27 Not Your Usual Powerpoint**

AAPT Workshop, Saturday, 1:00-5:00pm, UW PAB B110

With a little imagination it is possible to use Powerpoint to produce very attractive and creative presentations for illustrating physics talks -- either classroom lectures or presentations to professional audiences. This tutorial will help you do this. It will consist of a model one hour long Powerpoint talk on "Crazy Ideas in Science," followed by a practice session, where participants try to brainstorm ideas for creating such talks in areas of interest to them.

Chair, Robert Ehrlich1
1George Mason University.

**W28 Experiencing the Pedagogical Process**

AAPT Workshop, Saturday, 1:00-5:00pm, UW PAB B128

Pedagogy is a process. Unfortunately, it has been wrongfully viewed and taught as a subject matter in and of itself in the schools of education. As a result, pedagogy has come to be perceived by other professionals as largely irrelevant, sometimes even as fluff stuff. The net result is pedagogy has received a bad name. This view is a major obstacle to producing quality teachers. The workshop we are proposing is to demonstrate pedagogy as a process inseparable from the content being taught. In this case, the workshop uses computer applications as a content for providing a hands-on demonstration of pedagogy as a process for math and science teachers. This process has been analyzed into specific teaching techniques, now documented and illustrated in our book, “Color-Blind Teaching”. These techniques have been tested and validated over a long period of time with diverse students, characterized by differing academic preparations, ethnicities, socio-economic status, and cultures. The techniques have resulted in a retention rate of around 95% with diverse populations, a vast improvement over the usual retention rate of 25-40% in diverse classrooms. Most importantly, the workshop opens the door to increased teaching effectiveness, and we promise all of this without your having to abandon the time-honored and much-loved lecture method.

Chair, Daryao Khatri1
1University of the District of Columbia.

**W29 Exploring Easy & Effective Ways to Use PhET’s Web-Based Interactive Simulations in Your Physics Course**

AAPT Workshop, Saturday, 1:00-5:00pm, UW PAB B176

The Physics Education Technology (PhET) Project has developed over 50 simulations for teaching and learning introductory physics at the high school and college levels. These research-based simulations create animated, interactive, game-like environments that are designed to engage students in active thinking, encourage experimentation, and help develop visual and
conceptual models of physical phenomena, emphasizing their connections to everyday life. The simulations are free, and can be run from the PhET website (http://phet.colorado.edu) or downloaded to a local computer for off-line use. In this workshop, participants will work with these simulations and explore how they can be used effectively in lecture, lab, and as part of homework assignments to improve both student learning and engagement.

Chair, Katherine Perkins¹
¹University of Colorado at Boulder.

W30 The Physics Teaching Web Advisory, Online Advice for Teaching Physics
AAPT Workshop, Saturday, 1:00-5:00pm, UW PAB B180
The Physics Teaching Web Advisory (Pathway) is a new type of digital library. Based on state-of-the-art digital video technology, Pathway is a free online resource that provides assistance and expertise for teachers of physics. Participants will be introduced to the two primary components of Pathway: the Synthetic Interview and the searchable digital video library. The Synthetic Interview enables any teacher to have a virtual conversation with experienced physics teachers while the digital library provides access to a variety of video resources. We will show how Synthetic Interview responses are tied to the National Science Education Standards and to current literature in physics teaching. Participants will learn how both features can be valuable in their physics teaching. Supported in part by NSF under grant numbers DUE-0226157, DUE-0226219, ESI-0455772 & ESI-0455813.

Chair, Brian Adrian¹
¹Kansas State University.

W31 Cosmic Evolution: the “Astro” in Astrobiology
AAPT Workshop, Saturday, 1:00-5:00pm, 211
Do you want to entice students to learn more physics by using astronomy applications within the context of astrobiology? Learn how the search for life in the universe inspires students. This workshop will introduce you to curriculum materials in the Cosmic Evolution module from Voyages Through Time (VTT), a standards-based and nationally field-tested course developed by SETI Institute. Participants will practice inquiry based lessons on spectroscopy, gravity and stellar evolution. In addition to VTT, you will learn how a space-orbiting photometer for the NASA Kepler Mission will be used to detect potentially life-supporting planets around other stars. Participants are encouraged to bring their laptops and will receive the module valued at $100. More information can be found at website http://www.voyagesthroughtime.org/cosmic/index.html.

Chair, Mary Ann Kadooka¹
¹University of Hawaii.

W32 Tutorials in Introductory Physics
AAPT Workshop, Saturday, 1:00-5:00pm, 212
Tutorials in Introductory Physics(1) is a set of instructional materials intended to supplement the lecture, textbook, and laboratory of a standard calculus-based or algebra-based introductory course. The tutorials are designed to address specific conceptual and reasoning difficulties that have been identified through research. In addition to providing hands-on experience with the curriculum, the workshop will include discussions of instructional strategies incorporated into the materials and results from assessments of student learning. Important aspects related to implementation of the tutorials will be covered, including preparation of graduate teaching assistants, undergraduate peer instructors, and post-docs. Copies of Tutorials in Introductory Physics will be provided to participants. (1) L.C. McDermott, P.S. Shaffer, and the Physics Education Group at the University of Washington, Tutorials in Introductory Physics, First Ed. (Prentice Hall, 2002). Development was supported, in part, by the National Science Foundation.

Chair, Lillian McDermott¹
¹University of Washington.

W33 Franklin and Electrostatics
AAPT Workshop, Saturday, 1:00-5:00pm, 308
Benjamin Franklin’s experiments and observations on electricity established not only his reputation as a scientist, but also our electrical conventions and vocabulary, and the principle of charge conservation. In his letters, Franklin builds, tests, and defends his model with skill and eloquence, arguing from experiment and sharing both his wisdom and doubts, while clearly conveying his fascination with electricity. As Franklin was not formally schooled in mathematics, his theory was qualitative, and is an approachable example of hands-on and minds-on construction of a conceptual model with significant explanatory power. In this new workshop, developed by the author at the Wright Center for Science Teaching at Tufts University, working with Frank-
lin’s descriptions, we will recreate many of his experiments using modern, inexpensive equipment. Participants will receive a CD-ROM along with the workshop manual, a collection of Franklin’s letters relating to electricity, and many historical pictures and illustrations. The year 2006 marked the tercentennial of Franklin’s birth. Continue the celebration! (Workshop partially supported by the Wright Center for Innovative Science Education, Tufts U.)

Chair, Robert Morse1
1Cathedral College.

W34 Teaching Tailored Tutorials
AAPT Workshop, Saturday, 1:00-5:00pm, 310
Instructors inevitably need to adapt even the best reform materials to suit their local circumstances. We offer a package of research-based, open-source, epistemologically-focused mechanics tutorials, along with the detailed information instructors need to make effective modifications and provide professional development for TAs. In particular, our tutorials are embedded with comments from the developers, advice from experienced instructors, and video clips of students working on the materials. A DVD will be provided to all participants.

Chair, Rachel Scherr1
1University of Maryland.

Exploring Magnetism in Earth and Space Science
AAS Workshop, Saturday, 1:00-5:00pm, 607
We will present hands-on lessons, developed by the Center for Science Education at UC Berkeley’s Space Sciences Laboratory, about the basics of magnetism and its connection to electricity. Magnetism is important in understanding topics such as sunspots, solar flares, geomagnetic storms, and aurorae. Participants will map the magnetic fields around bar magnets and electrical circuits; explore how to make a coil of wire behave like a bar magnet; and discover how to generate electrical currents with nothing more than a bar magnet. Additional activities will explore the strength of magnetic fields during a solar flare, an electromagnetic induction lesson to help students understand how electrical currents in the upper atmosphere can be measured by magnetic fields on the ground, and an activity involving using the internet and computer software programs to discover how the Sun’s electrical solar wind is influencing Earth’s magnetic field. We seek to enhance the teacher’s content knowledge as well as model pedagogical methods for improvement of their science teaching in the classroom.

Chair, Bryan J. Mendez1
1UC Berkeley.

ComPADRE in Undergraduate Physics
AAS Workshop, Saturday, 1:00-3:00pm, 613
See morning ComPADRE workshop for description.

Chair, Susana E. Deustua1
1American Astronomical Society.

Undergraduate Orientation
AAS Event, Saturday, 6:00-7:00pm, N. Galleria Lobby - 2nd Floor
Undergraduate students, their advisors and those interested in attracting undergraduate students to their graduate program, or undergraduate research opportunity are invited to attend this event. The Chair of the Astronomy Education Board will explain how to get the most benefit from an AAS meeting and outline how the meeting works. The leadership of the AAS will also be in attendance to answer questions and get to know the undergraduate attendees. Tickets are required and are available free of charge to all undergrads, their advisors and those offering research opportunities (or jobs) to undergraduates, through the meeting registration form and will be placed in their registration envelope. Light snacks and refreshments will be provided. Organizations hoping to recruit undergraduate students may reserve poster display space for a small fee.

Chair, Susana E. Deustua1
1American Astronomical Society.

Center for Astronomy Learner-centered Teaching Workshop Participant Reunion
AAPT Event, Saturday, 7:00-8:00pm, 618

Chair, Timothy F. Slater1
1Univ. of Arizona.

—END OF PRE-MEETING WORKSHOPS AND EVENTS—
Opening Reception
Joint Event, Saturday, 7:00-10:00pm, Grand Hyatt
This opening reception is for all participants and registered guests. It will feature a cash bar and light snacks (not to be construed as dinner!). Meeting registration is being held at a separate location, the Washington State Convention and Trade Center.

First-Timers Orientation
AAPT Event, Sunday, 7:00 am - 8:00 am, 307-08
If this will be the first time you have had the opportunity to attend an AAPT National meeting and would like to have an “inside” track on where to start to gain the most from the experience, join forces with AAPT member meeting veterans who will be happy to show you the ropes. Sign-up for this event (no fee) and come on by for coffee and pastries. At this gathering you’ll feel right at home and wonder why you haven’t attended before! No fee, but registration is required.

Registration
Attendee Services, Sunday, 7:30am-5:00pm, South Lobby

Speaker Ready Room
Attendee Services, Sunday, 7:30am-6:00pm, 603-04
See Saturday’s listing for AV instructions.

Cyber Café
Attendee Services, Sunday, 8:00am-6:30pm, South Lobby
The Cyber Café, will open Sunday, opening at the beginning of the morning coffee break and closing Wednesday after the evening poster sessions. In addition to computers, there will be open lines for your laptops. There will be an open area with wireless connectivity. Please be advised that users need to bring their own wireless cards and review the connection process with their system administrators. In order to provide continuous network connectivity to all of our attendees and exhibitors, we will ask you to adhere to the following rules.

- If there is a waiting line for computers, please limit your time to 15 minutes.
- All attached devices will be required to be running the most up-to-date Virus Protection Software and Virus Definitions, IP Filtering, Anti-Ad and Anti-Spyware Software.
- We recommend turning off automatic updates to your operating system, this will prevent bottlenecks in the network during the morning hours.
- No device should be running as a server for offsite clients.
Absolutely no routers can be attached to the network without prior authorization from the AAS IT Staff. The network will be monitored throughout the meeting and the AAS Staff reserves the right to disconnect any device that is causing overall network problems.

Chair, Scott Idem
1American Astronomical Society.

Session 002 Space Flight: A Human Perspective
Plenary, Sunday, 8:30-9:20am, Ballroom 6

Chair, Janelle M. Bailey
1Univ. Nevada, Las Vegas.

002.01 Space Flight: A Human Perspective
Kathryn C. Thornton
1University of Virginia.

Session 003 Poster Session I
AAPT Poster, Sunday, 9:20am-6:30pm, Exhibit Hall 4

003.01 PhysicsFirst: Building Connections with a Concurrent Mathematics Course
Boris M. Korsunsky
1Weston High School.

003.02 Building Problem-Solving Skills in PhysicsFirst Classroom
Boris M. Korsunsky
1Weston High School.

003.03 Putting the “Spark” into Physical Science and Algebra
Andre Dagenais, B. Pill
1Sanford School.

003.04 Teaching Lower Socio-Economic Students About The Electromagnetic Spectrum Uses
Sharon R. Blauvelt
1Missouri State University.

003.05 Impulse In, Impulse Out - Understanding Elastic Collisions Before Energy
Richard G. Piccioni
1James A. Garfield High School.

003.06 Characterizing Student Experiences in Physics Competitions: The Power of Emotions
Rachel F. Moll, S. Nashon, D. Anderson
1University of British Columbia, Canada.

003.07 Introduction to Physics of the Universe in AP Physics Classrooms
Stephanie L. Allen
1Hope College.

003.08 Modification of Multiple-Choice Assessment Items Based on Student Feedback
Thomas J. Regan
1AAAS/Project 2061.

003.09 Producing a Brighter Future by Changing a Trend
Elaine Gwinn
1Ball State University.

003.10 The Illinois Pipeline Project
Carl J. Wenning
1Illinois State University.

003.11 Efforts to Recruit Secondary STEM Teachers at Columbus State University
Zodiac T. Webster, MaSST Preparation Council
1Columbus State University.

003.12 Mentoring Beginning and Crossover Teachers
Dale Freeland
1Portage Central High School.

003.13 Is Special Training Needed to Teach “Physics For Elementary Teachers”?
Paul W. Zitzewitz, J. F. Devlin, R. M. Savage, C. M. Swift
1University of Michigan-Dearborn.
003.14  Training Future Physics Teachers at BYU: Successes in Teacher Training  
Duane B. Merrell¹, R. Beck Clark¹  
¹Brigham Young University.

003.15  A Proposal for a Research-based Constructivist Physics-and-Pedagogy Course  
Esther Zirbel¹  
¹Tufts University.

003.16  PET as a Model for Other Introductory Content Courses  
George D. Nelson¹  
¹Western Washington University.

003.17  Teacher Leaders as Intern Supervisors: Lessons from an MSP Project  
Jacob Clark Bickenstaff²  
¹Western Washington University.

003.18  The Need and Effectiveness of Professional Development for K-12 Teachers  
Robert J. Endorf¹, K. M. Koenig²  
¹University of Cincinnati, ²Wright State University.

003.19  Orange Peel - The Orange's Life Vest  
Milijana Suskavcevic¹, E. Hagedorn¹  
¹University of Texas at El Paso.

003.20  Never Fear; Scaffolding is Here: Solar Research in the Classroom  
Constance E. Walker¹, N. DeMuth², D. Isbell¹, S. M. Pompea¹, K. Garmany¹  
¹National Optical Astronomy Observatory, ²El Camino College.

003.21  Using Case Studies to Assess the Impact of Modeling Workshops  
Jeff Saul¹, G. O’Brien¹, L. Kramer¹  
¹Florida International University.

003.22  Contrasting Inquiry and Direct Physics Instructional Designs: Examples from Dynamics  
Betty Adams¹, A. Undreiu¹, D. Schuster¹  
¹Western Michigan University.

003.23  Report on the IX Inter-American Conference on Physics Education  
Gordon J. Aubrecht, II¹, J. F. Sullivan²  
¹Ohio State University at Marion, ²College of Applied Science/University of Cincinnati.

003.24  Latin America’s Presentation of “World Year of Physics 2005”  
Margarete B. Allen¹  
¹Los Angeles Pierce College.

003.25  A Masterclass in Particle Physics for High School Students  
Kenneth Cecire¹, T. Entwistle²  
¹Hampton University, ²Ward Melville High School.

003.26  Physics Education in Nigeria  
Jefferson L. Collier¹  
¹ABTI-American University of Nigeria, Nigeria.

003.27  Physics Education in Russia and in the United States  
Irina Struganova¹  
¹Barry University.

003.28  The Comparison Between Russian High School And American College Curricula  
Valentin Voroshilov¹  
¹Boston University.

003.29  Representations of Force and Motion Concepts at the Middle Level  
Thomas J. Regan¹, B. Sweeney¹, T. Willard¹, G. DeBoer¹  
¹AAAS/Project 2061.

Session 004  A Potpourri of Internal Properties of Galaxies  
AAS Poster, Sunday, 9:20am-6:30pm, Exhibit Hall 4

004.01  A Deep HST Survey of the Prototypical Spiral Galaxy M81  
Andreas Zezas¹, J. S. Gallagher, III², P. Mucciarelli³  
¹SAO, ²U. Wisconsin-Madison, ³INAF-Obs. Padova & U. Padova, Italy.

004.02  Panchromatic Tully-Fisher Relations  
Martin Meyer¹, SINGS Team  
¹STScI.
004.03 Mapping Tidal Interactions in the M51 System
Allison G. Noble¹, J. S. Gallagher¹, K. E. Dellenbusch¹
¹U. Wisconsin-Madison.

004.04 Ultraviolet Observations of M51 with Swift/UVOT
Sally D. Hunsberger¹, C. Gronwall¹, A. Morgan², S. Immler³, T. S. Poole⁴, A. A. Breeveld⁴
¹Pennsylvania State Univ., ²University of Cambridge, United Kingdom, ³NASA GSFC, ⁴Mullard Space Sciences Laboratory, United Kingdom.

004.05 Spitzer IRS Spectral Maps of Spatially Resolved Molecular Hydrogen in NGC 5194
Gregory Brunner¹, K. Sheth², L. Armus², G. Helou², E. Schinnerer³, S. Vogel⁴, M. Wolfire⁴
¹Rice Univ./Spitzer Science Center, ²Spitzer Science Center, ³MPIA, Germany, ⁴University of Maryland.

004.06 Excess 4.5 Micron Emission from SINGS Galaxies
Michael W. Regan¹, SINGS Team
¹STScI.

004.07 Evolution and Instability of Galactic Gas Disks in response to A Spiral Density-wave Potential
Chi Yuan¹, D. C. Yen¹, H. H. Wang¹
¹Academia Sinica, Taiwan.

004.08 Hydrodynamical Simulations of the Barred Spiral Galaxy NGC 6782
Lien-Hsuan Lin¹, C. Yuan¹, R. Buta²
¹Academia Sinica, Taiwan, ²Department of Physics and Astronomy, University of Alabama.

004.09 Star formation and figure rotation in the early-type galaxy NGC2974
Hyunjin Jeong¹, M. Bureau², S. K. Yi¹, D. Krajnovic³, R. L. Davies²
¹Yonsei University, Republic of Korea, ²University of Oxford, United Kingdom.

004.10 A Multi-Waveband Study of the Southern Compact Group, SCG 0018-4854
Elizabeth H. Wehner¹
¹McMaster University, Canada.

004.11 Mapping a Low Surface Brightness Galaxy
Kushal T. Mehta¹, K. O’Neil²
¹University of Maryland, Baltimore County, ²National Radio Astronomy Observatory.

004.12 In Search of the Highest Velocity Dispersion Galaxies in the Universe
Sarah B. Salviander¹, G. A. Shields¹, K. Gebhardt¹, M. Bernardi²
¹Univ. of Texas at Austin, ²Univ. of Pennsylvania.

004.13 The Connection In Bulge Properties And The Bimodality Of Galaxy Properties
David B. Fisher¹, N. Drory²
¹Univ. Of Texas, ²MPE - Garching, Germany.

004.14 Revisiting the Low Metallicity Problem of the Hot ISM in X-ray Faint Early-type Galaxies
Jimmy Irwin¹, G. R. Sivakoff³, C. L. Sarazin¹, J. Ji¹, J. N. Bregman¹, W. G. Mathews⁴
¹Univ. Of Michigan, ²Ohio State University, ³Univ. Of Virginia, ⁴Univ. Of California-Santa Cruz.

004.15 Chandra Observations of Maffei I
Christopher S. Reynolds¹, C. Miller¹
¹Univ. Of Maryland.

004.16 PNLF Distances to Six Face-On Spiral Galaxies
Kimberly A. Herrmann¹, R. Ciardullo¹, J. J. Feldmeier², M. Vinciguerra¹
¹Penn State University, ²Youngstown State University.

004.17 The Star Formation History in Andromeda’s Diffuse Stellar Halo
Thomas M. Brown¹, E. Smith¹, H. Ferguson¹, P. Guhathakurta², R. Rich³, J. Kalirai², A. Renzini¹, A. Sweigart⁶
¹STScI, ²UCSC, ³UCLA, ⁴INAF, Italy, ⁵NASA/GSFC.
Session 005 AGN, Starbursts, and Sub-mm Galaxies
AAS Poster, Sunday, 9:20am-6:30pm, Exhibit Hall 4

005.01 SPIRE Multi-Color Fluctuation P(D) Analysis Below the Confusion Limit.
Glenn T. Laurent¹, J. Glenn¹, P. R. Maloney¹, J. J. Bock²
¹University of Colorado, ²Jet Propulsion Laboratory.

005.02 A Comparison of Effective Volumes for X-ray Surveys
Dave J. English¹, M. Elvis¹, H. Hao¹
¹Harvard-Smithsonian CfA.

005.03 Colour Bimodality in Powerful AGN Host Galaxies
David Floyd¹
¹STScI.

005.04 Cosmological History of Massive Black Hole Interactions in Triples
Frederic A. Rasio¹, J. Fregeau¹, S. Umbreit¹, M. Volonteri¹
¹Northwestern Univ.

005.05 Local Benchmarks for the Evolution of Major-Merger Galaxies (I)---
Spitzer Observations of a K-Band Selected Sample
C. Kevin Xu¹, Y. Cheng¹, R. Cutri¹, D. Domingue², Y. Gao³, J. Huang¹, N. Lu¹, J. Mazzarella¹, W. Sun⁵, J. Surace¹
¹Caltech, ²GCSU, ³Purple Mountain, China, ⁴CfA, ⁵NCU, Taiwan.

005.06 Local Benchmarks for the Evolution of Major-Merger Galaxies (II)---
Palomar H_alpha/H_beta Observations of a K-Band Selected Sample
Yi-Wen Cheng¹, C. K. Xu¹, N. Lu¹, R. Cutri¹, D. Domingue², Y. Gao³, J. Huang¹, J. Mazzarella¹, J. Surace¹, W. Sun⁵
¹IPAC/Caltech, ²GCSU, ³Purple Mountain, China, ⁴CfA, ⁵National Central Univ., Taiwan.

005.07 Evidence for Evolution in the FIR Luminosity Function of Luminous Infrared Galaxies from Spitzer and ISO Observations of the Lockman Hole
Bradley Jacobs¹, D. B. Sanders¹, D. Rupke², S. Veilleux², E. Le Floc’h³, O. Ilbert³, H. Aussel³, Y. Taniguchi³, M. Yun³
¹Univ. Of Hawaii, ²Univ. Of Maryland, ³CEA/Saclay, France, ⁴Ehime University, Japan, ⁵Univ. Of Massachusetts.

Session 006 Astrobiology and Lab Results
AAS Poster, Sunday, 9:20am-6:30pm, Exhibit Hall 4

006.01 Investigation of Anomalous Sputtering Behavior of a Ga-In Target
Dale R. Nunn¹, D. L. Weathers¹, L. R. Burns¹, P. Kadam¹, S. Li¹
¹University of North Texas.

006.02 Laboratory Infrared Optical Constants and Reflectance Spectra of Silicon Carbide
Karly M. Pitman¹, A. M. Hofmeister², A. K. Speck³
¹NASA Jet Propulsion Laboratory, California Institute of Technology, ²Dept. of Earth & Planetary Sciences, Washington University - St. Louis, ³Dept. of Physics & Astronomy, University of Missouri - Columbia.

006.03 Modeling Atmospheric Effects of the September 1859 Solar Flare
Brian Thomas¹, C. H. Jackman², A. L. Melott³
¹Washburn Univ., ²NASA GSFC, ³University of Kansas.

006.04 Living with a dM Star: Evolution over Time of Dynamo Generated X-ray - UV Emissions and Effects on Hosted Planets
Edward F. Guinan¹, S. G. Engle¹, L. E. DeWarf¹, D. Schulze-Makuch², M. Cuntz³, R. T. Zellem¹, V. Pettiford¹
¹Villanova Univ., ²WSU, ³Univ. Of Texas, Arlington.

006.05 Evolutionary Competition Between Primitive Photosynthetic Systems: Existence of an early purple Earth?
William B. Sparks¹, S. DasSarma², I. N. Reid¹
¹STScI, ²University of Maryland Biotechnology Institute.

Session 007 Black Holes
AAS Poster, Sunday, 9:20am-6:30pm, Exhibit Hall 4

007.01 The Binary Nucleus in VCC 128: A Candidate Supermassive Black Hole in a Dwarf Elliptical Galaxy
Victor P. Debattista¹, I. Ferreras², A. Pasquali², A. Seth³, S. De Rijcke³, L. Morelli⁴
¹Univ. of Washington, ²King's College London, United Kingdom, ³Max-Planck-Institut fur Astronomie, Germany, ⁴Centre for Astrophysics, ⁵Universiteit Gent, Belgium, ⁶Pontificia Universidad Catolica de Chile, Chile.
007.02 First Constraints on Black Hole Spin in Broad Iron Line AGN
Laura Brenneman¹
¹Univ. of Maryland.

007.03 The Accretion Disk of GRS 1915+105: What makes it Go Crazy?
David M. Rothstein¹
¹Cornell Univ.

007.04 Toward Understanding the Spectral Energy Distribution of Micro-
quasars. I. Multiwavelength Properties of XTE J1550--564
Yongquan Xue¹, X. Wu², W. Cui¹
¹Purdue Univ., ²Peking Univ., China.

007.05 Active X-ray States of Black Hole Binaries: Current Overview
Ronald A. Remillard¹, J. E. McClintock²
¹MIT, ²Harvard-Smithsonian.

007.06 High Resolution Ultraviolet Spectroscopy of the X-ray Binary Cyg-
nus X-1
Adrienne E. Hunacek¹, S. D. Vrtilek², B. S. Boroson², D. Geis³
¹MIT, ²Harvard-Smithsonian CfA, ³Georgia State University.

Session 008 Blazars and AGN jets
AAS Poster, Sunday, 9:20am-6:30pm, Exhibit Hall 4

008.01 Collimation and Stability Properties in AGN Jets
Masanori Nakamura¹, H. Li¹
¹LANL.

008.02 Correlated Multifrequency Variability in the Blazars 3C 279 and
PKS 1510-089
Ritaban Chatterjee¹, A. P. Marscher¹, S. G. Jorstad¹, M. F. Aller², I.
M. McHardy³
¹Boston Univ., ²Univ. Michigan, ³Univ. Southampton, United Kingdom.

008.03 Spitzer Observations of Cygnus A and Pictor A
Dean C. Hines¹, G. H. Rieke², K. D. Gordon², C. L. Carilli³, L.
Armus³, Y. Shi²
¹Space Science Inst., NM, ²Arizona, ³NRAO, ⁴Spitzer Science Ctr.

008.04 Multi-frequency VLBA Observations of Circular Polarization from
Extragalactic Radio Jets
Daniel C. Homan¹, M. L. Lister², H. D. Aller³, M. F. Aller³, J. F.
Wardle⁴
¹Denison Univ., ²Purdue Univ., ³University of Michigan, ⁴Brandeis University.

008.05 Cm-band Circular Polarization Spectral Variability from Blazars:
Recent Results from the UMRAO Program
Margo F. Aller¹, H. D. Aller³, P. A. Hughes¹
¹Univ. of Michigan.

008.06 Observations of Blazar S5 0716+714 With Ground Based Telescopes
and the Spitzer Infrared Space Telescope
Jeffery Adkins¹, M. Lacy², A. Morton³, T. Travagli¹, M. Mulaveesala¹,
J. Santiago¹, S. Rapp³, L. Stefaniak³
¹Deer Valley High School, ²Spitzer Science Center, ³Linwood Holton
Governor's School, ⁴Allentown High School.

008.07 Microvariability in Active Galactic Nuclei at 1420 MHz
James W. Atwood¹
¹Morehead State Univ.

008.08 Ejection Direction Variations in MOJAVE AGN Jets
Matthew L. Lister¹
¹Purdue Univ.

008.09 Effects of Jet Opening Angle and Velocity Structure on Blazar Pa-
rameters
Paul J. Wiita¹, Gopal-Krishna², S. Dhurde³, P. Sirca³
¹Georgia State Univ., ²National Centre for Radio Astronomy/TIFR, In-
dia, ³InterUniversity Centre Astron. & Astrophys., India, ⁴Dept. Physics,
IIT Kanpur, India.

008.10 Searching for TeV Blazar Candidates in the Sloan Digital Sky Sur-
vey
David A. Barnaby¹, L. Fortson², G. Gyuk², D. Steele², M. Subbarao³,
M. Carini¹, J. Maune¹
¹Western Kentucky Univ., ²Adler Planetarium.
<table>
<thead>
<tr>
<th>Session 008</th>
<th>Title</th>
<th>Authors</th>
<th>Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>008.11</td>
<td>Rapid Multiwavelength Polarization Variability in the Quasar 0420-014</td>
<td>Francesca D. D’Arcangelo¹, S. G. Jorstad¹, A. P. Marscher¹, P. S. Smith²</td>
<td>¹Boston Univ., ²Steward Obs.</td>
</tr>
<tr>
<td>008.12</td>
<td>A Multi-Wavelength Study of Blazars with WIYN - VERITAS - Ice-Cube</td>
<td>Kirsten Larson¹, M. Bayer¹, T. Montaruli¹, D. Steele¹</td>
<td>¹The College of Wooster, ²U. Wisconsin-Madison, ³Adler Planetarium.</td>
</tr>
<tr>
<td>008.13</td>
<td>Deep Hubble Space Telescope Imaging of the M87 Jet</td>
<td>Eric S. Perlman¹, W. B. Sparks², J. Madrid², D. E. Harris³, D. Macchetta², J. Biretta³</td>
<td>¹Florida Institute of Technology, ²Space Telescope Science Institute, ³Smithsonian Astrophysical Observatory.</td>
</tr>
<tr>
<td>008.14</td>
<td>A Large Homogeneous Sample of BL Lacs from SDSS and FIRST</td>
<td>Richard M. Plotkin¹, S. F. Anderson¹</td>
<td>¹University of Washington.</td>
</tr>
<tr>
<td>008.15</td>
<td>An Optical Survey of Potential Gamma-ray Sources</td>
<td>Lisa R. Carpenter¹</td>
<td>¹University of Michigan.</td>
</tr>
<tr>
<td>008.16</td>
<td>A Two-Fluid Plasma Shock Wave Model for the Strong Shock in</td>
<td>Robert F. Penna¹, P. E. Nulsen², R. P. Kraft²</td>
<td>¹University Of Rochester, ²Harvard-Smithsonian Center for Astrophysics.</td>
</tr>
<tr>
<td></td>
<td>Centaurus A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Session 009</td>
<td>Title</td>
<td>Authors</td>
<td>Institutions</td>
</tr>
<tr>
<td>009.01</td>
<td>Observations of SS Cyg - Quiescence to Outburst</td>
<td>Krista F. White¹</td>
<td>¹Ball State Univ.</td>
</tr>
<tr>
<td>009.02</td>
<td>HD 109962 - The Most Massive Dwarf Nova?</td>
<td>Frederick M. Walter¹, H. E. Bond²</td>
<td>¹Stony Brook University, ²Space Telescope Science Institute.</td>
</tr>
<tr>
<td>009.03</td>
<td>Phase-Resolved Infrared Cyclotron Spectroscopy of Polars</td>
<td>Ryan Campbell¹</td>
<td>¹New Mexico State Univ.</td>
</tr>
<tr>
<td>009.04</td>
<td>Near Infrared Quantitative Abundance Analysis of The Secondary Stars in a Sample of CVs</td>
<td>Joseph W. Wellhouse¹, T. E. Harrison¹</td>
<td>¹New Mexico State University.</td>
</tr>
<tr>
<td>009.05</td>
<td>The 0.5 - 13 μm Spectrum of V4332 Sagittarii in 2006</td>
<td>David K. Lynch¹, R. J. Rudy¹, R. W. Russell¹, S. Mazuk¹, C. C. Ventura¹, M. L. Sitko¹, H. B. Hammel¹, R. C. Puettner¹, R. B. Perry⁵</td>
<td>¹The Aerospace Corporation, ²U. Cincinnati &amp; Space Sci. Inst., ³Space Science Institute, ⁴Univ. California, ⁵NASA LaRC.</td>
</tr>
<tr>
<td>009.06</td>
<td>Spitzer Space Telescope and Visible/IR Spectrophotometry of V574 Pupis (Nova Pupis 2004)</td>
<td>Richard J. Rudy¹, D. K. Lynch¹, S. M. Mazuk¹, C. C. Ventura¹, R. W. Russell¹, R. C. Puettner¹, R. B. Perry⁵, C. E. Woodward¹, G. J. Schwarz³, M. F. Bode⁴, A. Evans⁵, T. R. Geballe⁵, R. D. Gehrz⁵, M. A. Greenhouse⁵, P. A. Hauschildt¹⁰, L. A. Helton¹, J. E. Lyke¹, A. Salama¹², S. N. Shore¹³, S. G. Starrfield¹⁴, J. W. Truran¹⁵, R. M. Wagner¹⁶</td>
<td>¹Aerospace Corp., ²UCSD, ³NASA, ⁴University of Minnesota, ⁵West Chester University, ⁶John Moores University, United Kingdom, ⁷Kelee University, United Kingdom, ⁸Gemini Observatory, ⁹NASA Goddard Space Flight Center, ¹⁰Landessternwarte, Germany, ¹¹Keck Observatory, ¹²ESA, Spain, ¹³Universita’ di Pisa, Italy, ¹⁴Arizona State University, ¹⁵University of Chicago, ¹⁶University of Arizona.</td>
</tr>
<tr>
<td>009.07</td>
<td>A New, Bright, Short-period, Emission Line Binary in Ophiuchus</td>
<td>Michele A. Stark¹, R. A. Wade², J. R. Thorstensen¹, C. S. Peters¹, H. A. Sheets¹, H. A. Smith¹, R. D. Miller¹, E. M. Green⁷</td>
<td>¹Univ. of Wyoming, ²Penn State Univ., ³Dartmouth Coll., ⁴Michigan State Univ., ⁵Steward Obs..</td>
</tr>
<tr>
<td>009.08</td>
<td>Low-State Photometry of AM Her during 2005-06</td>
<td>Jeff W. Robertson¹, S. Kafka², K. Honeycutt¹, T. Campbell⁴</td>
<td>¹Arkansas Tech University, ²CTIO/NOAO, Chile, ³Indiana University, ⁴Whispering Pines Observatory.</td>
</tr>
</tbody>
</table>
009.09  Steady-State Modeling and Possible Detection of HCl in Eta Carinæ's -513 km/s Ejecta
Alissa S. Bans¹
¹Maria Mitchell Observatory.

009.10  Population Synthesis Studies of Close Binary Systems Using a Variable Alpha: Dependence Upon the Evolutionary State of the Giant
Michael Politano¹
¹Marquette Univ.

009.11  Understanding the White Dwarfs in Intermediate Polars
Kunegunda E. Belle¹, E. M. Sion²
¹LANL, ²Villanova University.

009.12  The Hard X-ray Bright Magnetic Cataclysmic Variable IGR J14536-5522=Swift J1453.4-5524
Koji Mukai¹, C. Markwardt¹, J. Tueller¹, D. Buckley¹, S. Potter¹, M. Still¹, Swift/BAT team
¹NASA’s GSFC, ²South African Astronomical Observatory, South Africa.

009.13  Galactic Wolf-Rayet Infrared Imaging Survey
Jill Gerke¹, D. R. Zurek¹, M. M. Shara¹, A. F. Moffat², N. St-Louis², R. Doyon², L. Drissen², C. Robert¹
¹American Museum of Natural History, ²Universite de Montreal, Canada.

009.14  Wind-Clumping does not Depend on Ambient Metallicity: Wolf-Rayet Stars in the SMC
Sergey Marchenko¹, C. Foellmi¹, A. F. Moffat³, F. Martins⁴, J. Boubre⁵, É. Depagne⁶
¹Western Kentucky Univ., ²Observatoire de Grenoble, France, ³Universite de Montreal, Canada, ⁴Max-Planck-Institut fur extraterrestrische Physik, Germany, ⁵Laboratoire d’Astrophysique de Marseille, France, ⁶European Southern Observatory, Chile.

009.15  Revised Ephemerides for V1776 Cygni and QU Vulpeculae
Michael Lujan¹, A. W. Shafter², K. A. Misselt³, J. K. Reed³, S. R. Warren⁴
¹California Polytechnic State University, ²San Diego State University, ³University of Arizona, ⁴University of Minnesota.

009.16  A 2006 Spectroscopic Study of ST LMi
R. K. Honeycutt¹, S. Kafká², S. B. Howell³, J. W. Robertson⁴
¹Indiana Univ., ²CTIO/NOAO, Chile, ³WIYN/NOAO, ⁴Arkansas Tech Univ.

009.17  Magnetic Activity on the Degenerate Secondary Star in EF Eri
Styliani Kafká¹, S. B. Howell², F. M. Walter³, A. Z. Bonanos⁴, D. Steeghs⁵
¹CTIO/NOAO, Chile, ²WIYN/NOAO, ³Stony Brook University, ⁴Carnegie-DTM, ⁵CfA.

009.18  VLT Spectroscopy of Four Short Period Cataclysmic Variables
Julie N. Skinner¹, S. B. Howell², E. Mason²
¹University of Oklahoma, ²WIYN/NOAO, ³European Southern Observatory, Chile.

009.19  XMM-Newton Observations of Three Interesting Cataclysmic Variables
Eric J. Hilton¹, P. Szkody¹, L. Homer¹, G. Schmidt¹, A. Henden³, S. Anderson¹, K. Mukai¹, A. Mukadam¹, L. van Zyl⁴, C. Hellier⁵
¹Univ. Of Washington, ²Liverpool CC, United Kingdom, ³Steward Observatory, ⁴AAVSO, ⁵NASA Goddard, ⁶Keel University, United Kingdom.

009.20  HET Spectroscopy of Extragalactic Novae
Allen W. Shafter¹, E. A. Coelho², K. A. Misselt³, M. F. Bode³, M. J. Darnley³
¹San Diego State University, ²University of Arizona, ³Liverpool JMU, United Kingdom.

009.21  The Distance to V838 Monocerotis
Howard E. Bond¹, W. B. Sparks¹, M. Cracraft¹, M. Afsar², R. Corradi³, L. Crause³, M. Dopita³, A. Henden³, Z. Levay³, U. Munari³, N. Panagia³, S. Starrfield³, B. Sugerman³, M. Wagner³, R. White³
¹STScI, ²Ege University, Turkey, ³Isaac Newton Group, Spain, ⁴University of Cape Town, South Africa, ⁵Australian National University, Australia, ⁶AAVSO, ⁷Universita di Padova, Italy, ⁸ASU, ⁹Goucher College, ¹⁰Large Binocular Telescope.
SUNDAY Events, Sessions and Paper Titles

**Session 010 Circumstellar Disk Observations**
AAS Poster, Sunday, 9:20am-6:30pm, Exhibit Hall 4

010.01 The Formation and Evolution of Solar Systems: Penultimate Status Report on Results from a Spitzer Legacy Science Program
Lynne Hillenbrand, FEPS Spitzer Legacy Science Team
Caltech.

010.02 A Detection of OH in the Planet Formation Regions of Circumstellar Disks
Steinn Sigurdsson, A. M. Mandell, M. Mumma, G. Blake
Pennsylvania State Univ., GSFC, Caltech.

010.03 Updated Observations of V1647 Orionis: Measuring Hα and Brγ in the Optical and Near-Infrared
Clemson University, University of Missouri, University of Notre Dame, University of Hawaii.

010.04 Characterizing the Disk Around the Brown Dwarf Planetary System 2MASSW J1207334-393254
Basmah Riaz, J. E. Gizis
Univ. of Delaware.

010.05 Sub-millimeter Interferometric Study of Circumstellar Disks Surrounding Optically Visible, Young High Mass Stars
Manoj Puravankara, P. T. Ho, N. Ohashi, Q. Zhang
Institute of Astronomy and Astrophysics, Academia Sinica, Taiwan, Smithsonian Astrophysical Observatory, Harvard-Smithsonian CfA.

010.06 Silica in Protoplanetary Disks
Univ. of Rochester, UCLA, Cornell Univ.

SUNDAY Events, Sessions and Paper Titles

010.07 Coronographic Observations of Circumstellar Disks with Subaru
Jennifer Karr, M. Puravankara, M. Tamura, T. Kudo, N. Ohashi
ASIAA, Taiwan, NAOJ, Japan.

010.08 The TEXES/Gemini Survey for Protoplanetary Disk Gas

010.09 Warm HCN, C2H2, and CO in the Circumstellar Disk of GV Tau
Erika Gibb, K. Van Brittain, T. W. Rettig
Univ. of Missouri - St. Louis, Clemson Univ., Univ. of Notre Dame.

010.10 Observing Grain Growth in Protoplanetary Disks
Sarah T. Maddison, D. Lommen, C. Wright, J. Bourke, J. Jorgensen, E. van Dishoeck, M. Burton, A. Hughes, D. Wilner
Swinburne University, Australia, Leiden Observatory, The Netherlands, UNSW@ADFA, Australia, CfA, UNSW, Australia.

**Session 011 Cosmic Microwave Background**
AAS Poster, Sunday, 9:20am-6:30pm, Exhibit Hall 4

011.01 CBI2: Current Status
Jonathan L. Sievers, CBI Collaboration
CITA, Canada.

011.02 The Q/U Imaging Experiment (QUIET)
Michael D. Seiffert, QUIET Collaboration
JPL.

011.03 PAPP A: A New Generation of CMB Polarimetry
NASA’s GSFC, University of Pennsylvania, SSAI/GSFC, NIST.
011.04  Spider: Searching for the Echos of Inflation  
William C. Jones¹, Observational Cosmology Group  
¹Caltech.

011.05  BICEP2 and SPUD: Searching for Inflation with Degree-Scale Polarimetry from the South Pole  
John Kovac¹, BICEP/SPUD collaboration  
¹California Institute of Technology.

011.06  Search for Extragalactic Point Sources using WMAP Q-, V- and W-band Data  
Xi Chen¹, E. L. Wright¹  
¹UC, Los Angeles.

011.07  Primordial non-Gaussianity using CMB Temperature and Polarization Anisotropies.  
Amit P. Yadav¹, E. Komatsu², B. D. Wandelt¹  
¹Univ. Of Illinois, Urban-Champaign, ²University of Texas at Austin.

Session 012 Dark Matter  
AAS Poster, Sunday, 9:20am-6:30pm, Exhibit Hall 4

012.01  Comparing the Cosmological Critical Density of Neutralinos and Cold Dark Matter  
Sarah McMurray¹, K. Andrew¹, D. Barnaby¹, B. Bolen¹, L. Strolger¹  
¹Western Kentucky University.

012.02  Constraining the Angular Distribution of Satellite Galaxies Surrounding Disk-like Host Galaxies  
Jason H. Steffen¹  
¹Fermilab.

Session 013 Debris Disks  
AAS Poster, Sunday, 9:20am-6:30pm, Exhibit Hall 4

013.02  Secular Planetary Perturbations in Circumstellar Debris Disks  
Joseph M. Hahn¹, C. Capobianco², P. Kalas¹, K. A. Marsh⁴, C. Teleseco²  
¹Space Science Institute, ²Queen’s University, Canada, ³UC Berkeley, ⁴NASA/JPL, ⁵University of Florida.

013.03  The Signature of Primordial Grain Growth in the Polarized Light of the AU Mic Debris Disk  
James R. Graham¹, P. Kalas¹, B. Matthews²  
¹UC, Berkeley, ²NRC-HIA, Canada.

013.04  A Search for Debris Disks around Stars with Planets  
David R. Ardila¹, A. Kospal²  
¹Caltech, ²Konkoly Observatory/Caltech, Hungary.

013.05  Spitzer’s Dirty Dozen: MIPS and IRACImaging of Nearby Debris Disks  
Karl R. Stapelfeldt¹, J. C. Carson², K. Y. Su³, G. H. Rieke¹, M. W. Werner¹, G. Bryden¹, C. A. Beichman⁴, Spitzer MIPS Instrument Team  
¹JPL, ²JPL/ORAU, ³Univ. of Arizona, ⁴MSC/Caltech.

013.06  Dual Imaging Polarimetry of young stars in Rho Ophiuchus  
Catarina Ubach¹, D. Potter¹  
¹Univ. Of Arizona.

Session 014 Differential Rotation & Activity of Cool Dwarfs  
AAS Poster, Sunday, 9:20am-6:30pm, Exhibit Hall 4

014.01  The Differential Rotation Profile of kappa1 Ceti from MOST Photometry  
Gordon A. Walker¹, B. Croll¹, R. Kuschnig¹, J. Matthews¹, A. Walker¹, S. Rucinski², D. Guenther¹, A. Moffat¹, D. Sassalov³, W. Weiss⁶  
¹UBC, Canada, ²David Dunlap Observatory, Canada, ³St Mary’s Univ., Canada, ⁴Univ Montreal, Canada, ⁵Harvard-Smithsonian CfA, ⁶Inst. f. Ast., Wien, Austria.

014.02  Differential Rotation in Solar-type Stars  
David H. Bruning¹  
¹Univ. of Wisconsin-Parkside.
014.03 Tracers of Chromospheric Structure: Observations of CaII K and Hα in M Dwarfs
Lucianne M. Walkowicz¹, S. L. Hawley¹
¹University of Washington.

014.04 Solar Physics at Evergreen: Solar Dynamo and Chromospheric MHD
E. J. Zita¹, J. Maxwell¹, N. Song¹, M. Dikpati²
¹Evergreen State College, ²High Altitude Observatory - NCAR.

Session 015 Extragalactic ISM
AAS Poster, Sunday, 9:20am-6:30pm, Exhibit Hall 4

015.01 Spitzer View of Four Low Surface Brightness Giant Galaxies: Malin 1, UGC 6614, UGC 6879, UGC 9024
M. N. Rahman¹, J. Howell², B. Buckalew², G. Helou²
¹Caltech, ²IPAC/Caltech.

015.02 PDR-Produced HI in Star-Forming Regions of M33
Jonathan S. Heiner¹, R. J. Allen¹, P. C. van der Kruit²
¹STScI, ²Kapteyn Astronomical Institute, The Netherlands.

015.03 The Relationship of Atomic Gas and Aromatic Emission in SINGS Spiral Galaxies
Esther Chapman¹, M. D. Thornley², The SINGS team
¹Cornell College, ²Bucknell University.

015.04 Spitzer Observations of Extraplanar PAH Emission from Several Edge-On Galaxies
Nicolas Lehner¹, C. Howk¹
¹University of Notre Dame.

015.05 WFPC2 Imaging of the Multiphase Halos of Two Spiral Galaxies: Dust and Ionized Gas
Katherine Rueff¹, M. Pitterle¹, A. Hirschauer¹, N. Lehner¹, C. Howk¹
¹Univ. of Notre Dame.

015.06 Multiwavelength Observations of Tidally Induced Star Formation in the M81 Group
Abigail S. Hedden¹, K. Knierman¹, T. Roelofsen², C. Kulesa¹, J. Feldmeier³, V. Gorjian⁴, P. Durrell⁵, B. Sepulveda⁵, T. Spuck⁶, C. Wheeler⁷
¹University of Arizona, Steward Observatory, ²New Jersey Astronomy Center for Education, ³Youngstown State University, ⁴JPL, ⁵Lincoln High School, ⁶Oil City Area Senior High School, ⁷Luther Burbank High School.

015.07 Evidence for Outflows and a Galactic Wind in the Large Magellanic Cloud?
J. C. Howk¹, N. Lehner¹
¹Univ. of Notre Dame.

015.08 Spitzer IRS Observations of the Gaseous Halo of NGC 891
Richard J. Rand¹, R. A. Benjamin², K. Wood³
¹Univ. of New Mexico, ²Univ. of Wisconsin-Whitewater, ³Univ. of St. Andrews, United Kingdom.

015.09 Models of the Effect of Gaseous Drag on the Accretion of Intergalactic Clouds
Travis C. Fischer¹, R. Benjamin¹
¹University of Wisconsin-Whitewater.

015.10 A PAH Deficit in Extremely Low Luminosity Galaxies
Rongying Wu¹, D. W. Hogg¹
¹New York University.

015.11 Low Frequency Turnovers of Compact Radio Sources in NGC 247
Sara K. Schultz¹, C. K. Lacey¹
¹Univ. of South Carolina.

015.12 SCONES: Determining the Warm Gas Properties of Nearby Galaxies
Glen R. Petitpas¹, C. D. Wilson¹, A. J. Baker¹, D. Iono⁴, A. B. Peck¹, K. Sakamoto¹, M. Krips¹, P. T. Ho⁵, S. Matsushita⁶
¹Harvard-Smithsonian Center for Astrophysics, ²McMaster University, Canada, ³Rutgers, ⁴NAOJ, Japan, ⁵ASIAA, Taiwan.
015.13 Understanding the Interplay Between Star Clusters and Their Interstellar Medium Using SINGS H II Regions
Brent A. Buckalew, SINGS Team
1Caltech/IPAC.

Session 016 The Sun
AAS Poster, Sunday, 9:20am-6:30pm, Exhibit Hall 4

016.01 Broadband Spectroscopy of the Corona during the Total Solar Eclipse of March 29, 2006
Sarah A. Jaeggli, S. R. Habbal, J. R. Kuhn, M. H. Nayfeh
1Institute for Astronomy, Univ. of Hawaii, 2Dept. of Physics, Univ. of Illinois at Urbana-Champaign.

016.02 Changes in Sunspot Umbral Intensity Over Time
Rachel MacDonald
1University of Washington.

016.03 Relationship Between the Radio Bursts from the Sun and Ionospheric Propagation
Mary Lou West, N. Frissell, M. Papalos
1Montclair State Univ.

016.04 Coronal Loop Recognition: A Diagnostic Tool for Magnetic Field Extrapolation Models
Julia Sandell, V. Kashyap, M. Weber, A. van Ballegooijen, E. Deluca, M. Bobra
1Barnard College/Columbia University, 2SAO/Cfa, 3Center for Astrophysics/Smithsonian Astrophysical Observatory.

Session 017 Galactic ISM I
AAS Poster, Sunday, 9:20am-6:30pm, Exhibit Hall 4

017.01 Imaging of Diffuse FUV Emission from the Gum Nebula with SPEAR
Kaori Nishikida, R. Sankrit, M. Sirk, B. Welsh, K. Min, K. Ryu, J. Shinn, W. Han, D. Lee
1Space Sciences Laboratory, UC Berkeley, 2Korea Advanced Institute of Science and Technology, Republic of Korea, 3Korea Astronomy and Space Science Institute, Republic of Korea.

017.02 Properties of the Hot Diffuse Gas in our Galaxy observed with SPEAR
Julia M. Kregenow, M. Sirk, R. Sankrit, C. Heiles, J. Edelstein, K. Min, K. Ryu, J. Shinn, W. Han, D. Lee
1UC, Berkeley, 2UC Berkeley, Space Sciences Lab, 3KAIST, Republic of Korea, 4KASI, Republic of Korea.

017.03 Emission from Low Ionization Gas in the Galaxy observed with SPEAR
Ravi Sankrit, E. Korpela, K. Seon, T. Nishikida, K. Min, K. Ryu, J. Shinn, W. Han, D. Lee
1UC, Berkeley, 2KAIST, Republic of Korea, 3KASI, Republic of Korea.

017.04 Molecular Hydrogen Fluorescence in our Galaxy Observed with SPEAR
Jerry Edelstein, M. Sirk, J. Kregenow, E. Korpela, K. Seon, K. Min, K. Ryu, J. Shinn, W. Han, D. Lee
1Space Sciences Lab, UC, 2KAIST, Republic of Korea, 3KASI, Republic of Korea.

017.05 Maps of Emission from Hot Diffuse Gas in our Galaxy with SPEAR
Eric J. Korpela, J. Kregenow, M. Sirk, J. Edelstein, J. Adolfo, K. Min, K. Ryu, J. Shinn, W. Han, D. Lee
1Space Sciences Lab, UC-Berkeley, 2Astronomy Dept, UC-Berkeley, 3Korea Advanced Institute of Science and Technology, Republic of Korea, 4Korea Astronomy and Space Science Institute, Republic of Korea.

017.06 Mapping of FUV Emission Lines for the North Galactic Pole with SPEAR
1UC, Berkeley, 2Korea Advanced Inst. of Science and Tech., Republic of Korea, 3Korea Astronomy and Space Science Inst., Republic of Korea.

017.07 Observation of Cosmic Far-ultraviolet Background Radiation with SPEAR
Kwang-II Seon, J. Edelstein, E. Korpela, K. Min, K. Ryu, J. Shinn, W. Han, W. Han, D. Lee
1UC, Berkeley, 2KAIST, Republic of Korea, 3KASI, Republic of Korea.
017.08 Intermittency of the Velocity Field Structure in Compressible MHD Turbulence
Grzegorz Kowal1, A. Lazarian1
1University of Wisconsin-Madison.

017.09 Turbulence and Cosmic Ray Acceleration
Alex Lazarian1
1Univ. of Wisconsin.

017.10 [O I] and [C II] Emission Towards NGC 6334 A
Nicholas Abel1, A. Sarma2, G. Ferland3, T. Troland3
1University of Cincinnati, 2Depaul University, 3University of Kentucky.

017.11 The Galactic Center: High-resolution Imaging and Temperature Determination of Dense Molecular Clouds
Juergen Ott1, A. Weiss2, L. Staveley-Smith3, C. Henkel2
1CSIRO Australia Telescope National Facility, Australia, 2MPI fuer Radioastronomie, Germany, 3University of Western Australia, Australia.

017.12 High-Resolution Study of X-ray Absorption by the Interstellar Medium
Adrienne M. Juett1, J. Wilms2, N. S. Schulz3, M. A. Nowak3
1Univ. of Virginia, 2Univ. of Erlangen, Germany, 3MIT.

017.13 Highly Excited Rovibrational Rate Coefficients for H2 + He Collisions: Relevance to H2 Spectra in the ISM
Teck-Ghee Lee1, R. C. Forrey1, S. Lepp3, N. Balakrishnan4, P. C. Stancil5, D. R. Schultz2, G. J. Ferland2
1Physics and Astronomy, University of Kentucky and Oak Ridge National Lab., 2Department of Physics, Penn-State University, 3Department of Physics, University of Nevada, 4Department of Chemistry, University of Nevada, 5Department of Physics and Astronomy and Center for Simulational Physics, The University of Georgia., 6Physics Division, Oak Ridge National Lab., 7Physics and Astronomy, University of Kentucky.

017.14 A Study of the Radio Continuum - Far Infrared Correlation at Small Scales in the Galaxy
Monica I. Rodriguez-Martinez1, R. J. Allen1, T. Wiklind1, L. Loinard2
1STScI, 2CRyA-UNAM, Mexico.

017.15 Flows, Filaments & Fragmentation: Towards a Theory of Dynamical Star Formation
Fabian Heitsch1, L. Hartmann1, A. D. Slyz2, J. E. Devriendt3, A. Burkert4
1Univ. Of Michigan, 2University of Oxford, United Kingdom, 3CRAL/Observatoire de Lyon, France, 4University Observatory Munich, Germany.

017.16 A New View of the Light Echoes from SN 1987A
1Washington University, 2NOAO/CTIO, 3Texas A & M University, 4McMaster University, Canada, 5Harvard University, 6University of Washington, 7Lawrence Livermore National Laboratory, 8Pontifica Universidad Católica de Chile, Chile, 9Ohio State University.

017.17 ATCA Imaging of Dense Gas in Star-Forming Environments
Tony H. Wong1, J. Ott2, S. D. Ryder3, K. Kohno4, R. Buta5, M. Dahlem6, J. B. Whiteoak6, Y. Chin7, M. R. Cunningham8
1U. Illinois, 2NRAO, 3AAO, Australia, 4U. Tokyo, Japan, 5U. Alabama, 6ATNF, Australia, 7Tamkang U., Taiwan, 8UNSW, Australia.

017.18 Diagnostics of Astrophysical Magnetic Fields based on Atomic Alignment and Hanle Effect
Huirong Yan1, A. Lazarian2
1CITA, Canada, 2Univ. Wisconsin-Madison.

017.19 Studying Magnetic Fields in Star Forming Regions with Aligned Atoms
Thiem C. Hoang1, A. Lazarian1, K. Nordsieck1, H. Yan3
1University of Wisconsin-Madison, 2Canadian Institute for Theoretical Astrophysics, Canada.

017.20 High-Mass Star Formation in Three Southern, Galactic Cores
Georgi Chunev1, C. Watson1, GLIMPSE Team
1Manchester College.
017.21 Interstellar Material towards the Nearby High Latitude Star eta Uma
Priscilla C. Frisch¹, E. B. Jenkins², J. Aufdenberg³, U. J. Sofia⁴, D. G. York⁵, J. D. Slavin⁶, C. M. Johns-Krull⁷
¹University of Chicago, ²Princeton, ³Embry-Riddle Aeronautical University, ⁴Harvard-Smithsonian, CfA, ⁵Harvard-Smithsonian Center for Astrophysics, ⁶NASA Goddard Space Flight Center, ⁷University of Rochester.

017.22 Mapping [O III] Emission in Diffuse Ionized Gas
Rex C. Beaber¹, L. M. Haffner¹, R. J. Reynolds¹, G. J. Madsen²
¹University of Wisconsin - Madison, ²Anglo-Australian Observatory, Australia.

017.23 Density Distribution of the Warm Ionized Medium
Alex S. Hill¹, R. J. Reynolds¹, R. A. Benjamin², L. M. Haffner¹
¹Univ. of Wisconsin-Madison, ²Univ. of Wisconsin-Whitewater.

017.24 Hydrogen-Dating Molecular Clouds
Marko Krco¹, P. F. Goldsmith², D. Li²
¹Cornell University, ²JPL.

017.25 Theoretical Studies of Wind Blown Nebulae around Massive Stars
Vikram Dwarkadas¹
¹Univ. of Chicago.

Session 018 Galactic Structures: Identification & Evolution
AAS Poster, Sunday, 9:20am-6:30pm, Exhibit Hall 4

018.01 Development of a Fourier Technique for Automated Spiral Galaxy Morphology
Andrew R. Butler¹
¹Calvin College.

018.02 Self-Consistent Models for Time Varying Galaxy Potentials
Stephen Levine¹
¹U.S. Naval Observatory.

018.03 The Stellar Halos of Nearby Galaxies
Anil Seth¹, R. de Jong², H. Ferguson², J. Dalcanton³
¹Harvard-Smithsonian CfA, ²STScI, ³U. of Washington.

018.04 A Search for Faint, Diffuse Halo Emission in Edge-On Galaxies with Spitzer/IRAC
Matthew Ashby¹, R. G. Arendt², J. L. Pipher³, W. J. Forrest³, M. Marengo¹, P. Barnby¹, S. P. Willner⁴, J. R. Stauffer⁵, G. G. Fazio¹
¹Harvard-Smithsonian Center for Astrophysics, ²NASA Goddard Space Flight Center, ³University of Rochester, ⁴Caltech/Spitzer Science Center.

018.05 Spitzer’s View on Edge-On Spiral Disks
Benne W. Holwerda¹, R. S. de Jong², M. Regan², A. Seth³, J. D. Dalcanton³, E. Bell³, S. Bianchi⁵
¹STSCI, ²CfA, ³Astronomy Dept., University of Washington, ⁴MPI fuer Astronomie, Germany, ⁵AA (Istituto di Radioastronomia/CNR), Italy.

018.06 A WIYN Study of Optical Asymmetry in Isolated Disk Galaxies
Alex C. Viana¹, E. M. Wilcots¹
¹University of Wisconsin - Madison.

018.07 The Structure of Polar Ring Galaxies UGC 7576, NGC 2685, and NGC 3718
Christopher Q. Trinh¹, L. S. Sparke², J. S. Gallagher²
¹University of California, Berkeley, ²University of Wisconsin, Madison.

Session 019 Galaxy Evolution over Cosmic History
AAS Poster, Sunday, 9:20am-6:30pm, Exhibit Hall 4

019.01 Five Thousand Galaxy Redshifts from PEARs
Seth H. Cohen¹, R. E. Ryan, Jr.¹, S. Malhotra¹, J. E. Rhoads¹, N. P. Hathi¹, R. A. Windhorst¹, N. Pirzkal¹, C. Xu², PEARs Team
¹Arizona State University, ²Space Telescope Science Institute.

019.02 The Size-Luminosity Relation of Disk Galaxies in EDisCS Clusters
Stephanie M. Gogarten¹, J. J. Dalcanton¹, L. Simard², G. Rudnick³, V. Desai³, EDisCS Collaboration
¹Univ. of Washington, ²Herzberg Institute of Astrophysics, NRC, Canada, ³NOAO, ⁴California Institute of Technology.

019.03 Simulated Optical Images of High Redshift Galaxies using GALEX Ultraviolet Images of Nearby Galaxies
Bum-Suk Yeom¹, Y. Kim¹, S. Rey¹, J. Koo¹, S. Kim¹
¹Chungnam National University, Republic of Korea.
019.04  Ages and Masses of Lyman Alpha Galaxies at z ~ 4.5
Steven L. Finkelstein', J. E. Rhoads', S. Malhotra', N. Pirzkal', J. Wang'
1Arizona State Univ., 2Space Telescope Science Institute, 3University of Science and Technology of China, China.

019.05  The Spitzer Interacting Galaxies Survey: IRAC Evaluations of Star Formation
1Caltech, 2Harvard-Smithsonian Center for Astrophysics.

019.06  Buildup of Massive Red Galaxies at redshift z=0.3
Morad Masjedi', D. W. Hogg', M. R. Blanton'
1New York Univ.

019.07  The Origin and Evolution of the Mass-Metallicity Relationship for Galaxies: Results from Cosmological N-Body Simulations
1Univ. of Washington, 2Univ. of Durham, United Kingdom, 3Harvard-Smithsonian CfA, 4Univ. of Pittsburgh, 5McMaster Univ., Canada.

019.08  Star-Forming Galaxies at z~2: Stellar, Gas and Dynamical Masses and the Mass-Metallicity Relation
Dawn Erb' 
1Harvard-Smithsonian Center for Astrophysics.

Session 020 High Z Objects; IR, Optical Background
AAS Poster, Sunday, 9:20am-6:30pm, Exhibit Hall 4

020.01  Search for High-Redshift Quasars in the Palomar-QUEST Survey
Anne Bauer', C. Baltay', N. Ellman', J. Jerke', D. Rabinowitz', A. Mahabal', E. Glickman', C. Donalek', S. G. Djorgovski'
1Yale University, 2California Institute of Technology.

020.02  A Confirmation of the Optical EBL From HST Archival Data: First Results
1Johns Hopkins Univ., 2Space Telescope Science Institute.

Session 021 Gravitational Lensing
AAS Poster, Sunday, 9:20am-6:30pm, Exhibit Hall 4

021.01  A Three-Dimensional View of the Environments of Three Strong Gravitational Lenses
Leonidas A. Moustakas', P. Marshall', AEGIS Collaboration
1JPL/Caltech, 2UCSB.

021.02  HST ACS Observations of the Gravitational Lens B1608+656
1California Institute of Technology, 2KIPAC, Stanford University, 3University of California, Davis, 4Kapteyn Institute, The Netherlands, 5University of California, Santa Barbara.

021.03  LensPerfect: Exact Massmap Solutions for Gravitationally Lensed Multiple Images
Dan A. Coe', E. Fuselier', N. Benitez', T. Broadhurst', H. Ford', ACS Science Team
1Johns Hopkins Univ., 2U.S. Military Academy, 3Instituto de Astrofísica de Andalucía, Spain, 4Tel Aviv Univ., Israel.

021.04  A Multi-Resolution Weak Lensing Reconstruction Method
Hossein Khiabanian', I. Dell'Antonio'
1Brown Univ.
021.05 Application of Gravitational Lensing Models to the Brightest Strongly Lensed Lyman Break Galaxy - the '8 o’clock arc'
Elizabeth J. Buckley-Geer¹, S. S. Allam², D. Tucker³, H. Lin¹, H. T. Diehl¹, J. Annis¹, J. A. Frieman³
¹Fermi National Accelerator Laboratory, ²Fermi National Accelerator Laboratory/University of Wyoming, ³Fermi National Accelerator Laboratory/University of Chicago.

021.06 Weak Lensing : Ground vs. Space in the Cosmos Field
Mansi M. Kasliwal¹, R. J. Massey², R. S. Ellis², J. Rhodes³
¹Caltech (Hale Fellow of Moore Foundation), ²Astronomy Department, Caltech, ³Jet Propulsion Laboratory, Caltech.

021.07 Time-Delays and Mass Models for the Quadruple Lens RXJ1131-1231
Nicholas D. Morgan¹, C. S. Kochanek¹, E. E. Falco², X. Dai³
¹The Ohio State University, ²Harvard Smithsonian Center for Astrophysics.

021.08 Mid Infrared Observations of Quasar Lenses
Eric Agol¹, C. Kochanek²
¹Univ. of Washington, ²Ohio State University.

Session 022 Ground-Based Instrumentation I
AAS Poster, Sunday, 9:20am–6:30pm, Exhibit Hall 4

022.01 The Dark Energy Survey Instrument
Brenna Flaugher¹, Dark Energy Survey Collaboration
¹Fermilab.

022.02 The Dark Energy Survey Camera Design
Herman P. Cease², DES Collaboration
¹Fermilab.

022.03 Front-End Electronics for the Dark Energy Survey Camera (DE-Cam)
Theresa M. Shaw¹, D. Huffman¹, M. Kozlovsky¹, J. Olsen¹, W. Steurmer¹, M. Barcelo², L. Cardiel², J. Castilla¹, J. DeVicente³, G. Martinez¹, P. Moore¹, R. Schmidt⁴
¹Fermilab, ²IFAE, Spain, ³CIEMAT, Spain, ⁴NOAO.

022.04 Characterization and Testing of Dark Energy Survey CCDs
H T. Diehl¹, Dark Energy Survey Collaboration
¹Fermilab.

022.05 Mountaintop Software for the Dark Energy Survey
Jon Thaler¹, T. Abbott², I. Karliner¹, T. Qian¹, K. Honscheid¹, W. Merritt¹, L. Buckley-Geer⁴
¹University of Illinois (UIUC), ²CTIO, Chile, ³Ohio State University, ⁴Fermilab.

022.06 Application of the Dark Energy Survey Data Management System to the Blanco Cosmology Survey Data
Chow Choong Ngeow¹, J. J. Mohr², W. Barkhouse¹, T. Alam³, C. Beldica³, D. Cai³, G. Daues³, P. Duda³, J. Annis⁴, H. Lin⁴, D. Tucker⁴, A. Rest⁵, C. Smith⁵, Y. Lin⁶, W. High⁷, S. Hansen⁴, M. Brodwin⁴, S. Allam⁴, BCS Collaboration
¹Univ. of Illinois, ²Univ. of Illinois and NCSA, ³NCSA, ⁴Fermilab, ⁵NOAO/CTIO, Chile, ⁶Princeton University/Pontificia Universidad Católica de Chile, Chile, ⁷Harvard, ⁸Univ. of Chicago, ⁹NASA/JPL.

022.07 Analyzing the Focus Sensor Images for ODI at WIYN
Robert P. Nowicki¹
¹Susquehanna University.

022.08 QUOTA sees First Light at WIYN!
Daniel R. Harbeck¹, G. Jacoby¹, D. Sawyer¹, S. Howell¹, C. Corson¹, A. Yeatts¹, B. Brondel¹, M. Hunten¹, P. Moore⁴
¹WIYN Observatory, ²NOAO, ³University of Indiana, ⁴NOAO, Chile.

022.09 Fast Guiding with the Quad OTA
Brian J. Brondel¹, D. R. Harbeck², S. B. Howell¹, A. Yeatts²
¹Indiana University, ²National Optical Astronomy Observatories.

022.10 The WIYN Serendipity Project: High Speed Guide Star Photometry at the WIYNObservatory
Lisa M. Ferrara¹, S. B. Howell¹, D. Harbeck², C. Bailyn¹
¹Yale University, ²WIYN Observatory and National Optical Astronomy Observatories.
022.11 The Quest for Precision Ground-Based Astronomy: The CCD/Transit Instrument with Innovative Instrumentation (CTI-II)
John T. McGraw¹, M. R. Ackermann¹, T. Williams¹, P. C. Zimmer¹, W. H. Gerstle¹, G. F. Benedict², S. C. Odewahn³, C. J. Wetterer¹, V. L. Gamiz⁴, C. F. Claver⁵, J. R. Pier⁶, D. C. Hines⁷, J. S. Schwarz⁸, NESSI/CTI-II Research Group
¹Univ. of New Mexico, ²Univ. of Texas, ³US Air Force Academy, ⁴Air Force Research Laboratory/DE, ⁵National Optical Astronomy Observatory, ⁶US Naval Observatory, ⁷Space Science Institute, ⁸Sandia National Laboratories.

022.12 The Unique Optical Design of the CTI-II Survey Telescope
Mark R. Ackermann¹, J. T. McGraw², M. MacFarlane³
¹Sandia National Laboratories, ²University of New Mexico, ³Optical Design Consultant.

022.13 LCOGT.net: A Global Telescope Network to Keep Astronomers in the Dark
Stuart F. Taylor¹, T. M. Brown¹, W. Rosing¹, R. Ross¹, J. Farrell¹
¹Las Cumbres Observatory Global Telescope.

022.14 The Discovery Channel Telescope: Construction and Design Progress, January 2007
Thomas A. Bida¹, R. L. Millis¹, B. W. Smith¹, E. W. Dunham¹, H. Marshall¹
¹Lowell Obs.

Session 023 HAD IV
AAS Poster, Sunday, 9:20am–6:30pm, Exhibit Hall 4
This HAD Poster Session will continue Monday morning.

023.01 History of the Spitzer Mission
George Rieke¹
¹Univ. of Arizona.

023.02 The Role of Eclipse Expeditions in Early French and Australian Radio Astronomy
Wayne Orchiston¹, J. Lequeux², M. Pick², B. Slee², J. Steinberg²
¹James Cook University, Australia, ²Paris Observatory, France, ³Australia Telescope National Facility, Australia.

023.03 Seth Nicholson's First Satellite Discovery: Jupiter IX and His Orbit for It
Donald E. Osterbrock¹
¹UCO/Lick Observatory.

023.04 The Guilford-Carleton Eclipse Expedition of 1900
Thomas R. English, III¹
¹Guilford Tech. Community College.

023.05 The North American Astronomical Photographic Plate Preservation & Digitization Center - Current Status
Wayne Osborn¹, M. Castelaz², J. D. Cline², R. E. Griffin³, T. Barker²
¹Central Michigan Univ., ²Pisgah Astronomical Research Institute, ³Dominion Astrophysical Observatory, Canada.

023.06 Astronomy Education Review: A Five-Year Progress Report
Andrew Fraknoi¹, S. Wolff²
¹Foothill College, ²NOAO.

Session 024 SIM Science
AAS Poster, Sunday, 9:20am–6:30pm, Exhibit Hall 4

024.01 The Exoplanet Host Star Gamma Cephei: Orbit of the Binary and Mass of the Substellar Companion
Guillermo Torres¹
¹Harvard-Smithsonian, CfA.

024.02 Astrometric Detection of Terrestrial Planets in the Habitable Zones of Nearby Stars with SIM PlanetQuest
Joseph Catanzaře¹, M. Shao¹, A. Tanner¹, S. Unwin¹, J. Yu¹
¹Jet Propulsion Laboratory.

024.03 Masses of Exoplanets from Doppler Spectroscopy and HST Astrometry
Jacob Bean¹, B. E. McArthur¹, G. F. Benedict¹
¹Univ. of Texas, Austin.

024.04 Clandestine Companions of Nearby Red Dwarfs
Todd J. Henry¹, D. W. Koerner², W. C. Jao³, J. P. Subasavage¹, P. A. Ianna³, RECONS
¹Georgia State Univ., ²Northern Arizona Univ., ³Univ. of Virginia.
024.05  Crowded Field Astrometry with SIM
         Sridharan Rengaswamy¹, R. Allen¹
         ¹STScI.

Session 025 Solar System
AAS Poster, Sunday, 9:20am-6:30pm, Exhibit Hall 4

025.01  Small Lnding Pobes for In-situ Characterization of Asteroids and Comets
         Dennis Ebbets¹, R. Dissly¹, R. Reinert¹
         ¹Ball Aerospace & Tech. Corp.

025.02  Search for Satellites around Ceres
         Allyson Bieryla¹, J. W. Parker¹
         ¹Southwest Research Institute.

025.03  Searching for Asteroids with 8 micron Spitzer Space Telescope Data
         Edward L. Wright¹, B. Mohlie²
         ¹UC, Los Angeles, ²RPI.

025.04  Correlating Arecibo Radar and IRTF Near-Infrared Spectral Observations of 105 Artemis
         Heather M. Hanson², E. S. Howell², C. Magri³, M. C. Nolan²
         ¹University of Wyoming, ²Arecibo Observatory, Puerto Rico, ³University of Maine at Farmington.

025.05  Orbits of Binary Near-Earth Asteroids from Radar Observations
         Heidi E. Brooks¹
         ¹Reed College.

025.06  Differential Photometry of Asteroids 252 Clemintina, 329 Svea, 334 Chicago, 596 Scheila, 517 Edith, 521 Brixia and 713 Luscinia.
         Elise C. Jutzeler¹, E. Hausel², A. Burke³, M. Leake⁴
         ¹SUNY Geneseo, ²University of Wyoming, ³Vassar College, ⁴Valdosta State University.

025.07  Beyond the Main Belt: Properties of Solar System Objects using the Sloan Digital Sky Survey
         Shannon Schmoll¹, Z. Ivezic¹, M. Juric²
         ¹Univ. of Washington, ²Princeton University.

025.08  Asteroid Families in the Sloan Digital Sky Survey Moving Object Catalog
         Alex Parker¹, Z. Ivezic¹, M. Juric², R. Lupton²
         ¹University of Washington, ²Princeton University.

025.09  The Canada-France Ecliptic Plane Survey: Strategy, Details and Results
         R. L. Jones¹, J. Kavelaars², B. Gladman³, J. Petit⁴, J. Parker⁵, A. Bieryla¹
         ¹Univ. of Washington, ²HIA/NRC, Canada, ³Univ. of British Columbia, Canada, ⁴Obs. de Besancon, France, ⁵SWRI.

025.10  New and Improved Ephemerides of Nix and Hydra During the 1985 to 1990 Mutual Events Between Pluto and Charon
         Garrett Elliott¹, D. J. Tholen²
         ¹The Ohio State University & Institute for Astronomy, University of Hawaii, ²Institute for Astronomy, University of Hawaii.

025.11  Obtaining An MPC Observatory Code For Arkansas Tech University
         Jason Ahrns¹, J. W. Robertson¹
         ¹Arkansas Tech University.

025.12  Constraining the Rotational Period for Component C of the Periodic Comet 73P/Schwassmann-Wachmann 3
         Shaye Storm¹, N. Samarasinha², B. Mueller¹, T. Farnham¹, Y. Fernandez³, A. Kidder⁴, D. Snowden⁵, M. A’Hearn⁶, W. Harris⁷, M. Knight¹, J. Morgenthaler⁶, C. Lisse⁶, F. Roessler⁶
         ¹MIT, ²NOAO & PSI, ³PSI, ⁴UMD, ⁵UCF, ⁶U of Wash, ⁷APL/JHU, ⁸U of Wisc.

025.13  Comet 73P/Schwassmann-Wachmann 3: O(1D) and H2O Production Rates
         Tanya L. Hall¹, E. J. Mierkiewicz², L. M. Haffner², F. L. Roesler², W. M. Harris¹, G. J. Madsen⁴
         ¹Saint Cloud State University, ²University of Wisconsin-Madison, ³University of Washington, ⁴Anglo-Australian Observatory, Australia.
025.14 GALEX Observations of Comet 9P/Tempel 1 During Deep Impact
Stephan R. McCandliss¹, P. D. Feldman¹, C. M. Lisse², H. A. Weaver², M. F. A'Hearn³
¹Johns Hopkins Univ., ²JHU/APL, ³University of Maryland.

025.15 Wide-field spectroscopic observations of comet C/2004 Q2 (Machholz) by GALEX
Jeffrey P. Morgenthaler¹, W. M. Harris¹, M. R. Combi¹, P. D. Feldman¹, H. A. Weaver³
¹Univ. of Washington, ²Univ. of Michigan, ³JHU, ⁴JHU/APL.

025.16 The Effect of the Sun's Early Environment on the Oort Cloud and Comet Showers
Nathan A. Kaib¹, T. Quinn¹
¹Univ. Of Washington.

025.17 Distribution of Ethane and Methane Emission on Neptune
Heidi B. Hammel¹, M. L. Sitko¹, G. S. Orton³, T. Geballe³, D. K. Lynch¹, R. W. Russell⁴, I. de Pater³
¹Space Science Institute, ²JPL, ³Gemini, ⁴The Aerospace Corp., ⁵UC Berkeley.

025.18 Origin of the Moon
Peter D. Noerdlinger¹
¹St. Mary's University, Canada.

025.19 Velocity Resolved Observations of the Extended Lunar Sodium Tail
Michael R. Line¹, E. J. Mierkiewicz¹, F. L. Roesler¹, L. M. Haffner¹, R. J. Oliverson¹
¹University of Wisconsin-Madison, ²NASA Goddard Space Flight Center.

025.20 Advanced Computer Modeling of the Lunar Plasma Environment in the Dynamic Terrestrial Magnetosphere
Erika Harnett¹, R. Winglee¹, J. Halekas³
¹Univ. Of Washington, ²Univ. Of California - Berkeley.

025.21 3D Multi-Fluid Simulations of the Solar Wind Interaction with Mercury's Magnetosphere
Ariah R. Kidder¹, R. M. Winglee¹, E. M. Harnett¹
¹University of Washington.

025.22 3D Multi-fluid Simulations of Titan's Plasma Interaction
Darci Snowden¹, R. Winglee¹
¹University of Washington.

Session 026 Star Clusters I
AAS Poster, Sunday, 9:20am-6:30pm, Exhibit Hall 4

026.07 Age Distribution of Galactic Globular Clusters using HST Snapshot Photometry
YoungDae Lee¹, S. Rey¹, Y. B. Kang¹, S. Kim¹
¹Chungnam National Univ., Republic of Korea.

026.09 The Evolution of Horizontal Branch Stars in the Core Region of M15
Jessica E. Castora¹, E. L. Sandquist¹
¹San Diego State Univ..

026.11 Washington Photometry of NGC 6441
Joanne D. Hughes¹, G. Wallerstein¹, A. Bossi¹, W. McDougald¹, R. Covarrubias²
¹Seattle Univ., ²University of Washington.

026.12 Spitzer Observations of Galactic Globular Clusters
Pauline Barmbry¹, M. L. Boyer², G. Bono³, I. Ferraro³, M. Marenghi³
¹CfA, ²U. Minnesota, ³INAF-Osservatorio Astronomico di Roma, Italy.

026.13 Do the Large Magellanic Cloud and Milky Way Globular Clusters Share a Common Origin?
Bradley E. Tucker¹, K. A. Olsen², B. Blum³
¹Univ. Of Notre Dame, ²Cerro Tololo Inter-American Observatory, Chile.
SUNDAY Events, Sessions and Paper Titles

028.03 Follow-up Spectroscopy for the SDSS-II SN Survey
Chen Zheng¹, SDSS-II Supernova Collaboration
¹KIPAC.

028.04 Core Collapse Supernova in the SDSS Supernova Survey
David Cinabro¹
¹Wayne State University.

028.05 Exploring the Variable Sky with SDSS
Branimir Sesar¹, Z. Ivezic¹, R. H. Lupton², J. E. Gunn², G. R. Knapp³,
C. M. Rockosi⁴, M. Juric⁴, J. A. Smith⁴, G. Miknaitis⁴, H. Li⁴, D.
Tucker⁴, D. J. Schlegel⁴, D. Finkbeiner⁴, N. Padmanabhan²
¹Univ. Of Washington, ²Princeton University, ³University of California,
⁴Fermilab, ⁵LLNL, ⁶Harvard University.

Session 029 Variable Stars
AAS Poster, Sunday, 9:20am-6:30pm, Exhibit Hall 4

029.01 The Selection of RR Lyrae Stars Using POSS and SDSS
Oliver J. Fraser¹, J. R. Barton¹, B. J. Oldfield¹, T. P. Biesiadzinski¹, D.
A. Horning¹, J. A. Baenyn¹, F. Kiuchi¹, D. Krogsrud¹, D. S. Long-
hurst¹, L. P. McCommas¹, J. A. Scheidt¹, R. Covarrubias¹, K. Covey¹,
C. Laws¹, B. Sesar¹, Z. Ivezic¹
¹Univ. of Washington, ²Bainbridge High School.

029.02 Using RR Lyrae Stars to Probe the M33 Halo
Barton J. Pritzl¹, M. Buttermore¹, A. Saha¹, E. D. Skillman¹, K. A.
Venn¹, H. L. Morrison¹, E. W. Olszewski⁶
¹Macalester College, ²NOAO, ³University of Minnesota, ⁴University of
Victoria, Canada, ⁵Case Western Reserve University, ⁶Steward Ob.

029.03 The V-R Color of RR Lyrae Stars at Minimum Light
Andrea M. Kunder¹, B. Chaboyer¹, A. Layden²
¹Dartmouth College, ²Bowling Green State University.

029.04 Photometric Observations of RR Lyrae Stars at Red Buttes Obs.
Frances Rivera¹, R. Ressler¹, K. Kinemuchi¹, H. A. Smith²
¹University of Wyoming, ²Michigan State University.

029.05 SMC RR Lyr Abundances from Caby Photometry
Scott R. Baird¹, H. A. Smith², S. C. Keller³, K. H. Cook⁴, A. R.
Walker⁵
¹Benedictine College & U. Kansas, ²Michigan State U., ³Mount Stromlo
Obs., Australia, ⁴LLNL, ⁵CTIO, Chile.

029.06 A Photometric Study of Starspot Evolution on HIP 106231
Robert O. Harmon¹, R. M. Roettenbacher¹
¹Ohio Wesleyan University.

029.07 Variable Stars in the LMC Globular Cluster NGC 1754
Charles A. Kuehn, III¹, L. Taylor², H. A. Smith¹, M. Catelan¹, B. J.
Pritzl¹, N. De Lee¹
¹Michigan State University, ²Transylvania University, ³Pontificia Universi-
sidad Catolica de Chile, Chile, ⁴Macalester College.

029.08 The Secret Lives of Cepheids: Discovery of Strong FUV Emissions
in the Classical Cepheids Polaris and beta Dor
Scott G. Engle¹, E. F. Guinan¹, N. R. Evans²
¹Villanova Univ., ²Harvard-Smithsonian CfA.

029.09 Correlation of R Cassiopeia’s SiO Maser Properties
Anne Hayes¹, G. McIntosh¹
¹University of Minnesota, Morris.

029.10 APT Observations of the Bright Cepheid HD 32456
William Z. Taylor¹, R. J. Dukes, Jr.¹
¹College of Charleston.

029.11 Frequency Determination for the Slowly Pulsating B Star,
HD21071, From Combined Geneva and Stromgren Photometry
Melissa Sims¹, R. J. Dukes, Jr.¹
¹College of Charleston.

029.12 Frequency Determinations of Five Slowly Pulsating B Stars
Joseph Bramlett¹, R. J. Dukes, Jr.¹
¹College of Charleston.
029.13 Spitzer 24μ and 70μ Imagery of Symbiotic Stars with Extended Nebular Ejecta
Bruce McCollum1, F. C. Bruhweiler2, G. M. Wahlgren1, M. Eriksson1, A. Rosas1, E. Verner3
1IPAC/SSC, 2CUA/GSFC, 3Lund Obs., Sweden, 4CUA, 5CUA/UDC/GSFC.

029.14 Fast-Drifting Radio Bursts Seen on the Flare Star AD Leo with the Arecibo Observatory
Rachel A. Osten1, T. Bastian2
1University of Maryland, 2National Radio Astronomy Observatory.

029.15 VLA Imaging of Cygnus X-3 Jets at 8.5 GHz
Catherine A. Whiting1, M. Rupen2, A. Mioduszewski2
1University of Iowa/ NRAO, 2NRAO.

029.17 Photometric and Spectroscopic Observations of Two delta Scuti Variable: V919 Herculis and V927 Herculis
Charles R. Phillips1, E. G. Hintz1
1Brigham Young University.

029.18 An Analysis of the Variable Star V577 Ophiuchi
Christine Forsyth1, E. G. Hintz2
1Bryn Mawr College, 2Brigham Young Univ..

029.19 Rotational Velocities of delta Scuti Variable Stars
Tabitha C. Bush1, E. G. Hintz1
1Brigham Young University.

029.20 The Curious Case of GSC3196-641: Double-mode RR Lyrae or a Spotted Rotating Star?
Michael Koppelman1, R. Huziak2, V. Petriew3
1Univ. of Minnesota, 2Univ. of Saskatchewan, Canada, 3AAVSO.

Session 030 YSO / Star Formation I
AAS Poster, Sunday, 9:20am-6:30pm, Exhibit Hall 4

030.01 Stellar and Circumstellar Properties of Class I Protostars
Kelly Lockhart1, L. Prato2, C. M. Johns-Krull3, J. T. Rayner4

030.02 An Unbiased Statistical Study of Herbig AeBe Systems in the X-rays Using Chandra
Murad Hamidouche1, S. Wang1, L. W. Looney1
1Univ. of Illinois.

030.03 Search for Close Binaries of Herbig Ae/Be Stars
Maria J. Cordero1, S. Thomas2, N. van der Bliek3, B. Rodgers4, G. Doppmann4, A. Sweet5
1Pontificia Universidad Catolica de Chile, Chile, 2UC Santa Cruz, 3CTIO, Chile, 4Gemini South Observatory, Chile, 5Macalester College.

030.04 Wide-Field NIR Polarimetry of the Orion Nebula
Nobuhiko Kusakabe1, M. Tamura1, R. Kandori1, J. Hashimoto2, Y. Nakajima1, T. Nagayama1, C. Nagashima1, T. Nagata3, J. H. Hough2
1National Astronomical Observatory, Japan, 2Tokyo University of Science, Japan, 3Kyoto University, Japan, 4Nagoya University, Japan, 5University of Hertfordshire, United Kingdom.

030.05 Spitzer IRAC and MIPS Observations toward High-mass Star Forming Regions
Keping Qiu1, Q. Zhang1, R. A. Gutermuth1, T. S. Megeath2, H. Beuther3, T. K. Sridharan1, D. S. Shepherd1, L. Testi1, C. G. De Gree1
1Harvard-Smithsonian Center for Astrophysics, 2University of Toledo, 3MPI for Astronomy, Germany, 4NRAO, 5Osservatorio Astrofisico di Arcetri, Italy, 6Dept. of Physics and Astronomy, Agnes Scott College.

030.06 Lithium Depletion in the Beta Pictoris Moving Group
Jennifer C. Yee1, E. L. Jensen1, B. E. Reaser1
1Swarthmore College.

030.07 A Search for OH Maser Emission In Bright-Rimmed Clouds
Kristen L. Thomas1, L. K. Morgan1, J. S. Urquhart2, M. A. Thompson2
1NRAO, 2University of Leeds, UK, 3The University of Hertfordshire, UK.

030.08 A Mid-Infrared Survey of Class I/Flat-Spectrum Binary/Multiple Systems
Karl E. Haisch, Jr.1, M. Barsony2, M. E. Ressler1, T. P. Greene4
1Utah Valley State College, 2San Francisco State University, 3NASA JPL, 4NASA Ames Research Center.
030.09 CO Emission from the Inner Regions of Disks with Dust Clearing
Joanna M. Brown1, G. A. Blake1, C. Salyk1, A. C. Boogert6
1Caltech, 2AURA/NOAO-South, Chile.

030.10 Fission of Rapidly Rotating Protostars
Jennifer L. Lozier1, S. Michael2, R. H. Durisen2, J. N. Imamura3
1Mount Union College, 2Indiana University, 3University of Oregon.

030.11 Formaldehyde Emission From Protostellar Region L1448IRS3
Claire M. Davy1, J. Mangum2, A. Wootten2
1Bryn Mawr College, 2NRAO.

030.12 A Search for Young Stellar Objects in the Horsehead Nebula
Brendan P. Bowler1, W. H. Waller1, S. T. Megeath1, B. M. Patton1, M. Tamura4
1Tufts University, 2University of Toledo, 3NSF, CfA, 4NAOJ, Japan.

030.13 Outflow Evolution in Turbulent Clouds
Andrew Cunningham1, A. Frank1, A. C. Quillen1, E. G. Blackman1
1University of Rochester.

030.14 Protostellar Outflows and their Influence on the Star Formation Process
Hector G. Arce1
1Am. Museum of Natural History.

030.15 Photometric Monitoring of the PMS Object Walker 90
Michael D. Joner1
1Brigham Young Univ.

030.16 The Taurus Spitzer Legacy Project
Deborah Padgett1, M. Fukagawa2, L. Rebull1, A. Noriega-Crespo1, S. Carey1, K. Stapelfeldt1, L. Hillenbrand1, T. Huard1, S. Terebey5, D. Hines6, T. Brooke1, C. McCabe1, M. Guedel1, G. Knapp8, M. Audard9, F. Menard10, J. Monin10, C. Dougados10, N. Evans11, L. Allen1, S. Strom12, P. Harvey11
1California Institute of Technology, 2Nagoya University, Japan, 3JPL, 4Harvard-Smithsonian CfA, 5California State U, Los Angeles, 6Space Science Institute, 7Paul Sherrer Institut, Switzerland, 8Princeton U., 9U. Geneva, Switzerland, 10Obs. du Grenoble, France, 11U. Texas, 12NOAO.

030.17 Millimeter-Wavelength Methanol Masers in New Galactic Sources
Jenna J. Lemonias1, V. Strelbitski2, P. Pratap1
1Vassar College, 2Maria Mitchell Observatory, 3MIT Haystack Observatory.

030.18 Class I Methanol Masers in the DR21 Star Forming Complex
Samantha Hoffmann1, P. Pratap2, V. Strelbitski1
1Texas Lutheran University and MIT Haystack Observatory, 2MIT Haystack Observatory, 3Maria Mitchell Observatory.

030.19 Short-term Variations in the Class I Methanol Maser Line at 44 GHz
Preethi Pratap1, S. Hoffmann1, V. Strelbitski2
1MIT Haystack Obs., 2Maria Mitchell Observatory.

030.20 A New Low-Mass, Pre-Main Sequence Eclipsing Binary in Orion:
Precise Mass Determinations of System Components
Phillip Cargile1, K. G. Stassun1, R. Mathieu2
1Vanderbilt Univ., 2Universiti of Wisconsin.

030.21 Star Formation in Bright-Rimmed Clouds
Sarah Ballard1, L. Allen2, R. Gutermuth2
1UC Berkeley, 2Harvard-Smithsonian Center for Astrophysics.

Job Center
Attendee Services, Sunday, 9:20am-5:00pm, Exhibit Hall 4
The AAS Job Center will be operated as normal at the Seattle Meeting Washington.
The Job Center is designed to facilitate as many informal interviews as possible. It is our hope that successful formal interviews will be the next step for everyone. Employers: If you are planning to conduct interviews in Calgary, please let us know. Send your name, institution and position for which you will be interviewing to jobs@aas.org
Job Seekers: To participate, please submit your resume and cover sheet to jobs@aas.org at the AAS Executive Office by 15 December 2006. For more details access, http://members.aas.org/JobReg/JRIncludes/jobcen.cfm.
**Session 500 Gadgets and Gizmos**

Attendee Services, Sunday, 9:20am-5:00pm, South Lobby

If you're interested in sharing educational materials you've developed, adapted and used, whether you're new to teaching or an old hand, this session is for you. Suitable demonstrations include interactive web tools (applets, immersive experiences, touch screens), instructional software, remote observing tools, audience response systems (“clickers”), wireless delivery of content to handheld devices, laboratory activities, planetarium programs, etc., etc., and, of course, real gadgets and gizmos. Only non-commercial educational products, for any level and for any audience, are appropriate for this forum. Presenters may distribute materials -- print, CD, DVD -- but not conduct sales.

Gadgets and Gizmos will be located in the main lobby right across from the Exhibit Hall and between the Cyber Café and the registration area. It will be open throughout the week to give everyone the opportunity for a hands-on experience. If you are interested in using this forum, or have questions about the suitability of an idea or technology, please email deustua@aas.org.

Registration: If you wish to be a presenter, please fill out the registration form at www.aas.org/meetings/gadgetregform.php. The deadline is 18 October 2006. G&G registrations received by the deadline will be included in the meeting program book. Please remember to provide a title, brief description of your demonstration to and note any specific display, space, electrical and internet requirements as well as the times you will be present. We do ask that your demonstrations be as stand alone as possible as during peak usage times internet access at the convention center can be limited. There may be a fee for internet connections and computer rentals. Presenting at G&G does not count against the one-author rule for contributed papers.

Chair, Susana E. Deustua¹

¹American Astronomical Society.

**Session 031 Clickers in Astronomy Teaching**

AAS Special, Sunday, 10:00-11:30am, 201

Chair, Douglas K. Duncan¹

¹Univ. of Colorado.

031.01 Success and Failure Using Student Response Systems: “Clickers”

Douglas K. Duncan¹

¹Univ. of Colorado.

031.02 Clickers at UMass: a successful program of campus-wide implementation

Stephen Schneider¹

¹UMass.

031.03 To Click or Not to Click is Not the Question: How Research with Clickers Develops a Better Understanding of When Learning Happens in Your Classroom

Edward Prather¹, T. F. Slater¹, G. Brissenden¹, E. F. Dokter¹

¹Univ. of Arizona.

031.04 Interactive Learning and “Clickers”

Alexander Rudolph¹

¹California Polytechnic Univ.

**Session 032 The SDSS Supernova Survey**

AAS Special, Sunday, 10:00-11:30am, 204

Chair, Joshua Frieman¹

¹Fermi Nat’l. Accelerator Lab.

032.01 Overview of the SDSS Supernova Survey: the First Two Seasons

Andrew C. Becker¹

¹Univ. of Washington.

032.02 SDSS SN Hubble Diagram: First Cosmology Results

Hubert Lampeitl¹, SDSS-II Supernova collaboration

¹Space Telescope Science Institute.

032.03 The Supernova Ia Rate at z~0.1

Richard Kessler¹

¹University of Chicago.

032.04 Peculiar Supernovae in the SDSS-II SN Survey

Jose L. Prieto¹, SDSS-II Supernova Survey Collaboration

¹Ohio State University.

032.05 Studies with ‘Purely Photometric’ Supernovae from SDSS-II

Masao Sako¹, SDSS-II Supernova Survey Collaboration

¹Univ. Pennsylvania.
Session 033 HAD I
HAD Special, Sunday, 10:00-11:30am, 6A

Chair, Donald K. Yeomans

Astronomical Instruments of Ignazio Porro (1801-1875)
Peter Abrahams

The Discovery of an 1862 Drawing of M 51, the Whirlpool Nebula
Jay B. Holberg, W. Tobin

Radar and Meteors: Controversy over the Origin of Meteors in Postwar Astronomy
Woodruff T. Sullivan, III

Frank Ross's Early Orbits of the First Irregular Satellites of Saturn and Jupiter
Donald E. Osterbrock

Session 034 Accretion, Accretion Disks and Outflows
AAS Oral, Sunday, 10:00-11:30am, 613-14

High Velocity Outflows in Quasars
Paola Rodriguez, F. Hamann, D. Nestor

The Hard X-ray Spectral Slope as an Accretion-Rate Indicator in Radio-Quiet Active Galactic Nuclei
Ohad Shemmer, W. N. Brandt, H. Netzer, R. Maiolino, S. Kaspi

Accretion Disk Temperatures and Continuum Colors in QSOs
Erin W. Bonning, G. A. Shields, S. Salviander, L. Cheng, K. Gebhardt

Interpreting the Variability of Double-Peaked Emission Lines using Accretion Disk Models
Helene Flohic, M. Eracleous

Revisiting Standard Helium-like X-ray Diagnostics
Ryan Porter, G. Ferland

A Spitzer Infrared and Chandra X-ray study of LINERs: A Link Between Star Formation, AGN Fueling, and Mass Accretion
Rachel Dudik, S. Satyapal, R. M. Sambruna, E. Dwek, M. Gliozzi

Session 035 Astrobiology & The Solar System
AAS Oral, Sunday, 10:00-11:30am, 611-12

Near-Infrared Spectra of UV Photolyzed Astrophysical Ice Mixtures
Perry A. Gerakines, C. R. Richey

Detection of 13C Isotopomers of Molecule HC7N
Glen Langston, B. Turner

Dirk Schulze-Makuch, J. M. Houtkooper

New Exploration on What is Life?
D. K. Perkins

Charge-Exchange Induced X-rays in the Martian Exosphere
Dimitra Koutroumpa, R. Lallement, R. Modolo, G. Chanteur, V. Kharchenko

1University of Alabama at Birmingham.
1University of Washington.
1Pennsylvania State Univ.
1Tel Aviv University, Israel.
1INAF - Osservatorio Astrofisico di Arcetri, Italy.
1Obs. de Paris-Meudon, France. 2University of Texas at Austin.
035.06 Science Results from the Stardust Comet Sample Return Mission: Large Scale Mixing in the Solar Nebula and the Origin of Crystalline Silicates in Circumstellar Disks
Donald E. Brownlee1, Stardust Mission Team
1Univ. of Washington.

035.07 Simulating Supernova Injection of Short Lived Radionuclides with Consideration of the Solar Birth Environment
Keith W. Davis1, M. D. Leising1
1Clemson Univ.

Session 036 Black Holes
AAS Oral, Sunday, 10:00-11:30am, 608-10

036.01 Quasi-Periodic Oscillations and Spectral Behaviour of XTE 1859+226. QPO Frequency - Spectral Index Correlation and the Mass of the Central Object.
Nikolai Shaposhnikov1, R. Fiorito2, L. Titarchuk3
1NASA’s GSFC, 2NASA’s GSFC/UMD, 3NASA’s GSFC/GMU/NRL.

036.02 Fundamental Parameters of Galactic Black Holes from SIM Planetquest Xiaopei Pan1, S. Shaklan1
1JPL.

036.03 Black Hole Formation in Galactic X-Ray Binaries Bart Willems1, T. Fragos1, V. Kalogera1
1Northwestern University.

036.07 Seeing the Wiggle: High Resolution Imaging of SS433 with the VLBA
Amy J. Mioduszewski1, M. P. Rupen1
1NRAO.

036.08 Recent Optical Observations of the Microquasar SS 433 Todd C. Hillwig1, D. Gies2
1Valparaiso Univ., 2Georgia State Univ.

36.06 Gravitational Waves From The Hierarchical Buildup Of Intermediate Mass Black Holes
Miroslav Micic1, S. Sigurdsson1, K. Holley-Bockelmann1, T. Abel2
1Pennsylvania State Univ., 2Stanford University.
Session 038 Feedback and Mergers in Galaxy Evolution
AAS Oral, Sunday, 10:00-11:30am, 3B

038.01 AGN Feedback Regulating Early-type Galaxy Evolution
Kevin Schawinski¹, S. Khochfar¹, S. K. Yi¹, S. Kaviraj¹, GALEX Science Team
¹Oxford Astrophysics, United Kingdom, ²Yonsei Univ., Republic of Korea.

038.02D Star Formation and Supernova Feedback in Smoothed Particle Hydrodynamic Simulations of Galaxy Formation
Gregory S. Stinson¹, T. Kaufmann², T. Quinn¹, C. Christensen¹, J. Wadsley³, S. Kazantzidis⁴
¹Univ. Of Washington, ²Univ. of California, Irvine, ³McMaster University, Canada, ⁴KITP.

038.03 The Evolution of the Massive Galaxy Luminosity Function Over Half of Cosmic History
Richard J. Cool¹, D. J. Eisenstein¹
¹Univ. of Arizona.

038.04 Understanding Galaxies in Pairs
Elizabeth J. Barton¹, A. R. Zentner², J. S. Bullock¹, R. H. Wechsler²
¹UC, Irvine, ²KICP and U. Chicago, ³KITP.

038.05D Dynamic and Spatial Properties of Satellites in Isolated Galactic Systems
Abel Diaz¹, R. Wilhelm¹
¹Texas Tech University.

038.06 The Asymmetric Relations among Galaxy Color, Structure, and Environment
Alejandro D. Quintero¹, A. Berlind², M. R. Blanton², D. W. Hogg²
¹Steward Observatory, ²New York University.

038.07 The Role of Galaxy Interactions and Mergers in Star Formation at z<1.3: Mid-Infrared Properties in the Spitzer First Look Survey
Carrie Bridge¹, P. N. Appleton¹, C. J. Conselice³, P. Choi², L. Armus², D. T. Fadda¹, S. Laine¹, F. R. Marleau¹, R. G. Carlberg¹, G. Helou², L. Yan²
¹University of Toronto, Canada, ²Spitzer Science Center, ³University of Nottingham, United Kingdom.

Session 039 Starburst Galaxies: Analogs of Lyman Break Galaxies?
AAS Oral, Sunday, 10:00-11:30am, 6B

039.01 The Young and The Dustless: Constraining the Star Formation History and Dust Content of Ultraviolet Luminous Galaxies using GALEX UV and Radio Observations
Antara Basu-Zych¹, D. Schiminovich¹, Galex Science Team
¹Columbia University.

039.02D A FUSE Survey of Starburst Galaxies: Galactic Feedback from Star Formation
John P. Grimes¹, T. Heckman¹, A. Aloisi²
¹Johns Hopkins Univ., ²Space Telescope Science Institute.

039.03 HST/STIS Spectroscopy of Ionized Gas in the M82 Starburst Core
Linda J. Smith¹, M. S. Westmoquette², J. S. Gallagher, III³, R. W. O'Connell¹, D. J. Rosario⁴, R. de Grijs⁵
¹Space Telescope Science Institute, ²University College London, United Kingdom, ³University of Wisconsin-Madison, ⁴University of Virginia, ⁵University of Sheffield, United Kingdom.

039.04 Spitzer ISM Studies of Low Metallicity Starbursts
Brian O’Halloran¹, S. Satyapal¹, R. Dudik¹
¹George Mason Univ.

039.05D White Dwarfs in the Galaxy
Stephane Vennes¹, A. Kawka²
¹Florida Institute of Technology, ²Astronomical Institute AV CR, Czech Republic.
Detailed Properties of Populous Clusters in the Large Magellanic Cloud
Aaron J. Grocholski¹, A. Sarajedini¹, A. A. Cole², D. Geisler³, K. A. Olsen⁴, G. P. Tiede⁵, V. V. Smith⁶, C. L. Mancone¹
¹Univ. of Florida, ²Univ. of Minnesota, ³Univ. de Concepcion, Chile, ⁴CTIO, Chile, ⁵Bowling Green State Univ., ⁶US Gemini Project, Chile.

Self-Consistent Stellar Evolution Models with Updated Physics and Variable Abundances
Aaron L. Dotter¹, B. Chaboyer¹, E. Baron², J. W. Ferguson³, D. Jevremovic², H. Lee⁴, G. Worthey⁴
¹Dartmouth College, ²University of Oklahoma, ³Wichita State University, ⁴Washington State University.

Bulge Formation Scenarios vs. the Observations
Grant Newsham¹
¹The Ohio State University.

Integrating Mechanics with Computer Modeling
AAPT Invited, Sunday, 10:00-11:30am, 616
Chair, Wolfgang Christian¹
¹Davidson College.

Computation in Classical Mechanics with Easy Java Simulations (EJS)
Anne J. Cox¹
¹Eckerd College.

Introducing Computational Approaches in Intermediate Mechanics
David M. Cook¹
¹Lawrence University.

The Physics Force - Physics for Ages 6 to 106
E. D. Dahlberg¹, C. Falco³, I. K. Schuller³
¹University of Minnesota, ²University of Arizona, ³University of California - San Diego.

The Science of Optics; the History of Art
Charles M. Falco¹
¹University of Arizona.

Science as Entertainment: Making of a Scientific Movie
Ivan K. Schuller¹
¹UC, San Diego.

Optics Education in the Middle Schools
AAPT Special, Sunday, 10:00-11:30am, 310
Chair, Robert T. Sparks¹
¹National Optical Astronomy Observatory.

LITE, Optics, Color and Vision
Kenneth Brecher¹
¹Boston University.

Science beyond the Classroom: Hands-On Optics and the Boys and Girls Club
Erin E. Dokter¹, C. Walker¹, C. Peruta¹, C. Ubach¹, R. Sparks², S. Pompea²
¹University of Arizona, ²National Optical Astronomy Observatory.

Middle School Optics Education: Hitting the Target or Impedance Mismatch?
Stephen M. Pompea¹, C. E. Walker¹, R. T. Sparks¹
¹National Optical Astronomy Observatory.

Physics: Something for Everyone
AAPT Invited, Sunday, 10:00-11:30am, 303
Chair, Kenneth Heller¹
¹Univ. of Minnesota.

Interactive Lecture Demonstrations using Physics Suite Materials
AAPT Panel, Sunday, 10:00-11:30am, 617
Co-presented with Ronald Thornton, Tufts Univ., and Priscilla Laws, Dickinson College The results of physics education research and the availability of microcomputer-based tools have led to the development of the activity-
based Physics Suite. Most of the Suite materials are designed for hands-on learning, for example student-oriented laboratory curricula like RealTime Physics. One reason for the success of these materials is that they encourage students to take an active part in their learning. This interactive session will demonstrate--through active audience participation?Suite materials designed to promote active learning in lecture?Interactive Lecture Demonstrations (ILDs). The demonstrations will be drawn from energy, heat and thermodynamics, oscillations and waves, electricity and magnetism, light and optics. Results of studies on the effectiveness of this approach will be presented. This session should be of special interest to teachers of large lecture classes as well as those who teach small classes where only one computer is available.

Chair, David Sokoloff 1
1University of Oregon.

Session 045 Innovations in High School Physics, Part I
AAPT Special, Sunday, 10:00-11:30am, 307-08

Chair, Thomas F. Haff 1
1Issaquah High School.

045.01 Seattle Area High School Astronomy Projects: 4 local teachers present their work with students.
Eric C. Muhs 1
1Roosevelt High School.

Session 046 Innovations in Teaching Astronomy
AAPT Oral, Sunday, 10:00-11:30am, 615

Chair, Janelle M. Bailey 1
1Univ. Nevada, Las Vegas.

046.01 Survey Instrument Probing Student Understanding of the Greenhouse Effect
John M. Keller 1, T. F. Slater 2, E. E. Prather 2
1Cal Poly San Luis Obispo, 2University of Arizona.

046.02 Misconceptions in Astronomy and Physics
Andy Veh 1
1Kenai Peninsula College.

046.03 Ranking Tasks for Assessing Conceptual and Quantitative Understanding in Astronomy
Edward E. Prather 1, T. F. Slater 2, D. Loranz 2
1U. Arizona CAPER Team, 2Truckee Meadows Community College.

046.04 Sorting Tasks and Vocabulary-in-Context Activities for Assessing Introductory Astronomy Understanding
Timothy F. Slater 1, D. Loranz 2, E. E. Prather 1
1U. Arizona CAPER Team, 2Truckee Meadows Community College.

046.05 Visual Activities for Assessing Non-science Majors’ Understanding in Introductory Astronomy
Daniel Loranz 1, E. E. Prather 2, T. F. Slater 2
1Truckee Meadows Community College, 2University of Arizona CAPER Team.

046.06 A New Chart and Teaching Materials on Cosmology from CPEP
G Samuel Lightner 1, M. Cherney 2, G. Aubrecht 3, R. Reiland 4
1Westminster College, 2Creighton University, 3The Ohio State University, 4Shady Side Academy.

046.07 Asteroids and LSST EPO
Robert T. Sparks 1, S. K. Croft 1, S. M. Pompea 1
1National Optical Astronomy Observatory.

Multicultural Luncheon
AAPT Event, Sunday, 11:30 am - 1:00 pm, 618-20
Enjoy a buffet of multicultural foods and hear a guest speaker: Ben Franklin. Now that his 300th birthday celebration is now over, he has some time to spend with us!
Tickets: $35

Session 047 Pierce Prize in Astronomy
Plenary, Sunday, 11:40am-12:30pm, Ballroom 6

047.01 Bubbles, Bow Shocks and B Fields: The Interplay Between Neutron Stars and Their Environments
Bryan M. Gaensler 1
1The University of Sydney, Australia; Harvard-Smithsonian Center for Astrophysics.
Accessing and Using Sloan Digital Sky Survey Data
AAS Splinter Meeting, Sunday, 12:30-2:00pm, 608
Presentations of a few specific cases showing astronomers how to access data from the Sloan Digital Sky Survey, with questions and answers from Jordan Raddick and other members of the SDSS collaboration. The session will be similar to the session given at the summer meeting in Calgary.

Chair, Jordan Raddick¹
¹Johns Hopkins University.

NSF Town Hall
AAS Town Hall Meeting, Sunday, 12:45-1:45pm, 6A
The Division of Astronomical Sciences of NSF will continue its discussion with the community at this town meeting. Staff will provide updates on the status of the NSF and Divisional budgets, highlight new and continued funding opportunities, and discuss ongoing strategic planning and coordination with other agencies. Updates will be provided on the activities of the senior review being carried out by the Division with a discussion of its recommendations should they be available at the time of the meeting. The majority of the session will be reserved for questions and discussion.

Chair, Eileen D. Friel¹
¹NSF

Committee on the Status of Women in Astronomy
AAS Splinter Meeting, Sunday, 1:00-2:00pm, 613
The CSWA session will focus on one specific recommendation from the list of Pasadena Recommendations. This recommendation was for the AAS to commission a longitudinal study of young women and men in astronomy, tracking both those that remain in the field and those that choose to leave. The CSWA has facilitated the formation of a group of people interested in actively working on a longitudinal study of the career paths of women in astronomy, and requested that that group use this session to provide the broader astronomical community insight into their process. The CSWA session will begin with an overview of the current status of statistics on the career paths of astronomers, and the clear need for a well-defined longitudinal study. The Longitudinal Study committee will then report on how they defined the overall goals of the study, selected an initial target group of participants, and formulated a first survey. This survey is undergoing final revisions. The study is supported by the American Institute of Physics, and the CSWA is proposing to secure additional seed funding for the first phase of the study from the AAS. There will be significant time for questions and discussion. We look forward to seeing you there!

Chair, Patricia Knezek¹
¹WIYN Consortium, Inc.

How to Spend Limited Resources
AAPT Crackerbarrel, Sunday, 1:00-2:00pm, 615
Equipment budgets can be very tight, especially given the costs of educational apparatus and software. This is especially true for the high school teacher. How can you optimize your equipment budget to give you the most “bang for the buck?” Attendees are invited to bring their questions (and solutions!) about how to address this issue.

Chair, Gregory Puskar¹
¹West Virginia University.

Professional Concerns of Junior Faculty in PER
AAPT Crackerbarrel, Sunday, 1:00-2:00pm, 211
Participants will interactively discuss matters of professional concerns to junior faculty in PER. Please come prepared to tell us your situation, exchange ideas, ask questions, make suggestions, share a problem, share a solution, etc.

Chair, Rachel E. Scherr¹
¹University of Maryland.

See Spot Run, See Spot Run from Astronomy Teaching
AAPT Crackerbarrel, Sunday, 1:00-2:00pm, 616
In early childhood and elementary education, science topics are usually avoided by teachers, yet astronomy is among the science topics craved by their students. This crackerbarrel is for anyone who uses astronomy and space science to inspire young learners or their teachers. We will share strategies, activities, and heartbreaks.

Chair, Thomas M. Foster¹
¹Southern Illinois University Edwardsville.
PhysicsFirst Crackerbarrel
AAPT Crackerbarrel, Sunday, 1:00-2:00pm, 310
This session highlights the current status of the PhysicsFirst movement as a way to engage more students in learning physics. If you have a success story, or an unsuccessful story, we would like to hear about your experiences with implementing a PhysicsFirst approach at your school. Everyone is invited to join the discussion and/or present your story as a poster display.

Chair, Olga Livanis1
1Stuyvesant HS.

Session 048 Cool Astronomy For Everyone
AAS Special, Sunday, 2:00-3:30pm, 613-14

Chair, Susana E. Deustua1
1American Astronomical Society.

048.01 Fusion Confusion: Assessing What Students Know (and Don't Know) About Stars
Janelle M. Bailey1, E. E. Prather1, B. Johnson2, T. F. Slater2
1Univ. Nevada, Las Vegas, 2Univ. Arizona.

048.02 Transients in 10 seconds or less: catching Gamma-Ray Bursts in the act with ROTSEE
Eli S. Rykoff1
1Univ. of Michigan.

Session 049 Cosmic Microwave Background
AAS Special, Sunday, 2:00-3:30pm, 6A

Chair, John Mather1
1NASA Goddard Space Flight Center.

049.01 Introduction to the Cosmic Microwave Background
Marc Kamionkowski1
1Caltech.

049.02 CMB Anisotropies with the SZA
Matthew Sharp1, J. Carlstrom1, J. Cartwright1, C. Greer1, D. Hawkins1, R. Hennessy1, M. Joy2, J. Lamb2, E. Leitch1, M. Loh1, D. Marrone1, A. Miller1, T. Mroczkowski1, S. Muchowetz, C. Pryke1, B. Reddall1, M. Runyan1, D. Woody2
1KICP, U. Chicago, 2OVRO, Caltech.

049.03 New measurements of the CMB polarization anisotropy at small angular scales from CAPMAP
Lewis D. Hyatt1, CAPMAP Collaboration
1Princeton.

049.04 Report on BICEP's First Season Observing the Cosmic Microwave Background from South Pole
K. W. Yoon1, P. A. Ade2, D. Barkats1, J. O. Battle3, E. M. Bierman4, J. J. Bock1, H. C. Chiang1, C. D. Dowell1, L. Duband5, G. S. Griffin1, E. F. Hivon6, W. L. Holzapfel1, V. V. Hristov1, B. G. Keating1, J. M. Kovac1, C. Ku01, A. E. Lange6, E. M. Leitch1, P. V. Mason1, H. T. Nguyen1, N. Ponthieu2, Y. D. Takahashi7
1California Institute of Technology, 2University of Wales, UK, 3JPL, 4U. C. San Diego, 5CEA, France, 6IPAC, 7U. C. Berkeley, 8IAS, France.

049.05 Status of the QUAD Experiment
Sarah Church1
1Stanford University/KIPAC.

049.06 The Future of CMB Polarization: Report of the CMB Task Force
Rai Weiss1
1MIT.

049.07 NASA CMBPOL Mission Studies
Jamie Bock1, G. F. Hinshaw2, P. T. Timbie3
1NASA/JPL, 2NASA/GSFC, 3U. Wisconsin.

Session 050 NSF Astronomy Division Senior Review Out- come
AAS Special, Sunday, 2:00-3:30pm, 6B

Chair, Eileen D. Friel1
1NSF.
Session 051 HAD II: Case Studies in How 20th Century Observatory Directors Got Chosen
HAD Special, Sunday, 2:00-3:40pm, 611-12
Chair, Karl Hufbauer

051.01 Lowell Observatory Enters the Twentieth Century—in the 1950s
Joseph S. Tenn
Sonoma State Univ.

051.02 The Evolution of the National Radio Astronomy Observatory into a
User Based Observatory
Kenneth I. Kellerman1, E. Bouton1
NRAO.

051.03 Michigan Turns to Leo Goldberg
Rudi P. Lindner1
U. Michigan.

051.04 A Referendum on the State of Astronomy at Harvard: Choosing
Harlow Shapley’s Successor
David H. DeVorkin1
Smithsonian Inst.

051.05 Changing the Guard Slowly: Yale 1963-1975
Virginia Trimble1
U. C. Irvine.

Session 052 AGN Populations
AAS Oral, Sunday, 2:00-3:30pm, 3A

052.01 The Infrared Properties of galaxies and Quasars at z~6
Yuexing Li1, L. Hernquist1, D. Finkbeiner1
Harvard-Smithsonian, CfA.

052.02 X-ray Spectral Properties from Chandra Observations of SDSS
QSOs to z=5
Paul J. Green1, W. A. Barkhouse2, T. L. Aldcroft1, D. Kim1, A. Mossman1, G. Richards1, M. Weinstein1, ChaMP Collaboration
SAO, UIUC, Princeton, PSU.

052.03 Properties of Millijansky Radio Source Hosts
Brian Stalder1
University of Hawaii.
Session 053 Distant Works: Cosmology, Large Scale Structure and Gravitational Waves
AAS Oral, Sunday, 2:00-3:30pm, 6E

053.01 Discovery of Faint Radio Structures over 50 Square Degrees Down to 3 arcmin Scales near the NGP
Philipp P. Kronberg¹, R. Kothes², C. J. Salter¹, P. Perillat¹
¹LANL, ²DRAO, NRC Canada, Canada, ³Arecibo Observatory.

053.04 A Direct View of the Large-Scale Distribution of Mass, from Weak Gravitational Lensing in the HST COSMOS Survey
Richard Massey¹, J. Rhodes¹, A. Leauthaud², R. Ellis¹, N. Scoville¹, A. Finoguenov³
¹CalTech, ²Lab. d' Astrophysique de Marseille, France, ³MPI fur Extraterrestrische Physik, Germany.

053.05 Effects of Baryons and Dissipation on the Matter Power Spectrum in ACDM
Douglas Rudd¹, A. Zentner¹, A. Kravtsov¹
¹University of Chicago.

053.07 Analytical and Numerical Models of Turnaround Densities in ΛCDM
Alan Peel¹, E. Shaya¹
¹Univ. of Maryland.

053.03D Crawling the Cosmic Web: An Exploration of Filamentary Structure
Nicholas A. Bond¹, M. A. Strauss¹, R. Cen¹
¹Princeton Univ.

053.06D Upper Limit Map of a Stochastic Background of Gravitational Waves
Stefan Ballmer¹
¹California Institute of Technology.

Session 054 EXIST
AAS Oral, Sunday, 2:00-3:30pm, 3B

054.01 Black Hole Finder Probe to EXIST: Surveying Black Holes in Space and Time
Jonathan E. Grindlay¹, EXIST Team
¹Harvard-Smithsonian, CfA.

054.02 The Low-Energy Telescopes on EXIST
Philip E. Kaaret¹, B. Ramsey², J. G. Jernigan¹, R. A. Remillard³, R. E. Rothschild², J. Hong⁴, J. E. Grindlay⁵
¹Univ. of Iowa, ²NASA/MSFC, ³SSL/UC Berkeley, ⁴MIT, ⁵Harvard.

054.03 The High Energy Telescopes on EXIST
JaeSub Hong¹, J. E. Grindlay¹, EXIST team
¹Harvard Univ.

054.04 Blazars and the Cosmic Diffuse IR Background with EXIST
Paolo S. Coppi¹, EXIST Science Team
¹Yale Univ.

054.05 Gamma Ray Bursts as Cosmological Probes with EXIST
Dieter Hartmann¹, EXIST Team
¹Clemson Univ.

054.06 Uncovering Obscured AGN with EXIST and Other Hard X-Ray Surveys
C. M. Urry¹, E. Treister¹, S. Virani¹
¹Yale Univ., ²European Southern Observatory, Chile.

Session 055 ISM/Molecular Clouds
AAS Oral, Sunday, 2:00-3:30pm, 608-10

055.01 Comparison of 13CO Line and Far-Infrared Continuum as a Diagnostic of Dust and Molecular Gas Physical Conditions --- Implications for the N(H2)/I(CO) Conversion Factor
William F. Wall¹
¹INAOE, Mexico.

055.02 Continuity between Magnetic Fields in GMCs and Large-scale Galactic Magnetic Fields
Giles G. Novak¹, M. Krejny¹, H. Li², D. T. Chuss³, P. G. Calisse⁴
¹Northwestern Univ., ²Harvard-Smithsonian Center for Astrophysics, ³NASA-Goddard Space Flight Center, ⁴Cardiff University, United Kingdom.
055.03 Temporal Variations of Charge-Exchange induced Heliospheric X-rays: Constraints on the Local Interstellar X-ray Background
Rosine Lallement\(^1\), D. Koutroumpa\(^1\), F. Acreo\(^2\), J. Ballet\(^2\), V. Kharchenko\(^3\), R. Pepino\(^1\), A. Dalgarno\(^1\)
\(^1\)Service D'Aéronomie, France, \(^2\)Commissariat à l'Energie Atomique, France, \(^3\)Harvard-Smithsonian Center for Astrophysics.

055.04 Spitzer Observations of the Lupus Molecular Cloud
Nicholas L. Chapman\(^1\), L. Mundy\(^1\), N. J. Evans, II\(^2\), c2d team
\(^1\)Univ. of Maryland, \(^2\)Univ. of Texas.

055.05 The COMPLETE Calibration of 12CO and 13CO in Perseus
Jaime E. Pineda\(^1\), P. Caselli\(^1\), A. A. Goodman\(^1\), E. Rosolowsky\(^1\), J. B. Foster\(^1\)
\(^1\)Harvard-Smithsonian Center for Astrophysics.

055.06 Advancing Nebular Astrophysics through Near-Infrared Spectroscopic Mapping
William H. Waller\(^1\), A. Kutyrev\(^1\), R. Silverberg\(^1\), B. Woodgate\(^2\), L. Allen\(^3\)
\(^1\)Tufts Univ., \(^2\)NASA Goddard Space Flight Center, \(^3\)Center for Astrophysics.

055.07 Mapping Enrichment in M33
Erik Rosolowsky\(^1\), J. D. Simon\(^2\)
\(^1\)Harvard-Smithsonian, CfA, \(^2\)California Institute of Technology.

Session 056 Space Mission Concepts and Instrumentation
AAS Oral, Sunday, 2:00-3:30pm, 605-07

056.01 Flight Calibration of the Galaxy Evolution Explorer (GALEX)
Patrick Morrissey\(^1\), GALEX Science Team
\(^1\)Caltech.

Session 057 Young Stellar Objects
AAS Oral, Sunday, 2:00-3:30pm, 6C

057.01D A Wide-field Search for Intermediate-age Pre-Main Sequence Stars near Taurus and Upper Scorpius
Catherine L. Slesnick\(^1\), J. M. Carpenter\(^1\), L. A. Hillenbrand\(^1\)
\(^1\)Caltech.

057.02 Mid-IR Spectral Survey of High Mass Protostellar Objects
Murray F. Campbell\(^1\), T. K. Sridharan\(^2\), J. L. Hora\(^2\), M. Kassis\(^3\), H. Beuther\(^4\), R. T. Brooks\(^5\), S. Fung\(^1\), L. C. Johnson\(^1\), J. M. De Buizer\(^5\)
\(^1\)Colby College, \(^2\)Center for Astrophysics, \(^3\)Keck Observatory, \(^4\)Max-Planck-Institut fur Astronomie, Germany, \(^5\)Gemini Observatory, Chile.
057.03D The Evolution of the Multiplicity of Young Stellar Objects
Michael S. Connelley¹, B. Reipurth¹, A. Tokunaga¹
¹Univ. of Hawaii.

057.04D The State and Evolution of Isolated Dense Molecular Cores
Jens Kauffmann¹
¹Harvard-Smithsonian CfA.

057.05 Gemini NIFS Integral Field Spectroscopy of YSO Environments:
Spatially Extended Molecular Hydrogen Emission in the Inner 200 AU
Tracy L. Beck¹, P. McGregor², M. Takami³
¹Gemini North Observatory, ²RSA&A, Australian National University, Australia, ³Subaru Observatory.

057.06 Application of Medical Imaging Software to the 3D Visualization of
Astronomical Data
Michelle A. Borkin¹, A. A. Goodman², M. Halle³, D. Alan³, J. Kauffmann³
¹Initiative in Innovative Computing, Harvard University, ²Initiative in Innovative Computing/Harvard Smithsonian Center for Astrophysics, ³Initiative in Innovative Computing/Harvard Medical School.

Session 058 Context Rich Lab Problems
AAPT Oral, Sunday, 2:00-3:30pm, 617
Chair, Terry Singleton¹
¹University of Alberta, Canada.

058.01 Undergraduate Labs for Biological Physics: Brownian Motion and
Optical Trapping
Kelvin Chu¹, A. Laughney¹, J. Williams¹
¹University of Vermont.

058.02 Alternatives to Traditional Labs: a Discovery Lab Based on Analogy
Mark I. Liff¹
¹Philadelphia University.

058.03 Student Understanding Difficulties Research-based on Conceptual
and Numerical Labs
Sergio Flores¹
¹University of Juarez.

058.04 Teaching Optics Topics in College Physics Laboratory
Roman Y. Kezerashvilli¹
¹Physics Department, New York City College of Technology, CUNY.

058.05 A Laboratory on Pulse Trains, Counting Statistics, and the Central
Limit Theorem for Physics Students
David B. Pengra¹
¹University of Washington.

058.06 Crafting a Gauss Gun Demonstration
Matthew E. Blodgett¹, E. D. Blodgett¹
¹University of Wisconsin - River Falls.

058.07 Using a Tube of Fire to Demonstrate Various Gas and Wave Proper-
ties.
Don B. Cameron¹
¹University of Denver High School.

058.08 My Top Ten List of Labs and Demonstrations
Paul Robinson¹
¹San Mateo High School.

058.09 My Most Annoying Demonstration
Joseph M. Mosca¹
¹Embry-Riddle Aeronautical University.

Session 059 Innovations in High School Physics, Part II
AAPT Oral, Sunday, 2:00-3:30pm, 307-08
Chair, Eric C. Muhs¹
¹Roosevelt High School.

059.01 Keeping Seniors Engaged During The Last Week Of School
Thomas F. Haff¹
¹Issaquah High School.
059.02  Thank You for Flying the Vomit Comet
Gregory A. DiLisi¹, R. Dempsey², L. A. DiLisi³, G. Santo⁴
¹John Carroll University, ²Johnson Space Center, ³Parker Hannifin Corporation - Nichols Airborne Division, ⁴Beaumont High School.

059.03  Physics on Wheels: Teaching Mechanics by Riding a Bicycle
Hezi Yizhaq¹, G. Baran¹
¹Environmental High School, Israel.

059.04  High School Student Scientists Researching Pulsars at the CGWA
Adrienne Rodriguez-Zermeno¹
¹University of Texas at Brownsville.

059.05  Metricize Yourself
Maria K. Falbo¹
¹Cardinal Gibbons High School.

059.06  Mini-Labs
Marc Kossover¹
¹The Jewish Community High School of the Bay.

059.07  International Physics Summer Camp for High School Students
Damian T. Pope¹, B. Korsunsky²
¹Perimeter Institute for Theoretical Physics, Canada, ²Weston High School.

059.08  Student Measurements of Cosmic Rays on an International Scale
Robert S. Peterson¹
¹QuarkNet/Education Office | Fermi National Accelerator Lab.

059.09  The Next Best Thing to Having Your Own Accelerator: How
QuarkNet Can Help
Kris Whelan¹
¹Lawrence Berkeley National Laboratory.

Session 060 Physics Education with Vpython
AAPT Poster, Sunday, 2:00-3:30pm, 303
Chair, Ruth Chabay¹
¹North Carolina State University.

060.01  Using VPython to Apply Mathematics to Physics in Mathematical
Methods
Dedra Demaree¹, J. Eagan¹, P. Finn¹, B. Knight¹, J. Singleton¹, A. Therrien¹
¹College of the Holy Cross.

060.02  VPython applications for Teaching Physics
Roberto B. Salgado¹
¹Syracuse University - Department of Physics.

060.03  Charming VPython Simulations
Eric W. Pepin¹, R. P. Olenick¹
¹University of Dallas.

060.04  Visual Basic - VPython Interface: Charged Particle in a Magnetic
Field
Chandra Prayaga¹
¹University of West Florida.

Session 061 Faint Structures in Nearby Galaxies
Plenary, Sunday, 3:40-4:30pm, Ballroom 6
061.01  Faint Structures in Nearby Galaxies: Studies of Galaxy Formation at z=0
Julianne Dalcanton¹
¹Univ. of Washington.

Session 062 The Assembly of Galaxies and Their Black Holes
Plenary, Sunday, 4:40-5:30pm, Ballroom 6
062.01  The Assembly of Galaxies and Their Black Holes: A New Paradigm
for Hierarchical Galaxy Formation?
Rachel S. Somerville¹
¹Max-Planck-Institut fuer Astronomie, Germany.

Astronomy and Astrophysics Advisory Committee
AAS Town Hall Meeting, Sunday, 5:30-6:30pm, 6B
The Astronomy and Astrophysics Advisory Committee (AAAC) was
constituted by Congress with OMB and agency support to advise both the
Congress and the three Agencies supporting astronomy and astrophysics
research programs, NASA, NSF, and DOE. The enabling legislation requires
the AAAC to advise on (1) the coordination of programs in astronomy and...
astrophysics between the three agencies, and (2) the status of the Decadal Survey and like NRC reports. The committee is required to submit an annual report to Congress and the heads of the agencies with findings and recommendations in these areas. Since this report must be submitted by March 15, input from the community at the AAS meeting in January would be most valuable and appreciated by the committee. The last discussion was very late in the day and was not well attended; the goal here is to provide a further opportunity to involve the AAS membership in discussions with the committee members and the agency representatives who can attend about a broad range of issues affecting astronomy programs at the three agencies.

Chair, Garth D. Illingworth
UC, Santa Cruz.

Astrophysics, Cosmology, and Extrasolar Planets: NASA’s Navigator Missions
AAS Splinter Meeting, Sunday, 6:00-8:00pm, 6E
The President's Vision for Space Exploration calls for NASA to “conduct advanced telescope searches for Earth-like planets and habitable environments around other stars.” The primary missions in these searches are Navigator Program missions - SIM PlanetQuest, and the Terrestrial Planet Finder Missions (TPF-C and TPF-I). Other observatories also play important roles in exploring the field of extrasolar planets: e.g. Kepler, Spitzer Space Telescope, JWST, the Keck and LBT Interferometers, and other ground-based observatories. In this session, we will recap some recent science results and show how the various techniques and instruments each play important roles in advancing our understanding in this rich field of research.

Chair, Stephen C. Unwin
JPL.

Session 063 The Future of the Core Curriculum
AAPT Invited, Sunday, 6:30-8:00pm, 616
Chair, Michael Theonnessen
Michigan State University.

063.01 The Future of the Core Curriculum in Graduate Education
Michael Theonnessen
Michigan State University.

Session 064 When Was the Last Time 5000 College Students Gave You Feedback on Your High School Physics Course?
AAPT Invited, Sunday, 6:30-8:00pm, 307-08
Chair, Wayne Fisher
Myers Park High School.

064.01 Does Taking Physics Pay Off Later in Chemistry & Biology Courses?
Philip M. Sadler, R. H. Tai
Harvard-Smithsonian Center for Astrophysics, University of Virginia.

064.02 High School Teaching and College Performance: Looking for Connections
Robert H. Tai
Univ. of Virginia.

064.03 Gender Differences in Introductory University Physics Performance: The Influence of High School Physics Preparation & Affect
Zahra Hazari
Harvard Smithsonian Center for Astrophysics.

Session 065 Astronomy and the Two-Year Colleges
AAPT Special, Sunday, 6:30-8:00pm, 615
Chair, Theo Koupelis
University of Wisconsin Colleges.

065.01 Community College’s CAN do Research - A Decade of Eclipse Expeditions
Jon M. Saken
Appalachian State Univ.

065.02 What's in the Neighborhood?: Using Science/Technology/Society (STS) Instructional Strategies in an Introductory Community College Astronomy Class
Lawrence R. Kellerman
Illinois Central College.
SUNDAY Events, Sessions and Paper Titles

065.03 NASA Center for Astronomy Education: Building a Community of Practice
Gina Brissenden¹, E. Prather¹, T. F. Slater¹, W. M. Greene², M. Thaller³
¹Univ. of Arizona, ²JPL, ³CalTech.

065.04 Teaching Astronomy at Lewis and Clark Community College
David A. Cornell¹
¹Principia College.

065.05 Free Resources for Teaching with Technology
Michelle A. Strand¹
¹Southeast Community College.

Session 066 Effective Features of Online Tutorials
AAPT Special, Sunday, 6:30-7:30pm, 303

Chair, Gerald W. Meisner¹
¹UNC Greensboro.

066.01 PhET’s Research-based Guidelines for Design & Use of Interactive Simulations
Katherine K. Perkins¹, W. K. Adams¹, C. E. Wieman¹, PhET Team
¹University of Colorado at Boulder.

066.02 Virtual Labs and Virtual Worlds
Ted Boehler, Ed.D.¹
¹Coastline Community College.

066.03 Electric Circuits in a Virtual Environment
Gerald W. Meisner¹, H. Hoffman², M. Turner³
¹UNC Greensboro, ²Science Lab Courseware, ³Hebrew Academy.

066.05 Measuring Learning from hints in Web-based Socratic Tutor
Young-Jin Lee¹, D. E. Pritchard¹
¹Massachusetts Institute of Technology.

066.06 Impact of Inquiry-Oriented Curriculum Materials Modified to Provide Better Access for Special Needs Students
Julia K. Olsen¹, T. F. Slater¹
¹University of Arizona.

Session 067 High School Curriculum Issues
AAPT Oral, Sunday, 6:30-8:00pm, 310

Chair, Beverly Cannon¹
¹Highland Park HS.

067.01 Active Physics - Problem Based Learning for High Schools
Arthur Eisenkraft¹
¹Univ of Massachusetts Boston.

067.02 Physics First: Why You Should Consider It at Your High School
Alan P. Gnospelius¹
¹Design and Technology Academy.

067.03 A TIME for Physics First in Missouri
Meera Chandrasekhar¹, K. Manivannan², D. Kosztin¹, S. Torres³
¹University of Missouri, ²Missouri State University, ³Columbia Public Schools.

067.04 What To Do After The AP Test: How About Household Electricity?
John P. Lewis¹
¹Glenbrook South High School.

067.05 Introduction to Physics of the Universe in AP Physics Classrooms
Stephanie L. Allen¹
¹Hope College.

067.06 Using the Hypothesis Method in Learning Physics
Genrikh Golin¹
¹Touro College & Franklin Delano Roosevelt HS.

067.07 Inservice Preparation of High School Physics Teachers
Stephen T. Thornton¹, R. A. Lindgren¹
¹University of Virginia.

Session 068 Insights into Mechanics and Sound
AAPT Oral, Sunday, 6:30-8:00pm, 617

Chair, G. Samuel Lightner¹
¹Westminster College.
Some Aspects of the Physics of Shooting a Basketball
John J. Fontanella
1U. S. Naval Academy.

Period-Speed Analysis of a Pendulum
Barbara M. Hoeling1, Y. Kostov1, R. Morshed1, P. Siegel2
1Pomona College, 2Cal Poly Pomona.

Optical Measurement of the Acceleration Due to Gravity
Bill Crummett1
1Centre College.

Why the Magnetic Levitation can be Observed only in a Constrained Case in PASCO's Magnetic Levitation Apparatus?
Xiao Xie1, P. P. Gu1, Z. Y. Wang1, Z. Xie1
1Hunan University, China.

Wavelength Dependent End Correction for a Resonating Air Column
Henry Kuhlman1, C. Hansen1
1Southern Adventist University.

Amplifier Distortion
David Keeports1
1Mills College.

Exact Relativistic to Non-Relativistic Transformation via an Effective Potential
James P. Crawford1, J. Shubila1
1Penn State University.

New Ideas for Teaching Relativity: a unified derivation of the Doppler Effect
Roberto B. Salgado1
1Syracuse University - Department of Physics.

Einstein’s Legacy to Astronomy: From Black Holes to the Expanding Universe
Marcia Bartusiak1
1MIT.

SPS/AAPT/AAS Undergraduate Science Evening
Joint Event, Sunday, 7:00-9:00pm, 6A
The AAS Education Office and the AIP/Society of Physics Students are sponsoring an “Evening with Scientists” for all undergraduates attending the AAS/AAPT Joint Meeting on Sunday Night from 7 to 9 pm. Two notable astronomers will give short (20 mins) presentations on their personal experiences as scientists, their perspectives on the field and their own research. Dinner, in the form of pizza, burritos and other student favorites will be provided. Undergraduates are invited to put up their posters for an hour of informal discussion with each other and the featured speakers to get a perspective on Astronomy that is often overlooked at large meetings.

Chair, Susana E. Deustua1
1American Astronomical Society.

Chair, Gary White1
1American Institute of Physics.

Session 069 AIP Gemant Award Lecture
Plenary, Sunday, 7:00-8:30pm, Ballroom 6
Dr. Jim Stith of AIP, make present the award and introduce Marcia Bartusiak. Ms. Bartusiak is the author of numerous popular books on astronomy and cosmology, including “Einstein’s Unfinished Symphony,” “Thursday’s Universe,” “Through A Universe Darkly” and most recently, “Archives of the Universe.” The award is given to individuals who have linked physics to the arts and humanities. Previous winners include Philip Morrison, Freeman T. Dyson, Gerald Holton, Jeremy Bernstein, Cyril Stanley Smith, Martin Aitken, and Abraham Pais.

Chair, James J. Stith1
1American Institute of Physics.
MONDAY

Retirees Breakfast
AAPT Event, Monday, 7:00 am - 8:30 am, 211
Retired, or considering retirement? Come join others and share stories, ask questions, or discuss issues and concerns at this informal breakfast of peers. Tickets: $20

Two Year College Breakfast
AAPT Event, Monday, 7:00 am - 8:30 am, 213
This breakfast is a get-together for Two-Year College (TYC) Physics Teachers. Come interact, debate, and discuss any and all matters concerning TYC faculty. Also, get to know the TYC Committee members. Tickets: $20

Speaker Ready Room
Attendee Services, Monday, 7:30am-6:00pm, 603-04
See Saturday's listing for AV instructions.

Cyber Café
Attendee Services, Monday, 8:00am-6:30pm, South Lobby
See Sunday's listing for details.

Registration
Attendee Services, Monday, 8:00am-5:00pm, South Lobby

Session 070 The Coming Revolutions in Particle Physics
Plenary, Monday, 8:30-9:20am, Ballroom 6
Chair, Lila Adair
Piedmont College.

070.01 The Coming Revolutions in Particle Physics
Chris Quigg
Fermi National Accelerator Laboratory.

Session 071 Poster Session II
AAPT Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4

071.02 Inquiry-Based, Hands-on In-class Astronomy Activities
Rebecca Lindell, T. Foster
Southern Illinois University Edwardsville.

071.03 Innovate Use of SCALE-UP for Teaching General Education Astronomy
Luke Keller, M. Rogers
Ithaca College.

071.04 Promoting Stellar Writing: An Astronomy/English Learning Community
Frank Dudish, R. Lacina
Delta College.

071.05 An Upper-Division Astronomy Laboratory Course for Undergraduate Physics Majors
David M. Kuehn, B. L. Davis
Pittsburg State University.

071.06 A New Chart and Teaching Materials on Cosmology from CPEP
G Samuel Lightner, M. Cherney, G. Aubrecht, R. Reiland
Westminster College, Creighton University, The Ohio State University, Shady Side Academy.

071.07 Investigating Neglected Double Stars
R Kent Clark, J. M. Sanders, J. Guidry, J. Pearce
University of South Alabama.

071.08 Simulating the Retention of an Atmosphere
Kevin M. Lee, C. M. Siedell, A. N. Davis
University of Nebraska.

071.09 Citizen-Scientists Monitor Light Pollution Worldwide via “GLOBE at Night”
National Optical Astronomy Observatory, Centro de Apoyo a la Didáctica de la Astronomía (CADIAS), Chile, UCAR, CSU.
071.10 Student-Scientists use Remote Sensing to Reach across the Equator
Constance E. Walker1, R. Probst1, C. Martin1, B. Dorame2, D. Isbell1, S. M. Pompea1, H. Ochoa3, D. Orellana4, A. Garcia5
1National Optical Astronomy Observatory, 2Howenstine Magnet High School, 3Cerro Tololo Inter-American Observatory, Chile, 4Centro de Apoyo a la Didáctica de la Astronomia (CADIAS), Chile, 5Gemini Observatory, Chile.

071.11 NASA’s Gravity Probe B Mission: Was Einstein Right?
Shannon K. Range1
1NASA’s Gravity Probe B at Stanford University.

071.12 Using the Astronomy Diagnostic Test to Identify Students’ Preconceptional Knowledge
Dennis M. Robbins1, S. Tribiano1, K. Ford1, B. McKernan1
1Borough of Manhattan Community College.

071.13 Interactive Lecture Experiments in Large Introductory Physics Classes
Marina M. Milner-Bolotin1, A. Kotlicki1, G. Rieger1, F. Bates1, R. Moll1, K. McPhee1, S. Nashon1
1University of British Columbia, Canada.

071.14 Web administered pre/post assessment: reliability, compliance and security
Scott W. Bonham1
1Western Kentucky University.

071.15 Physics Applets for Drawing in the classroom
Scott W. Bonham1
1Western Kentucky University.

071.16 Active Learning with Ubiquitous Presenter and Tablet PCs
Edward Price1, B. Simon2
1California State University, San Marcos, 2UC, San Diego.

071.17 Simulation-Based e-Learning Tools for Science, Engineering, and Technology Education (SimBeLT)
Doyle V. Davis1, Y. Cherner2
1New Hampshire Community Technical College, 2ATeL, LLC.

071.18 Study of Interface Design for Engagement and Learning with Educational Simulations
Wendy K. Adams1, S. Reid1, R. LeMaster1, S. McKagan1, K. Perkins1, C. E. Wieman1
1University of Colorado.

071.19 Advanced Modeling in Excel: from Water Jets to Big Bang
Olga Ignatova1, D. Chyzhyk2, C. Willis3, A. Kazachkov4
1V. Karazin Kharkiv National Univ., Ukraine, 2Kharkiv National Univ. of Radio-Electronics, Ukraine, 3Univ. of Northern Colorado.

071.20 Developing computer program for calculating magnetic fields
Wook Hee Koh1, A. Koh2
1Hanseo University, Republic of Korea, 2Irvine Valley College.

071.21 Data Acquisition with Mathematica
Wesley W. Bliven1, N. Fitch2, P. Tam1
1Humboldt State Univ, 2University of Colorado at Boulder.

071.22 Teaching Computational Physics Using Spreadsheets
Jaebong Lee1, K. Shin1, S. Lee1
1Seoul National Univ., Republic of Korea.

071.23 Doing Physics with Spreadsheets: Old Tricks for New Dogs
A. John Mallinckrodt1
1Cal Poly Pomona.

071.24 Bouncing Ball Video Analysis: The Conservation of Mechanical Energy
Joel A. Bryan1
1Texas A&M University.

071.25 Changing Student Attitudes using Andes, An Intelligent Homework System
Brett van de Sande1, K. VanLehn1, D. Treacy2, R. Shelby2
1University of Pittsburgh, 2US Naval Academy.

071.26 Using the Motion Visualizer Family of Programs to Enhance Classroom and On-Line Learning
James E. Trimble, Jr3
1University of Tennessee.
Choosing the Right Mixture of Techniques and Technologies  
Todd K. Timberlake¹  
¹Berry College.

Session 072 AGNs, QSOs and Active Galaxies 1  
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4

072.01 Redshift Effects on the Spectroscopic Properties of Active Galaxies  
Kelly Wallenstein¹, E. C. Moran²  
¹Wellesley College, ²Wesleyan University.

072.02 Applications Of Spectral Principle Component Analysis In AGN Research: Sample Selection and Beyond  
Zhaohui Shang¹, M. Brotherton¹  
¹Univ. Of Wyoming.

072.03 Quasar Metallicities and Host Galaxy Evolution  
Simon E. Leah¹, F. W. Hamann¹  
¹University of Florida.

072.04 Quasar Environments in the Sloan Digital Sky Survey  
Amanda Haapala¹, J. Scott¹  
¹Towson University.

072.05 Magnetorotational Instability in Strongly Magnetized Plasmas  
Vladimir I. Pariev¹, V. V. Mirnov¹, S. C. Prager¹  
¹Univ. Of Wisconsin-Madison.

072.06 Discovery of Bright Quasars at Low Galactic Latitude  
Induk Lee¹, M. Im¹  
¹Seoul National University, Republic of Korea.

072.07 Clustering of z=3 AGN in MUSYC-ECDFS  
Harold Francke¹, E. Gawiser², P. Lira², S. Virani², E. Treister³, C. M. Urry², MUSYC Collaboration  
¹Universidad de Chile, Chile, ²Yale University, ³European Southern Observatory, Chile.

072.08 Optical Variability of Infrared Power Law-Selected Galaxies & X-ray Sources in the GOODS South Field  
Alison J. Klesman¹, V. L. Sarajedini¹  
¹Univ. Of Florida.

072.09 Intrinsic Absorption in the HST Archive I: Search for Time Variable Systems  
Catherine Grier¹, M. Hawthorn², R. Ganguly³, J. C. Charlton¹, M. Eracleous¹, K. R. Sembach²  
¹University of Illinois at Urbana-Champaign, ²Cambridge, United Kingdom, ³University of Wyoming, ⁴Penn State, ⁵STScI.

072.10 Intrinsic Absorption in the HST Archive II: Partial Covering and Associated O VI Systems  
Rajib Ganguly¹, R. S. Lynch², J. C. Charlton¹, M. Eracleous¹, T. M. Tripp¹, C. Palma², K. R. Sembach¹, T. Misawa², J. R. Masiero², N. Milutinovic², T. M. Jones²  
¹Univ. of Wyoming, ²Penn State University, ³UMass, ⁴STScI, ⁵University of Hawaii, ⁶University of Victoria, Canada.

072.11 Dust Lanes, Nuclear Dusty Disks, and Isophotal Properties as Observed by HST: What Do They Tell Us about the 3-D Structure of Elliptical Radio Galaxy Hosts?  
Grant R. Tremblay¹, M. Chiaberge¹, C. J. Donzelli¹, W. B. Sparks¹, A. C. Quillen²  
¹Space Telescope Science Institute, ²Department of Physics and Astronomy, University of Rochester.

072.12 Probing the Assembly of Massive Galaxies via Quasar Hosts at z=4  
Kim K. McLeod¹, J. Bechtold², B. A. McLeod³, S. Kimmel², T. Sepeisky², R. Stoll², A. Zangari¹  
¹Wellesley College, ²University of Arizona, ³Smithsonian Astrophysical Observatory, ⁴Williams College.

072.13 Monitoring Microlensing Events In the Quasar RX J1131-1231  
George Chartas¹, C. S. Kochanek², X. Dai², N. Morgan², G. P. Garmire¹  
¹Penn State University, ²The Ohio State University.
072.14 3D Simulations of Jet Interactions with Galaxy Cluster Environments
Sean M. O’Neill¹, T. W. Jones¹, D. Ryu²
¹Univ. of Minnesota, ²Chungnam National University, Republic of Korea.

072.15 AGN near Weak Lensing Selected, X-ray Confirmed Galaxy Clusters
Dara J. Norman¹, Deep Lens Survey Collaboration
¹NOAO/CTIO.

072.16 FeII(UV)/MgII Ratio versus Luminosity in QSOs
Ekaterina Verner¹, F. Bruhweiler¹, B. Peterson²
¹Catholic University of America, ²Siding Spring Observatory, Australia.

072.17 Are There Low Radiative Efficiency Accretion Disks in Low Luminosity AGN?
Marco Chiaberge¹, D. Macchetto²
¹Space Telescope Science Institute, ²Space Telescope Science Institute - ESA.

072.18 Broad Line Regions in Low Luminosity Radio Galaxies: is the Distinction Between Broad- and Narrow-Line Galaxies Real?
Jacob Noel-Storr¹, S. A. Baum¹, C. P. O’Dea¹
¹Rochester Inst. of Technology.

072.19 Optical Ensemble Variability of Low to Moderate Redshift Galaxies in the Sloan Digital Sky Survey
Tyler D. Desjardins¹, V. L. Sarajedini¹
¹Univ. Of Florida.

072.20 Study of X-ray Spectral Parameters from Large Sample of RXTE Active Galaxies
Barbara Mattson¹, K. Weaver¹, C. Reynolds²
¹NASA’s GSFC, ²University of Maryland.

072.21 An Archival HST Survey for Ultrafaint QSOs
Bernhard Beck-Winchatz¹, S. F. Anderson²
¹DePaul University, ²University of Washington.

072.22 The Broadband X-Ray Spectral Features of a Sample of Seyfert 1 Galaxies
Urmila Padmanabhan¹, K. A. Weaver², T. Yaqoob¹
¹Johns Hopkins University, ²GSFC.

072.23 Quantification of Quasar Environments via Absorption Spectra
Colleen M. McIntosh¹, J. Scott¹
¹Towson Univ..

072.24 Studies of Quasar Variability With the Sloan Digital Sky Survey
Brian C. Wilhite¹, R. J. Brunner¹, B. F. Lundgren¹, C. J. Grier¹
¹University of Illinois.

072.25 The Proximity Effect and the UV Background at z~4
Jennifer E. Scott¹, J. Bechtold²
¹Towson Univ., ²University of Arizona.

072.26 A Search for the Earliest Luminous Quasars
Eilat Glikman¹, S. G. Djorgovski¹, A. A. Mahabal¹, M. J. Graham¹,
D. Thompson¹, G. Meylan², A. Eigenbrod², F. Courbin²
¹Caltech, ²EPFL, Switzerland.

072.27 Observation of the GZK Cutoff by the HiRes Experiment
Stefan Westerhoff¹, B. Connolly¹
¹Columbia University.

Session 073 Astronomers in Public Education
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4

073.01 The Beyond Einstein Explorers’ Program (BEEP) - Getting Astronomers Involved in Afterschool Activities
Anita Krishnamurthi¹, B. Barbier², S. Mitchell², J. Lochner¹
¹NASA GSFC/University of Maryland, ²NASA GSFC/SP Systems, Inc.,
³NASA GSFC/USRA.

Session 074 Astronomy and Astrophysics with LISA
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4
074.01 LISA: Probing the Universe with Gravitational Waves
Thomas A. Prince¹, P. Binetruy², J. Centrella³, L. S. Finn⁴, C. Hogan⁵, G. Nelemans⁶, E. S. Phinney⁷, B. Schutz⁸, LISA International Science Team
¹Caltech/JPL, ²APC - College de France, France, ³GSFC, ⁴Penn State University, ⁵University of Washington, ⁶Radboud University Nijmegen, The Netherlands, ⁷Caltech, ⁸Max-Planck-Institut fur Gravitationsphysik, Germany.

074.02 LISA Mission Architecture
Nicholas M. Jedrich¹, R. T. Stebbins¹, J. C. Livas¹, S. M. Merkowitz¹, R. G. Mink¹
¹NASA.

074.03 The LISA Pathfinder Mission
Robin T. Stebbins¹, LISA Pathfinder Science Team
¹NASA Goddard Space Flight Center.

074.04 System Validation and Verification Testing for the Laser Interferometry Space Antenna (LISA)
Jeffrey C. Livas¹, N. Jedrich¹, S. M. Merkowitz¹, R. T. Stebbins¹
¹NASA's GSFC.

074.05 Cancellation of the LISA Antenna Distortions due to the Earth
Peter L. Bender¹
¹JILA, Univ. of Colorado and NIST.

074.06 Measurements of Forces Between Surfaces for LISA
Scott E. Pollack¹, S. Schlamminger¹, C. A. Hagedorn¹, J. H. Gundlach¹
¹University of Washington.

074.07 Modular Gravitational Reference Sensor for High Precision Astronomical Space Missions
Ke-Xun Sun¹, G. Allen¹, S. Buchman¹, R. L. Byer¹, J. W. Conklin¹, D. B. DeBra¹, D. Gill¹, A. Goh¹, S. Higuchi¹, P. Lu¹, N. Robertson¹, A. Swank¹
¹Stanford Univ.

074.08 Tracking Cosmological Black Hole Mergers with LISA
Ryan N. Lang¹, S. A. Hughes¹
¹MIT.

074.09 Modeling Binary Black Hole Mergers
John G. Baker¹
¹NASA/GSFC.

074.10 Observing Massive Black Hole Binaries with LISA
Sean McWilliams¹
¹NASA GSFC.

074.11 Population Boundaries for Evolving White Dwarf Binaries on the LISA Sensitivity Curve
Kopparapu R. Kumar¹, V. Gokhale¹, J. Frank¹, J. E. Tohline¹
¹Louisiana State Univ.

074.12 Tidal Effects in Inspiralizing Double White Dwarfs
Vicky Kalogera¹, B. Willems¹, B. Hansen²
¹Northwestern University, ²UCLA.

074.13 Gravitational Waves from Cosmic Superstrings
Craig J. Hogan¹
¹Univ. of Washington.

074.14 The Mock LISA Data Challenges: First Results and Future Prospects
Michele Vallisneri¹, Mock LISA Data Challenge Taskforce
¹Jet Propulsion Laboratory.

074.15 Listening to the Universe with the Laser Interferometer Space Antenna
Neil J. Cornish¹, J. Crowder², E. Porter³
¹Montana State Univ., ²Jet Propulsion Laboratory, ³Albert Einstein Institute, Germany.

074.16 Bayesian Inference and Observations of Massive Black-hole Binaries with LISA
Marc Van der Sluys¹, A. Stroer³, A. Vecchio³, V. Kalogera¹
¹Northwestern University, ³Northwestern Univ., Univ. of Birmingham.
MONDAY Events, Sessions and Paper Titles

074.17 An Application of the Hilbert-Huang Transform to the LISA Mock Data Challenge
John K. Cannizzo¹, J. Camp²
¹NASA/GSFC/UMBC, ²NASA/GSFC.

074.18 Coated Fused Silica Fibers for Enhanced Sensitivity Torsion Pendulum
Kenji Numata¹
¹Univ. of Maryland/NASA-GSFC.

Session 075 Astronomy Research by Students of All Ages and the Public
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4

075.01 The Use of a High School Observatory to Augment Our Understanding of the Metallicity Dependence of the Cepheid Period-Luminosity Relation
James Young¹, S. Scott¹, S. Kanbur¹, A. ominsky², C. Ngeow³
¹SUNY Oswego, ²Southern Cayuga High School Observatory, ³U. Illinois.

075.02 The Arecibo Remote Command Center: Involving Students in Major Astronomical Research
Andy Miller¹, A. Rodriguez-Zermeno¹, F. Jenet¹
¹Center for Gravitational Wave Astronomy/ Univ. Texas at Brownsville.

075.03 Space Science Lab at PARI
Michael W. Castelaz¹, M. Blake¹, D. Clavier¹, C. Whitworth¹, J. D. Cline¹
¹Pisgah Astronomical Research Inst..

075.04 The CUREA Program at Mount Wilson
Paula C. Turner¹, J. C. LoPresto², M. Simmons³
¹Kenyon College, ²Edinboro Univ. of Pens., ³Mount Wilson Obs. Assoc.

075.05 Astrophysical and Planetary Science Research at Four Minority Institutions
Donald K. Walter¹, L. P. Johnson², S. A. Austin³, C. Salgado³, P. A. Morris⁴
¹South Carolina State Univ., ²Medgar Evers College, ³Norfolk State University, ⁴University of Houston - Downtown.

075.06 Research-Infused STEM Reform at South Carolina State University
Daniel M. Smith, Jr.¹, J. A. Anderson¹, K. Adzievski¹
¹South Carolina State University.

075.07 Education and Public Outreach for Stardust@home: An Interactive Internet-based Search for Interstellar Dust
Bryan J. Mendez¹, A. J. Westphal¹, A. L. Butterworth¹, N. Craig¹
¹UC Berkeley.

075.08 THEMIS Education and Outreach Program’s Involvement in Authentic Science in the classroom.
Nahide G. Craig¹, L. M. Petiolo¹, V. Trautman²
¹UC, Berkeley, ²Petersburg City Schools.

Session 076 Circumstellar Disk Models
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4

076.01 Accretion of Terrestrial Planets from Oligarchs in a Turbulent Disk
Masahiro Ogihara¹, S. Ida¹, A. Morbidelli²
¹Tokyo Institute of Technology, Japan, ²Observatory of Nice, France.

076.02 Disks in Transition Around Pre-Main Sequence Stars
Catherine Espaillat¹, N. Calvet¹, L. Hartmann¹
¹University of Michigan.

076.03 Modification of Angular Velocity Distribution by Inhomogeneous Growth of MRI in Protoplanetary Disks
Mariko Kato¹, K. Nakamura¹, R. Tandokoro¹, M. Fujimoto¹, S. Ida¹
¹Tokyo Institute of Technology, Japan, ²JAXA/ISAS, Japan.

076.04 The behaviors of Kelvin-Helmholtz Instability in protoplanetary disks
Yusuke Kobayashi¹, K. Nakamura¹, M. Fujimoto¹
¹Tokyo Institute of Technology, Japan.

076.05 Kelvin-Helmholtz vortices induced by MRI at the inner-edge of protoplanetary disks
Keita Nakamura¹, M. Kato¹, R. Tandokoro², M. Fujimoto¹, S. Ida¹, H. Yurimoto¹
¹Tokyo Institute of Technology, Japan, ²FUJITSU LABORATORIES LTD., Japan, ³ISAS/JAXA, Japan, ⁴Hokkaido University, Japan.
076.06  A Test Suite for 3D Radiative Hydrodynamics Simulations of Protoplanetary Disks
Aaron C. Boley¹, R. H. Durisen¹, A. Nordlund², J. Lord³
¹Indiana University, ²NBIfA, Denmark, ³Whitman College.

076.07  3D Radiative Hydrodynamics Simulations of Protoplanetary Disks: A Comparison Between Two Radiative Cooling Algorithms
Jesse W. Lord¹, A. C. Boley², R. H. Durisen²
¹Indiana University and Whitman College, ²Indiana University.

076.08  Monte-Carlo SED Models Of Young Stars With Accretion Disks In Taurus-Auriga and Orion Region
Thompson S. LeBlanc¹, K. G. Stassun¹, E. L. Jensen²
¹Vanderbilt University, ²Swarthmore College.

076.09  Proto Planetary Disk Model Inversion Using Artificial Neural Networks
Gerald T. Ruch, Jr.¹, D. Wooden², C. E. Woodward¹
¹Univ. of Minnesota, ²NASA Ames.

076.10  Simulating Protoplanetary and Debris Disk’s for ALMA
Robert L. Stone¹
¹Radford University and NRAO.

Session 077 Clusters & Cosmology
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4

077.01  First Results from an HST/ACS Snapshot Survey of Intermediate Redshift, Intermediate X-ray Luminosity Clusters of Galaxies: Early Type Galaxies and Weak Lensing
Christine Trombley¹, M. Donahue¹, S. Bruch¹, C. Conselice², B. McNamara³, H. Hoekstra¹
¹Michigan State University, ²University of Nottingham, United Kingdom, ³University of Waterloo, Canada.

077.02  Populations of Lyman Break Galaxies in Two Large Quasar Groups at 0.8<z<1.2
Lutz Haberzettl¹, G. M. Williger¹, J. T. Lauroesch¹, D. Valls-Gabaud¹, C. P. Haines¹, R. G. Clowes¹, L. E. Campusano⁶, R. Dave⁶
¹U. Louisiille, ²Obs. Meudon, France, ³Oss. Astronomico di Capodimonte, Italy, ⁴U. Central Lancashire, UK, ⁵Univ. de Chile, Chile, ⁶U. Arizona.

077.03  Simulation of the Magnetothermal Instability in 3D and Application to Clusters of Galaxies
Ian J. Parrish¹, J. M. Stone¹
¹Princeton University.

077.04  Discovery of Distant Galaxy Clusters in the ROX Survey
Deborah B. Haarsma¹, M. E. Donahue², A. R. Butler¹, S. S. Bruch², M. Dickinson³
¹Calvin College, ²MSU, ³NOAO.

077.05  THE EVOLUTION OF WEAK MgII ABSORBERS FROM 0 < z < 2.4.
Anand Narayanan¹, T. Misawa¹, J. C. Charlton¹, T. Kim²
¹Pennsylvania State Univ., ²Astrophysikalisches Institut Potsdam, Germany.

077.06  First Results from the XMM/IMACS Groups Project
John S. Mulchaey¹, Y. Shen², J. Rasmussen¹, T. J. Ponman¹, S. Raychaudhury³
¹Carnegie Obs., ²Princeton University, ³University of Birmingham, United Kingdom.

077.07  Mapping the Intergalactic Medium in Chandra Deep Fields
Lara A. Phillips¹
¹Five Colleges Astronomy Department, Amherst College.

077.08  Chandra Observations of Abell 222 & Abell 223
David S. Davis¹, M. Henriksen²
¹UMBC/NASA’s GSFC, ²UMBC.

077.09  Evidence for Evolution in Weak MgII Absorbers at z < 1.5
Jessica L. Evans¹, C. W. Churchill¹, M. I. Murphy², A. M. Widhalm¹
¹New Mexico State Univ., ²University of Cambridge, United Kingdom.

077.10  The NOAO-XCS Survey Program
Christopher J. Miller¹, A. K. Romer², S. A. Stanford³, M. Hilton⁴, M. Hosmer⁵, N. Merhtens⁵, XCS Consortium
¹NOAO/CTIO, Chile, ²University of Sussex, United Kingdom, ³Lawrence Livermore National Laboratory, ⁴Liverpool John Moores University, United Kingdom, ⁵University of Sussex, United Kingdom.
077.11 Chandra Studies of Dark Matter and Galaxy Formation: Signatures from the Intracluster Medium
Megan Donahue¹, M. Sun¹, K. Cavagnolo¹, G. Voit¹
¹Michigan State Univ.

077.12 The Stellar Populations of Ultra-Compact Dwarf Galaxies
Arna Karick¹, M. D. Gregg¹
¹UC Davis/LLNL.

077.13 Spatial Probing of MgII Absorption in ’’Halo’’ Gas through Adaptive Mesh Refinement Simulations of Galaxies
Christopher W. Churchill¹, G. Kacprzak¹, D. Ceverino¹, J. Evans¹, A. Widhalm¹
¹New Mexico State Univ.

077.14 Cosmic Ray Scattering in Compressible Turbulence
Andrey Beresnyak¹, A. Lazarian¹
¹Univ. of Wisconsin-Madison.

077.15 Chandra Spectral Analysis of the Intergalactic Gas in the Unusual Cluster RXJ 0419+0225
Kristina Nyland¹, R. Dupke¹
¹Univ. Of Michigan.

077.16 Sunyaev-Zeldovich Effect Signals in Cluster Models
Beth A. Reid¹, D. N. Spergel¹
¹Princeton Univ.

077.17 The Beta Problem: The Incompatibility of X-ray and Sunyaev-Zeldovich Model Fitting
Jack O. Burns¹, E. Hallman¹, P. Mott¹, M. Norman³
¹Univ. Of Colorado at Boulder, ²Louisana State University, ³Univ. of California at San Diego.

077.18 OVI and HI Around Nearby Galaxies
Bart P. Wakker¹, B. D. Savage¹, K. R. Sembach¹
¹Univ. of Wisconsin, ²Space Telescope Science Institute.

077.19 Chandra Observation of the Cluster Environment of a WAT Radio Source in Abell 1446
Edmund Douglass¹, E. Blanton¹, T. Clarke², C. Sarazin³, M. Wise⁴
¹Boston University, ²NRL, ³University of Virginia, ⁴University of Amsterdam, The Netherlands.

077.20 A Possible Mass-Density and Star Formation Density relation at z=5.7
Peter L. Capak¹, N. Z. Scoville¹, Y. Taniguchi², S. Sasaki², S-COSMOS Team
¹Caltech, ²Hime University, Japan.

077.21 Group Analysis Reveals Previously Unrecognized Patterns in Stellar and Galactic Distributions
Philip Mocz¹
¹Millilani High School.

077.22 New Statistical Methods to Analyze the SDSS DR5 Galaxy Distribution
Yongfeng Wu¹, D. Batuski¹, A. Khalil¹
¹Univ. of Maine.

077.23 Exploring Galaxy Environments with Characteristic Field Mapping
Shannon A. Snider¹
¹Michigan State University.

077.24 A Weak Lensing Study of the Coma Cluster in SDSS
Jeffrey Kubo¹, J. Annis¹, I. Dell'Antonio², H. Khialbanian³, A. Stebbins¹
¹Fermi Nat'l. Accelerator Lab., ²Brown University.

077.25 Quantifying Galaxy Cluster Substructure
David A. Ventimiglia¹, G. M. Voit¹, M. Donahue¹, S. Borgani², S. Ameglio¹
¹Michigan State University, ²Università degli Studi di Trieste, Italy.

077.26 Iron Abundance and Temperature Gradients in High Redshift Galaxy Clusters
Steven R. Ehler¹
¹Northwestern University.
077.27  A Detection of Large-scale Intrinsic Alignments and Implications for Cosmic Shear
Rachel Mandelbaum¹, C. M. Hirata¹, M. Ishak², U. Seljak³
¹Institute for Advanced Study, ²University of Texas (Dallas), ³Princeton University.

077.28  Constraining Lambda CDM and Brane-based Cosmologies using Gamma Ray Bursts
Razieh Behkam¹, J. Rhoads¹
¹Arizona State Univ..

077.29  Understanding a Cosmic Yardstick - Simulating Neutral Hydrogen in Disk Galaxies
Alok Singhal¹, R. Fisher², K. O’Neil², E. Murphy³
¹National Radio Astronomy Observatory and University of Virginia, ²National Radio Astronomy Observatory, ³University of Virginia.

077.31  The Opposite of Dark Energy: Limits on Ultralight Energy in the Early Universe
Robert J. Nemiroff¹
¹Michigan Technological University.

077.32  Cosmology with the Cluster Mass Function
Kenneth J. Rines¹
¹Smithsonian Astrophysical Observatory.

Session 078 Computation, Data Handling, and Image Analysis
AAS Poster,  Monday, 9:20am-6:30pm, Exhibit Hall 4

078.01  Theory SkyNode
Richard P. Wagner¹, M. L. Norman¹
¹UC, San Diego.

078.02  Datamining the NOAO NVO Portal: Automated Image Classification
Pooja Vaswani¹, C. J. Miller², I. Barg², R. C. Smith³
¹University of Arizona, ²NOAO/CTIO, ³NOAO.

078.03  A New Telescope Control System Interface for the HET
Brandt M. Westing¹, J. R. Fowler²
¹The University of Texas - Austin, ²Hobby-Eberly Telescope/McDonald Observatory.

078.04  VOEventNet: Event Messaging for Astronomy
Andrew J. Drake¹, G. Djorgovski¹, M. Graham¹, R. Williams¹, A. Mahabal¹, C. Donalek¹, E. Glikman¹, J. Bloom¹, T. Vastrand³, R. White³, D. Rabinowitz¹, C. Baltay¹
¹Caltech, ²UCB, ³LANL, ⁴Yale.

078.05  Real-time Transients from Palomar-QUEST Synoptic Sky Survey
Ashish A. Mahabal¹, A. Drake¹, S. G. Djorgovski¹, C. Donalek¹, E. Glikman¹, M. J. Graham¹, R. Williams¹, C. Baltay³, D. Rabinowitz², A. Bauer², N. Ellman², R. Lauer², PQ team (Caltech, Yale, NCSA, Indiana, ...)
¹Caltech, ²Yale University.

078.06  SEDBuilder: A Federating Tool for the Virtual Observatory
August A. Muench¹, D. Floyd², T. Murphy³, P. Prema⁴, R. Sinha⁵
¹Smithsonian Astrophysical Observatory, ²STSCI, ³University of Sydney, Australia, ⁴Institute of Astronomy, United Kingdom, ⁵IUCAA, India.

078.07  Status of the CDS Services, SIMBAD, VizieR and Aladin
Francoise Genova¹, M. G. Allen¹, O. Bienayme¹, T. Boch¹, F. Bonnarel¹, L. Cambresy¹, S. Derriere¹, P. Dubois¹, P. Fernique¹, G. Landais¹, S. Lesteven¹, C. Loup¹, A. Oberto¹, F. Ochsenbein¹, A. Schaaff¹, B. Vollmer¹, M. Wenger¹, M. Louys², E. Davoust¹, G. Jasniewicz¹
¹Obs. de Strasbourg, France, ²LSIT, France, ³LAT, France, ⁴GRAAL, France.

078.08  An Implementation of the VO Spectrum Model
Kelly McCusker¹
¹Harvard-Smithsonian Center for Astrophysics.
**MONDAY Events, Sessions and Paper Titles**

078.09  **How to Find More Supernovae with Less Work: Object Classification Techniques for Difference Imaging**
Stephen J. Bailey\(^1\), G. Aldering\(^1\), C. Aragon\(^1\), S. Bongard\(^1\), M. Childress\(^1\), S. Loken\(^1\), P. Nugent\(^1\), S. Perlmutter\(^1\), K. Runge\(^1\), R. Scalzo\(^1\), R. Romano\(^1\), R. Thomas\(^1\), B. Weaver\(^1\), C. Baltay\(^2\), A. Bauer\(^2\), D. Herrera\(^2\), D. Rabinowitz\(^2\), E. Pecontal\(^3\), G. Rigaudier\(^3\), P. Antilogus\(^4\), S. Gilles\(^4\), R. Pain\(^4\), R. Pereira\(^4\), C. Buton\(^5\), Y. Copin\(^5\)
\(^1\)Lawrence Berkeley National Laboratory, \(^2\)Yale University, \(^3\)Centre de Recherche Astronomique de Lyon, France, \(^4\)Laboratoire de Physique Nucleaire et de Haute Energies de Paris, France, \(^5\)Institut de Physique Nucleaire de Lyon, France.

078.10  **Arecibo Observatory and the National Virtual Observatory**
Isobel Ojalvo\(^1\)
\(^1\)Rensselaer Polytechnic Institute.

079.01  **Spitzer Observations of Substellar Companions**
Sonali J. Shukla\(^1\), P. Lowrance\(^2\), J. Kirkpatrick\(^3\)
\(^1\)Vanderbilt University / Spitzer Science Center, California Institute of Technology, \(^2\)Spitzer Science Center, California Institute of Technology, \(^3\)Infrared Processing and Analysis Center, California Institute of Technology.

079.02  **Activity and Kinematics of Ultracool Dwarfs Including Flare Observations**
Sarah J. Schmidt\(^1\), K. L. Cruz\(^2\)
\(^1\)University of Washington, \(^2\)American Museum of Natural History.

079.03  **Discovery of a Nearby, Very Young L Dwarf**
Dagny Looper\(^1\), J. Kirkpatrick\(^2\), R. Cutri\(^3\), T. Barman\(^3\), T. Roellig\(^4\), M. Cushing\(^2\)
\(^1\)U. Hawaii, \(^2\)Caltech/IPAC, \(^3\)Lowell Obs., \(^4\)NASA-Ames, \(^5\)U. Arizona.

079.04  **A Custom Near-IR Filter for Finding Young Brown Dwarfs**
Katelyn N. Allers\(^1\), M. Liu\(^1\)
\(^1\)Univ. Of Hawaii.

079.05  **Recent Results of the NIRSPEC Brown Dwarf Spectroscopic Survey**
Emily L. Rice\(^1\), I. S. McLean\(^1\), L. Prato\(^2\), M. R. McGovern\(^3\), A. J. Burgess\(^4\), J. Kirkpatrick\(^5\), S. S. Kim\(^6\)
\(^1\)UCLA, \(^2\)Lowell Observatory, \(^3\)Antelope Valley College, \(^4\)MIT, \(^5\)IPAC/Caltech, \(^6\)Kyung Hee University, Republic of Korea.

**Session 079 Cool dwarfs**
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4

080.01  **The Luminosity Function of COSMOS Radio Sources**
Timothy Paglione\(^1\), V. Smolcic\(^2\), E. Schinnerer\(^3\), K. Salvador\(^7\), P. Ciliegi\(^4\), M. Bondi\(^4\), S. Tribiano\(^5\)
\(^1\)CUNY-York College, \(^2\)MPIA, Germany, \(^3\)AMNH, \(^4\)INAF, Italy, \(^5\)CUNY-BMCC.

080.02  **The Faint End Slope Of Starburst Galaxy Luminosity Functions In The COSMOS 2-Square Degree Field**
Charles Liu\(^1\), P. Capak\(^2\), B. Mobasher\(^3\), T. A. Paglione\(^4\), R. M. Rich\(^5\), N. Z. Scoville\(^6\), S. M. Tribiano\(^6\), N. Tyson\(^6\), COSMOS Collaboration
\(^1\)CUNY College of Staten Island, \(^2\)Caltech, \(^3\)STScI, \(^4\)CUNY York College, \(^5\)UCLA, \(^6\)CUNY BMCC, \(^7\)AMNH.

080.03  **The COSMOS Survey: New Data Releases**
Patrick L. Shopbell\(^1\), P. Capak\(^1\), N. Scoville\(^1\), COSMOS Team
\(^1\)Caltech.

080.04  **A Multiwavelength Study of Millimeter Galaxies in the Bolocam-COSMOS Survey**
James E. Aguirre\(^1\), Bolocam-COSMOS Collaboration
\(^1\)NRAO Jansky Fellow at the University of Colorado, Boulder.
080.05 The VLA-COSMOS 1.4 GHz Survey: The Properties of the Faint Radio Population and Star Formation Rates
Vernesa Smolcic1, E. Schinnerer1, C. Carilli2, M. Scodellio1, P. Franzetti1, K. Jahnke1, A. Martinez-Sansigre4, M. Salvato3, G. Zamorani5
1MPI für Astronomie, Germany, 2NRAO, 3IASF INAF, Italy, 4California Institute of Technology, 5Istituto Nazionale di Astrofisica, Italy.

080.06 The Chandra COSMOS Survey
Martin Elvis1, C-COSMOS Team
1Harvard-Smithsonian CfA.

Session 081 Disks Later in Life
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4

081.01 Mid-infrared Spectra of PAH Emission in Herbig AeBe Stars
1Ithaca College, 2Cornell University, 3University of Rochester, 4University of Missouri, 5NOAO, 6UNAM, Mexico, 7University of Michigan.

081.02 Spectroscopy of the Post-AGB Disk around HR 4049
Kenneth H. Hinkle1, S. D. Brittain2, D. L. Lambert3
1NOAO, 2Clemson University, 3University of Texas.

081.03 Periodic Variations in the Emission Lines of Zeta Tauri
Shellie L. Huether1, K. S. Bjorkman2
1Univ. of Missouri-Rolla, 2Univ. of Toledo.

081.04 Be Star Spectra: Disk Variability and Radial Velocity Variations
Erika Grundstrom1, D. R. Gies1, T. S. Boyajian1, S. J. Williams1, D. W. Wingert1
1Georgia State Univ.

081.05 Probing the Circumstellar Disks of Be Stars with Contemporaneous Optical and IR Spectroscopy
Karen S. Bjorkman1, E. N. Hesselbach1, J. P. Wisniewski2, J. E. Bjorkman1
1Univ. of Toledo, 2NASA GSFC.

081.06 Mid-Infrared Spectra of Circumstellar Dust Debris around Main-sequence A and Late B Type Stars
Farisa Morales1, M. Werner1, G. Bryden1, C. Beichman1, K. Su2, G. Rieke2
1JPL/Caltech, 2U of A.

Session 082 Formation and Detection of Habitable Planets
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4

082.01 Is the Binary-Planetary System of Gamma Cephei Dynamically Full?
Joseph Castro1, N. Haghighipour1
1Institute for Astronomy, University of Hawaii.

Sean Raymond1, A. Mandell2, S. Sigurdsson2
1Univ. of Colorado, 2Pennsylvania State University.

082.03 Laboratory demonstration of coronagraph imaging for the detection of Earth-like planets
John T. Trauger1, W. A. Traub1
1JPL.

Session 083 Galactic and Extragalactic Surveys Using AzTEC
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4

083.01 AzTEC: A New Millimeter-Wave Camera
1Univ. Of Massachusetts, Amherst, 2Cardiff University, United Kingdom, 3Jet Propulsion Laboratory, 4University of Colorado, Boulder, 5Caltech, 6Sejong University, Republic of Korea, 7Predmore Associates.

083.02 Optimizing AzTEC Data Reduction for Extracting Point-like Objects
Thushara Perera1, J. Austermann1, C. Battersby1, C. Roberts1, K. S. Scott1, G. W. Wilson1, M. S. Yun1
1Univ. Of Massachusetts Amherst.
083.03  AzTEC Observations of the SHADES Fields
Kimberly S. Scott¹, AzTEC/SHADES group
¹Univ. Of Massachusetts.

083.04  The Star Formation History of SHADES Sources
Itziar Aretxaga¹, SHADES consortium and AzTEC team
¹INAOE, Mexico.

083.05  Milli-Jansky Sources in GOODS-N Detected with JCMT/AzTEC
James D. Lowenthal¹, I. Aretxaga², J. Austermann³, E. Chapin¹, K. Coppin¹, M. Crowe¹, L. Frey¹, A. Gibb¹, M. Halpert¹, D. H. Hughes¹, T. Perera¹, A. Pope¹, D. Scott¹, K. Scott¹, G. Wilson¹, M. S. Yun¹
¹Smith College, ²INAOE, Mexico, ³U. Massachusetts, ⁴UBC, Canada.

083.06  Nature of the 1100 Micron AzTEC-COSMOS Sources
Min Su Yun¹, J. Aguirre², I. Aretxaga¹, J. Austermann¹, J. Bock⁴, G. Fazio¹, J. Huang¹, D. Hughes¹, Y. Kang¹, S. Kim¹, J. Lowenthal¹, C. Ma¹, P. Mauskopf¹, T. Perera¹, D. Sanders¹, K. Scott¹, N. Scoville¹, G. Wilson¹, J. Iyon¹
¹Univ. of Massachusetts, ²Univ. of Colorado/NRAO, ³INAOE, Mexico, ⁴Caltech, ⁵SAO, ⁶Sejong University, Republic of Korea, ⁷Smith College, ⁸Univ. of Hawaii, ⁹Cardiff University, United Kingdom.

083.07  A 1.1mm AzTEC Survey Tracing Accelerated Galaxy Formation Towards a Protocluster at z=3.8
David H. Hughes¹, A. Montana¹, I. Aretxaga¹, M. Plionis¹, A. Porrillas¹, J. Wagg¹, E. Gaztanaga¹, J. Huang¹, G. Fazio¹, G. Wilson¹, M. Yun¹, J. Lowenthal¹, T. Perera¹, J. Austermann¹, K. Scott¹, J. Dunlop¹, R. Ivison¹, J. Stevens¹, I. Smail¹, P. Appleton²
¹Instituto Nacional de Astrofisica, Optica y Electronica, Mexico, ²IEEC, Spain, ³CfA, ⁴U. Massachusetts, ⁵Smith College, ⁶Institute of Astronomy, Royal Obs., UK, ⁷U. Hertfordshire, UK, ⁸U. Durham, UK, ⁹IPAC.

083.08  Joint Analysis of the Full AzTEC Sub-Millimeter Galaxy Data Set
Grant Wilson¹, P. Ade¹, I. Aretxaga¹, J. Austermann¹, J. Bock¹, D. Hughes¹, Y. Kang¹, S. Kim¹, J. Lowenthal¹, P. Mauskopf¹, T. Perera¹, K. Scott¹, M. Yun¹
¹University of Massachusetts, ²Cardiff University, United Kingdom, ³INAOE, Mexico, ⁴California Institute of Technology, ⁵Sejong University, Republic of Korea, ⁶Smith College.
084.06  New Maps of the 3-D Distribution of Cold and Warm Interstellar Gas within 500pc
Barry Welsh¹, R. Lallement², J. Vergely³
¹UC, Berkeley, ²Service d'Aeronomie, CNRS, France.

084.07  Radio and Recombination Lines from a Thermal Spur associated with the HII Region S54 : A Model to explain the Observational Results
Diana E. Azcarate¹
¹Inst. Argentino de Radioastronomia, Argentina.

084.08  Observational Evidence for X-ray Induced Plasma Damping of Grain Alignment
Bengt-Goran Andersson¹
¹Johns Hopkins Univ.

084.09  The Dynamical Structure of the Local Interstellar Medium
Seth Redfield¹, J. L. Linsky²
¹Univ. of Texas, ²JILA and Univ. of Colorado.

084.10  OH Study of the Massive Star-Forming Region IRAS 19111+1048
Knicole Colon¹
¹The College of New Jersey.

084.11  Dissipation and Heating in Supersonic MHD Turbulence
M. Nicole Lemaster¹, J. M. Stone¹
¹Princeton Univ.

084.12  Spitzer Observations of HD 34078 and IC 405: Bow Shock and Mid-IR Emission Variations
Kevin France¹, S. R. McCandliss², R. E. Lupu²
¹CITA / U Toronto, Canada, ²JHU.

084.13  Intrinsic Stellar Color and Reddening with the Sloan Digital Sky Survey
Jennifer G. Boyles¹, K. A. Larson¹, Z. Ivezic²
¹Western Washington University, ²University of Washington.

084.14  Analyzing the X-Ray Dust Halo and Extinction Toward X Per
Lynne A. Valencic¹, R. K. Smith²
¹NASA's GSFC, ²Johns Hopkins University.

084.15  High Resolution Observations of the Interstellar Medium Along the Future Solar Trajectory
Ryland T. Brooks¹, S. Redfield²
¹Colby College, ²Univ. of Texas.

084.16  H2/PAH emissions in the shocks and UV dominated regions of the embedded young cluster NGC2316
Thangasamy Velusamy¹, W. D. Langer¹, D. Li¹
¹JPL/Caltech.

084.17  Correlations between Tracers of Dense Molecular Gas and Star Formation Rate in GMCs
Hongjun Ma¹, Y. Gao¹, J. Wu¹
¹Purple Mountain Observatory, China, ²Harvard-CfA.

084.18  Probing the Dust Structure in the LMC with Light Echoes
Guillermo J. Damke¹, A. Rest¹, A. Newman², N. B. Suntzeff³, R. C. Smith¹, D. L. Welch¹, A. Zenteno¹, C. Stubbs¹, A. Garg¹, P. Challis¹, A. C. Becker¹, G. A. Miknaitis¹, A. Miceli¹, K. H. Cook¹, M. Huber¹, S. Nikolaev¹, L. Morelli¹, D. Minniti¹, A. Clocchiatti¹, J. Prieto²
¹NOAO/CTIO, ²Washington University, ³Texas A&M University, ¼McMaster Univ., Canada, ½Harvard Univ., ¾Univ. of Washington, ⁴LLNL, ⁵Pontificia Universidad Catolica de Chile, Chile, ⁶Ohio State University.

084.19  The Non-Linear Relationship between Silicate Absorption Depth and IR Extinction in Dense Clouds
Jean E. Chiar¹, Y. Pendleton², K. Ennico², A. Boogert³, T. Greene⁴, C. Lada¹, T. Roellig², A. Tielens³, M. Werner³, D. Whittet⁴
¹SETI Institute, ²NASA Ames, ³AURA/NOAO-Gemini South, Chile, ⁴SAO, ⁵IPAC, ⁶Rensselaer Polytechnic Institute.

084.20  The Photo-Dissociation Region Surrounding HR 5171AB
Michael T. Schuster¹, M. Marengo¹, J. L. Hora¹, R. D. Gehrz², R. M. Humphreys³, G. Fazio¹
¹Harvard-Smithsonian, CfA, ²University of Minnesota.

084.21  The effects of Geometry, Dust and Magnetic Fields upon Strong-line Abundance Indicators in HII Regions
Humeshkar B. Nemala¹, G. J. Ferland¹
¹University of Kentucky.
084.22 Numerical Simulations of Interstellar Gas with a Variable Continuum Source
Gary J. Ferland¹, W. J. Henney², R. J. Williams³
¹Univ. of Kentucky, ²Centro de Radioastronomia y Astrofisica, Universidad Nacional Autonoma de Mexico, Mexico, ³AWE, United Kingdom.

084.23 Recent FUSE Observations of Diffuse O VI Emission in the Galactic Interstellar Medium
William V. Dixon¹, W. J. Henney², R. J. Williams³
¹Johns Hopkins University, ²University of California, Berkeley.

084.24 A Comparative Study of Velocity Statistics of Hydrodynamic and Magnetohydrodynamic Turbulence
Nicholas Hall¹, G. Kowal¹, A. Lazarian¹, J. Cho²
¹University of Wisconsin - Madison, ²Chungnam National University, Republic of Korea.

Session 085 Ground-Based Instrumentation II
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4

085.01 The 21-Meter Space Tracking Antenna and Radio Telescope at Morehead State University
Thomas Pannuti¹, B. K. Malphrus¹, M. Combs¹, J. Kruth¹, J. W. Atwood¹
¹Morehead State Univ.

085.02 Atacama Large Millimeter Array Low Noise Analysis
Manasseh O. Obi¹
¹Idaho State University.

085.03 MUSTANG: A 90 GHz Bolometer Array for the Green Bank Telescope
Brian S. Mason¹, S. Dicker², P. Korngut¹, D. Benford¹, M. Devlin¹, K. Irwin¹, H. Moseley¹, MUSTANG collaboration
¹NRAO, ²UPenn, ³NASA GSFC, ⁴NIST.

085.04 Research Experience for Teachers at Green Bank: High-Precision Calibration, Baselines and Nonlinearities with the GBT
Shelly Hynes¹, R. J. Maddalena², C. Figura³
¹Louisiana School for Math, Science and the Arts, ²National Radio Astronomy Observatory, ³Wartburg College.

085.05 Potential Astronomy Applications of Large Deep Space Network Arrays
Dayton L. Jones¹, T. B. Kuiper¹, W. A. Majid¹
¹Jet Propulsion Laboratory.

085.06 Ionospheric Phase Errors and Corrections at 1 m Wavelength
William D. Cotton, Jr.¹, J. Uson¹
¹NRAO.

085.07 A Web-based Portable RFI Monitor for LWA Site Selection
Robert L. Mutel¹, T. Jaeger¹, G. Taylor²
¹Univ. of Iowa, ²Univ. of New Mexico.

085.08 The Mileura Widefield Array
Colin J. Lonsdale², International MWA partnership
¹MIT.

085.09 Construction of a Novel Interferometric Array of Small Radio Telescopes
Dalit Engelhardt¹, P. Timbie²
¹Boston University, ²University of Wisconsin-Madison.

085.10 Effectiveness of the Correlator Field of View Weighting Technique in Source Attenuation
Dylan R. Nelson¹, S. S. Doeleman², C. J. Lonsdale², D. Oberoi², R. Cappallo²
¹University of California Berkeley, ²MIT, Haystack Observatory.

085.11 First Astronomical Imaging Spectroscopy Obtained with a Multiplexed Superconducting Bolometer Array
Dominic J. Benford¹, J. G. Staguhn¹, T. J. Ames¹, C. A. Allen¹, J. A. Chervenak¹, C. R. Kennedy¹, S. Lefranc¹, S. F. Maher¹, S. H. Moseley¹, F. Pajot¹, C. Rioux¹, R. A. Shafer¹, G. M. Voellmer¹
¹NASA / GSFC, ²Notre Dame, ³IAS, France.

085.12 An Innovative Multicolor Submillimeter Camera Using Microwave Kinetic Inductance Detectors
James A. Schlaerth¹, P. K. Day², J. Gao¹, J. Glenn¹, S. Golwala¹, S. Kumar¹, H. G. LeDuc², B. A. Mazin², H. T. Nguyen², J. E. Vaillancourt², A. Vayonakis¹, J. Zmuidzinas¹
¹University of Colorado, ²JPL, ³Caltech.
085.13 Development of A Prototype Infrared Exoplanet Tracker for All Sky Extrasolar Planet Survey
Pengcheng Guo¹, J. Ge¹, S. Mahadevan¹, L. Ramsey²
¹Univ. of Florida, ²The Pennsylvania State University.

085.14 Exploring Precision Radial Velocities in the NIR: PRVS Pathfinder
Lawrence W. Ramsey¹, S. Bongiorno¹, L. Engel¹, S. Redman¹, A. Wolszczan¹, H. R. Jones³, J. Barnes²
¹Penn State Univ., ²University of Hertfordshire, United Kingdom.

Walter M. Harris¹, O. Dawson¹, L. Giersch¹
¹Univ. of Washington.

Session 086 LSST
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4

086.01 The LSST System
Donald Sweeney¹, J. A. Tyson², LSST Collaboration
¹LSST Corporation, ²University of California, Davis.

086.02 LSST Survey Strategy
Zeljko Ivezic¹, A. J. Tyson², M. A. Strauss³, S. Kahn⁴, C. Stubbs⁵, P. Pinto³, K. Cook², LSST Collaboration
¹Univ. of Washington, ²Univ. of California, Davis, ³Princeton University, ⁴Stanford University, ⁵Harvard University, ⁶Univ. of Arizona, ⁷Lawrence Livermore National Laboratory.

086.03 Science Opportunities with the LSST
Michael A. Strauss¹, LSST Collaboration
¹Princeton Univ.

086.04 LSST Survey Strategy: Cadence Design and Simulation
Philip A. Pinto¹, K. H. Cook², F. Delgado³, M. Miller⁴, L. Denneau⁵, A. Saha³, P. A. Gee⁶, J. A. Tyson⁴, Z. Ivezic³, LSST Collaboration
¹Steward Obs., ²U. Arizona, ³LLNL, ⁴NOAO, ⁵CTIO, Chile, ⁶NOAO, ⁷U. Hawaii Institute for Astronomy, ⁸UC, /Davis, ⁹U. Washington.

086.05 Calibration of LSST Instruments and Data
David Burke¹, T. Axelrod³, C. Claver³, J. Frank¹, K. Gilmore¹, Z. Ivezic³, V. Krabbe², D. Monet³, P. O’Connor³, J. Oliver³, E. Olszewski³, P. Pinto³, A. Saha³, C. Smith³, C. Stubbs³, P. Takacs³, J. A. Tyson⁷
¹Stanford Linear Accelerator Center, ²Steward Observatory, ³National Optical Astronomy Observatory, ⁴Brookhaven National Laboratory, ⁵University of Washington, ⁶U.S. Naval Observatory, ⁷Harvard-Smithsonian Center for Astrophysics, ⁸University of California.

086.06 Calibrating Photometric Redshifts for LSST
Jeffrey Newman¹, A. J. Connolly², J. A. Tyson³, M. Schneider³, V. E. Margoniner³, D. M. Wittman³, H. Aihara⁴, S. Miyazaki⁵, LSST Collaboration
¹U.C. Berkeley, ²U. Washington, ³U. C. Davis, ⁴U. Tokyo, Japan, ⁵NAOJ-Subaru.

086.07 The LSST Data Products
Tim S. Axelrod¹, R. Allsman², A. Becker³, J. Becla¹, A. Connolly³, K. Cook⁵, J. Gray⁶, A. Jagatheesan⁷, J. Kantor⁸, M. Nieto-Santisteban⁹, S. Nikolaev⁷, R. Owen⁷, R. Pike⁸, R. Plante⁹, N. Silvestri³, C. Smith¹⁰, A. Szalay⁷, A. Thakar⁸, J. A. Tyson¹⁰, LSST Collaboration
¹Steward Observatory / LSSTC, ²LSSTC, ³U Washington, ⁴SLAC, ⁵LLNL, ⁶Microsoft Research, ⁷SDSC, ⁸JHU, ⁹Google, ¹⁰NCSA, ¹¹NOAO, ¹²UCD.

086.08 Four LSST probes of Dark Energy
J. A. Tyson¹, H. Zhan¹, L. Knox¹, LSST Collaboration
¹UC, Davis.

086.09 Cosmology with Photometric Baryon Acoustic Oscillation Measurements
Hu Zhan¹, A. J. Hamilton², L. Knox¹, J. A. Tyson¹, LSST Collaboration
¹UC Davis, ²JILA, U. Colorado.

086.10 Weak Lensing with LSST
David M. Wittman¹, B. Jain¹, M. Jarvis¹, L. Knox¹, V. Margoniner¹, M. Takada¹, J. Tyson¹, H. Zhan¹, LSST Weak Lensing Science Collaboration
¹UC, Davis, ²U. Penn, ³Tohoku University, Japan.
086.11  Supernova Science and Cosmology with the LSST
W. M. Wood-Vasey1, P. Pinto1, L. Wang2, H. Zhan3, Y. Wang4, LSST Supernova Science Collaboration
1Harvard-Smithsonian, CfA, 2Steward Observatory, University of Arizona, 3Texas A&M, 4UC Davis, 5University of Oklahoma.

086.12  Gravitationally Lensed Quasars - Lessons from SDSS and Predictions for LSST
R. D. Blandford1, M. Oguri1, P. Marshall1, E. A. Baltz1, M. Bradac1, C. D. Fassnacht2, LSST collaboration
1SLAC, 2University of California.

086.13  Transients and Variables
Shrinivas Kulkarni1, A. Becker1, J. S. Bloom2, K. H. Cook3, S. Kahn3, T. Tyson3, LSST Transient Object Collaboration
1Caltech, 2U. Washington, 3UC, 4Lawrence Livermore National Laboratory, 5Stanford University.

086.14  AGN Science with the LSST
Niel Brandt1, LSST AGN Science Collaboration
1Penn State Univ.

086.15  Mapping the Milky Way with LSST
James Bullock1, C. M. Rockosi2, Z. Ivezic3, A. Saha4, LSST Milky Way Science Collaboration
1University of California Irvine, 2University of California Santa Cruz, 3University of Washington, 4Space Telescope Science Institute.

086.16  Stellar Populations with the LSST
Abhijit Saha1, K. Olsen2, LSST Stellar Populations Collaboration
1NOAO, 2Cerro Tololo Inter-American Observatory, Chile.

086.17  LSST: Taking Inventory of the Solar System
Steven R. Chesley1, A. J. Connolly2, A. W. Harris3, Z. Ivezic4, J. Kubica5, LSST Solar System Science Collaboration

086.18  An Overview of the LSST Telescope and Site
Chuck F. Claver1, V. L. Krabbenkamp1, J. Andrew1, J. Barr1, J. Burge2, W. Gressler1, D. Neill1, S. Olivier2, D. Phillion1, J. Sebag1, L. Seppala1, R. Upton1, LSST Collaboration
1NOAO, 2University of Arizona, Steward Observatory, 3LLNL.

086.19  The Baseline Design of the LSST Camera
Steven Kahn1, LSST Collaboration
1Stanford University / Stanford Linear Accelerator Center.

086.19  The LSST Sensor Development Program
1Brookhaven National Laboratory, 2SAO, 3Stanford Linear Accelerator Center, 4UCalifornia, Davis, 5Harvard U., 6RIT, 7CfA.

086.21  LSST Camera Electronics
Paul O’Connor1, J. Oliver1, J. Geary1, R. Van Berg1, V. Radeka1
1Brookhaven National Lab., 2Harvard U., 3SAO, 4U. Pennsylvania.

086.22  Maximizing Observations in the Large Synoptic Survey Telescope Cadence Simulator (OpSim) and Uncovering Its Abilities: Evaluating The Search for Variable Stars
Casey R. Coffey1, A. Saha1, M. Miller2
1Westminster College, 2National Optical Astronomy Observatory.

Session 087 M33: Our Other Neighbor
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4

087.01  Chandra ACIS Survey of M33 (ChaSeM33): A Deep X-ray Survey of theNearest Face-on Spiral
1CfA, 2U. Washington, 3STScI, 4MPIf Extraterrestriche Physik, Germany, 5Columbia U., 6Rutgers U., 7Middlebury College, 8JHU, 9Morehead State U., 10Tel Aviv U., 11U. Vienna, Austria, 12U. Evora, Portugal, 13NASA GSFC & JHU, 14Ruhr-U. Bochum, Germany.
087.02 Chandra ACIS Survey of M33 (ChASeM33): The X-ray Point Source Population of M33
Manami Sasaki1, B. Williams2, P. P. Plucinsky3, W. Pietsch3, T. J. Gaetz1, K. S. Long1, T. Mazeh2, A. Shporer2, F. Haberl1, T. G. Pannuti4, P. Ghavamian5, L. Bianchi6, A. Tolea6, ChASeM33 team
1CfA, 2University of Washington, 3Max-Planck Institute for Extraterrestrial Physics, Germany, 4STScI, 5Tel Aviv University, Israel, 6Morehead State University, JHU.

087.03 Chandra ACIS Survey of M33 (ChASeM33): Supernova Remnants
Knox S. Long1, P. Winkler2, W. P. Blair3, P. Ghavamian3, J. P. Hughes4, T. J. Gaetz3, D. J. Helfand5, R. P. Kirshner5, T. G. Pan-nuti6, P. P. Plucinski7, M. Sasaki7, ChASEM33 team
1STScI, 2Middlebury College, 3JHU, 4Rutgers University, 5Harvard-Smithsonian CfA, 6Columbia University, 7Morehead State University.

087.04 Chandra ACIS Survey of M33 (ChASeM33): X-ray Imaging and Spectroscopy of M33SNR21, the Brightest X-ray Supernova Remnant in M33
Terrance J. Gaetz1, J. P. Hughes2, W. P. Blair1, P. F. Winkler1, P. Ghavamian5, K. S. Long1, T. G. Pannuti6, B. Williams3, R. J. Edgar4, P. P. Plucinsky7, M. Sasaki1, R. P. Kirshner5, M. Avillez10, D. Breitschwerdt10, ChASeM33 team
1SAO/CfA, 2Rutgers University, 3Steward Observatory, UofA, 4University of Florida.

087.05 Stellar Populations of the Disk of M33
Roberto J. Avila1, J. A. Holtzman1, D. R. Garnett2, A. Sarajedini3
1New Mexico State Univ., 2Steward Observatory, UofA, 3University of Florida.

087.06 A Spectroscopic Study of M31 dSphs -- Kinematics, Chemical Abundances, and Radial Distributions in And I, II, and III
Steven R. Majewski1, J. Kilirai2, M. Geha2, P. Guhathakurta2, K. Gilbert3, J. Ostheimer1, R. Patterson1
1Univ. of Virginia, 2University of California, 3HIA, Canada.

Session 088 MIPSGAL
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4

088.01 MIPSGAL I & II: A Survey of the Inner Galactic Plane at 24 and 70 Microns, The Mosaics
1Spitzer Science Center / Caltech, 2Boston College, 3Air Force Research Laboratory, 4University of Virginia, 5IPAC / Caltech, 6IAS, France, 7CITA, Canada, 8Istituto Fisica Spazio Interplanetario, Italy, 9SRON, The Netherlands, 10Arcetri Observatory, Italy.

088.02 Data processing of MIPSGAL 24 micron images
1Boston College, 2Spitzer Science Center, 3Air Force Research Laboratory.

088.03 The MIPSGAL 24 Micron Point Source Catalog: Preliminary Results
Sachindev S. Shenoy1, F. Marleau1, D. Mizuno2, S. J. Carey4, A. Noriega-Crespo1, K. E. Kraemer5, S. D. Price1, T. A. Kuchar6, D. L. Padgett7, R. Paladini8
1SSC - Caltech, 2Boston College, 3Air Force Research Laboratory.

088.04 Data Processing of MIPSGAL 70 Micron Images
Robert Paladini1, D. Frayer1, A. Noriega-Crespo2, S. Carey1, D. Mizuno2, S. Shenoy1, K. Kramer3, T. Kuchar1, F. Marleau1, S. Price2, D. Padgett1, J. Ingalls1
1SSC/Caltech, 2Air Force Research Laboratory.

088.05 Dusty Sculptures in the MIPSGAL Survey
Nicolas Flagey1, A. Noriega-Crespo2, S. Carey3, MIPSGAL Team
1Institut d' Astrophysique Spatiale, Orsay, FRANCE & Spitzer Science Center, 2Spitzer Science Center.
089.06 The Astronomical Zoo in MIPSGAL I and II
1Boston College, 2Spitzer Science Center, 3Air Force Research Laboratory, 4University of Virginia, 5Université Paris Sud, France, 6Istituto di Fisica dello Spazio Interplanetario, Italy, 7Osservatorio Astrofisico di Arcetri, Italy, 8Netherlands Institute for Space Research, The Netherlands, 9University of Toronto, Canada.

Session 089 Stellar Populations III
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4

089.01 FUSE Observations of the Unprecedentedly Deep “Quiescent” Magnetic Activity State of alpha Centauri A
Jennifer M. Carton1, L. E. DeWarf1, E. F. Guinan1
1Villanova U.

089.02 Results from the Nearby Stars (NStars) Program: Candidate Solar Twinsand Chromospheric Diversity in G and K dwarfs
Richard O. Gray1, C. J. Corbally2, R. F. Garrison1, M. T. McFadden1, A. A. O’Donoghue1, E. J. Bubar1
1Appalachian State Univ., 2Vatican Obs. Research Group, 3David Dunlap Obs., Canada, 4St. Lawrence Univ., 5Clemson Univ.

089.03 Global Simulations of the Magnetorotational Instability in a Spherical Geometry
Kaitlin M. Kratter1, L. J. Dursi2, U. Pen2
1Univ. of Toronto, Canada, 2CITA, Canada.

089.04 Time Variation in the Magnetic Activity of Cool Stars
Andrew A. West1, J. T. Wright1, G. W. Marcy1, M. Agueros2, L. M. Walkowicz2, E. J. Hilton3, S. L. Hawley3, J. J. Bochanski2, K. R. Covey4
1UC, Berkeley, 2Columbia University, 3University of Washington, 4CfA.

089.05 The Old Feeble Coronae of Solar-like Dwarf Stars in the Arcturus Moving Group
Alexander Brown1, E. Hodges-Kluck1, T. R. Ayres1, G. M. Harper1
1Univ. of Colorado.

089.06 The Age-Activity Relation for M dwarfs Using 25,000 SDSS Spectra
Suzanne L. Hawley1, A. A. West2, J. J. Bochanski2, K. R. Covey2
1Univ. of Washington, 2Univ. of California, 3CfA.

089.07 Flare Rate Analysis of M-Dwarf Lightcurves
Adam F. Kowalski1, E. J. Hilton1, A. C. Becker1, S. L. Hawley1
1University of Washington.

089.08 Simulations of Convection and Magnetism in Fully Convective Stars
Matthew K. Browning1, G. Basri1
1UC Berkeley.

Session 090 More Supernovae
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4

090.01 Targeting Supernovae in Very High Redshift Galaxy Clusters with HST: Preliminary Results
Kyle Barbary1, S. Perlmutter2, G. Aldering1, K. S. Dawson1, G. Goldhaber1, N. Kuznetsova1, J. Meyers4, D. Rubin1, D. J. Schlegel1, A. L. Spadafora1, N. Suzuki1, R. Amanullah1, E. Linder1, C. Lidman4, M. Kowalski1, T. Hattori4, N. Kashikawa2, A. Fruchter5, V. Fadeyev6, M. Doi7, Y. Ihara4, K. Konishi4, T. Morokuma4, N. Takanashi2, N. Yasuda8
1LBNL, 2UC-Berkeley, 3SSL, 4ESO, Chile, 5Humbolt U. Berlin, Germany, 6NAOJ, Japan, 7STScI, 8UCSC, 9U Tokyo, Japan.

090.02 A Probabilistic Approach to Classifying Supernovae Using Photometric Information
Brian Connolly1, N. Kuznetsova2
1Columbia University, 2Lawrence Berkeley National Lab.
090.03 Combining Supernova Datasets for Cosmological Measurements
¹LBNL, ²Humboldt University, Germany, ³UC Berkeley, ⁴SSL, ⁵University of Toronto, Canada, ⁶UCSC, ⁷Stockholm University, Sweden, ⁸University of Oxford, United Kingdom, ⁹ESO, Chile, ¹⁰IN2P3, France, ¹¹University of Barcelona, Spain, ¹²Texas A&M.

090.04 The Carnegie Supernova Project: First Results From the High-Redshift Campaign
Christopher R. Burns¹, P. Wyatt¹, W. Freedman¹
¹CfA Nearby Supernova Ia Light Curves and Exploring Correlations Between Light Curve Shape And Host Galaxy Type
Malcolm Hicken¹, P. Berlind¹, S. Blondin¹, M. Calkins¹, P. Challis¹, G. Esquerdo¹, C. Hergenrother¹, R. Kirshner¹, D. Latham¹, M. Modjaz¹, M. Wood-Vasey¹, A. Rest², T. Matheson²
¹Harvard-Smithsonian, CfA, ²CTIO, Chile, ³NOAO.

090.05 First Two Years: Infrared Light Curves of Type Ia Supernovae with the Peters Automated Infrared Imaging Telescope (PAIRTEL)
Andrew S. Friedman¹, W. M. Wood-Vasey¹, M. Modjaz¹, R. Kirshner¹, J. S. Bloom¹, C. H. Blake¹, A. H. Szentgyorgyi¹, E. E. Falco¹, D. Starr², M. Skrutskie³
¹Harvard-CfA, ²UC, Berkeley, ³University of Virginia.

090.06 Effects of Gravitational Lensing on SNe Discovered Behind Massive Galaxy Clusters
Mark Wagner¹, T. Pritchard¹, K. Dawson¹, X. Huang¹, S. Perlmutter¹, G. Smoot, III¹, N. Suzuki¹, Supernova Cosmology Project
¹LBNL.

090.07 SALT2: Using Distant Supernovae to Improve the Use of Type Ia Supernovae as Distance Indicators
Julien Guy¹, SNLS Collaboration
¹LPNHE IN2P3/ CNRS, France.

090.08 Photometric Calibration of the Supernova Legacy Survey Fields
Nicolas Regnault¹, SNLS Collaboration
¹LPNHE - IN2P3 - CNRS, France.

090.09 Resolving Supernovae, H0, and the Equation of State with HST
Louis-Gregory Strolger¹, A. C. Rohde², M. J. Gorski³, A. G. Riess², H. Lampeitl³, H. C. Ferguson³, A. R. Martel³
¹Western Kentucky Univ., ²Space Telescope Science Institute.

090.10 Constraints on Dark Energy from the ESSENCE Supernova Survey
Gajus A. Miknaitis¹, W. Wood-Vasey², ESSENCE team
¹Fermi National Accelerator Lab., ²CfA/Harvard.

Session 091 Neutron Stars
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4

091.01 Measurement of Orbital Decay in the Double Neutron Star Binary PSR B2127+11C
Bryan A. Jacoby¹, P. B. Cameron², F. A. Jenet³, S. B. Anderson⁴, R. N. Murty⁴, S. R. Kulkarni⁵
¹Naval Research Laboratory, ²California Institute of Technology, ³University of Texas at Brownsville, ⁴Harvard University.

091.02 Isolated Neutron Stars: Magnetic Fields, Distances, and Spectra
David L. Kaplan¹, M. H. van Kerkwijk²
¹MIT, ²University of Toronto, Canada.

091.03 Properties of Rotating Neutron Stars Using Density Dependent Relativistic Hadron Field Theory
Philip Rosenfield¹, F. Weber¹, H. Lenske²
¹San Diego State Univ., ²Institut fur Theoretische Physik, Universitat Giessen, Germany.

091.04 New Insights into Atoll X-Ray Binaries: Fourier Resolved Spectroscopy of 4U 1728-34
Chris R. Shrader¹, D. Kazanas¹, P. Reig², I. Papadakis²
¹NASA’s GSFC, ²University of Crete, Greece.

Session 092 Planetary and Pre-Planetary Nebulae
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4
092.01 Probing Nucleosynthesis in Intermediate Mass Stars via Planetary Nebulae Abundances
Jackie Miling0, J. K. Teske1, R. B. Henry2, K. B. Kwitter3, S. P. Souza4
1Gettysburg College, 2American University, 3University of Oklahoma, 4Williams College.

092.02 The Radio Evolution of NGC7027
R. A. Perley1, A. Zijlstra2, P. van Hoof3
1NRAO, 2Department of Physics, UMIST, United Kingdom, 3Royal Observatory of Belgium, Belgium.

092.03 Far-UV Temperature Diagnostics for Hot Central Stars of Planetary Nebulae
George Sonneborn1, R. Iping2, J. Herald3
1NASA’s GSFC, 2NASA’s GSFC & CUA, 3Johns Hopkins University.

092.04 The Hubble Catalog of Planetary and protoPlanetary Nebulae
Bruce Balick1, K. Pomeroy1, S. Hayward1, J. Baerny1
1Univ. of Washington.

092.05 Spitzer IRS Spectral Observations of the 21 and 30 Micron Emission Features in Several Galactic Proto-Planetary Nebulae
Bruce J. Hrivnak1, K. Volk2, S. Kwok3
1Valparaiso Univ., 2Gemini Obs., 3Univ. Hong Kong, China.

092.06 Chandra X-ray Detection of a Shocked Polar Jet in the Symbiotic Mira System Hen 2-104
Rodolfo Montez, Jr.1, J. H. Kastner2, R. Sahai3
1Rochester Institute of Technology, 2JPL/Caltech.

092.07 Deuterium Astration in the Planetary Nebula Sh 2-216?
Cristina M. Oliveira1, P. Chayer1, H. Warren Moos1, J. W. Kruk1, T. Rauch2
1Johns Hopkins Univ., 2Universitat Tubigen, Germany.

092.08 The Ejection of Jets and Tori in Proto-Planetary Nebulae
Patrick J. Huggins1
1New York University.

Session 093 Properties of Cool Giant Stars
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4

093.01 The Wilson-Bappu Effect - Fifty Years Later
Rachel A. Matson1, R. E. Stencel1
1University of Denver.

093.02 Abundances of Extremely Metal-Poor Stars, a New HIRES Sample
David K. Lai1, M. Bolte2, J. A. Johnson3, S. Lucatello4
1UC, Santa Cruz, 2UC, Santa Cruz/UCO Lick, 3Ohio State University, 4INAF-Osservatorio Astronomico di Padova, Italy.

093.03 The Abundances of Na, Mg, & Al in the Hyades: Giants, Dwarfs, and Mixing
Simon C. Schuler1, J. R. King2, L. The2
1NOAO/CTIO, Chile, 2Clemson University.

093.04 Heavy Element Abundances in the Photospheres of Cool Supergiants
Glenn M. Wahlgren1, M. Lundqvist2, K. G. Carpenter3
1CUA/NASA-GSFC, 2Lund Observatory, Sweden, 3NASA-GSFC.

093.05 Brighter Still! A Summary of Photometric Data from the HST Eta Carinae Treasury Project
John C. Martin1, K. Davidson2, M. D. Koppelman2, R. M. Humphreys3
1University of Illinois Springfield, 2University of Minnesota.

093.06 Late-Type Red Supergiants: Too Cool for the Clouds?
Emily M. Levesque1, P. Massey2, K. A. Olsen2, B. Plez4
1Institute for Astronomy, University of Hawaii, 2Lowell Observatory, 3CTIO, NOAO, Chile, 4GRAAL, Universite de Montepellier II, France.

093.07 A Search for Companions to AGB Stars
Krzysztof Findeisen1, R. Sahai2, A. Gil de Paz3, C. Sanchez Contreras4
1Cornell University, 2Jet Propulsion Laboratory, Caltech, 3Universidad Complutense de Madrid, Spain, 4Instituto de Estructura de la Materia, CSIC, Spain.
Session 094 Putting Education into Outreach
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4

094.01 Collaboration for Education with the Apple Learning Interchange
Patrick A. Young1, T. Zimmerman2, K. A. Knierman3
1Los Alamos National Laboratory, 2Apple Computer, 3Steward Observatory.

094.02 Astronomy in the Digital Universe
Bernard M. Haisch1, J. Lindblom1, Y. Terzian2
1Digital Universe Foundation, 2Cornell University.

094.03 Opportunities for Scientist Participation in Chandra Education and Public Outreach
Kathleen Lestition1, P. Edmonds1, K. Kowal-Arcand1, M. Watzke1
1SAO.

094.04 Astro-Science Workshop: Education and Public Outreach at the Adler Planetarium
Lauren R. Grodnicki1, M. Hammergren2, A. Puckett1
1Univ. of Chicago, 2Adler Planetarium.

094.05 Solar Education and Outreach at Columbus State University’s Mead Observatory
Michael Johnson1, J. Hood1, S. T. Cruzen1
1Columbus State University.

094.06 The SNAP Education and Public Outreach Program
Lynn R. Cominsky1, P. Plait1, S. Silva1, SNAP Collaboration
1Sonoma State Univ..

094.07 The Sky is the Limit: Benefits from Partnering with the Project ASTRO National Network!
Constance E. Walker1, D. Zevin2, W. van der Veen3, A. Fraknoi4, R. Wilson5, S. Gurton2, V. White6, C. Clemens5, J. Harvey

094.08 Space Science Outreach in the Virtual World of Second Life
Anthony W. Crider1, International Spaceflight Museum
1Elon University.

094.09 The Sunnel: Engaging Visitors in Solar Research via a Tunnel Through the Sun
Nora H. DeMuth1, C. E. Walker2
1El Camino College, 2National Optical Astronomy Observatory.

094.10 Slackerpedia Galactica
Aaron Price1, M. Koppelman2, M. Robinson3, D. L. Welch4, T. Searle5, R. Turner6
1AAVSO/Tufts University, 2University of Minnesota, 3Swinburne University of Technology, Australia, 4McMaster University, Canada, 5AAVSO.

094.11 “It's Our Universe”: Astronomy Outreach in Appalachian Ohio
Mangala Sharma1, G. Eberts1, M. Hartwick2, L. Miller3
1Ohio Univ, 2Southeast Ohio Astronomical Society, 3Athens Public Library.

094.12 Arecibo Observatory for All
Gloria M. Isidro1, C. A. Pantoja1, P. Bartus1, C. La Rosa1
1University of Puerto Rico.

094.13 Effectively Engaging Family Groups in Learning Astronomy
Jacob Noel-Storr1
1Rochester Inst. of Technology.
095.01 The Arecibo Legacy Fast ALFA Survey: HI Sources in the Northern Virgo Cluster Region
Rebecca A. Koopmann¹, ALFALFA Consortium
¹Union College.

095.02 The Arecibo Legacy Fast ALFA HI Survey: The Rich Galaxy Group Zwicky 1400+0949
Thomas J. Balonek¹, B. M. Walsh¹, ALFALFA Consortium
¹Colgate Univ.

095.03 A Neutral Hydrogen Survey of the NGC 7332 Region with the Arecibo L-band Feed Array
Robert F. Minchin¹, E. Momjian¹, L. Cortese², K. L. O’Neil¹, P. A. Henning¹, J. I. Davies², AGES Team
¹Arecibo Obs., ²Cardiff University, United Kingdom, ³National Radio Astronomy Observatory, ⁴University of New Mexico.

095.04 The ALFA Zone of Avoidance Survey: Results from the Precursor Observations
Chris M. Springob¹, P. A. Henning², B. Catinella¹, F. Day², R. Minchin¹, E. Momjian¹, B. Koribalski², K. L. Masters², E. Muller¹, C. Pantoja³, M. Putman², J. L. Rosenberg⁴, S. Schneider⁴, L. Staveley-Smith⁵
¹Naval Research Laboratory, ²Univ. of New Mexico, ³National Astronomy and Ionosphere Center, ⁴Australia Telescope National Facility, Australia, ⁵Harvard-Smithsonian, CfA, ⁶Univ. of Puerto Rico, ⁷Univ. of Michigan, ⁸George Mason Univ., ⁹Univ. of Massachusetts, ¹⁰Univ. of Western Australia, Australia.

Session 096 Research in K-12 Astronomy Education for Students, Their Teachers, and Their Families both in and out of the Classroom
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4

096.01 The Search: for Life Beyond Earth
Neal E. Hurlburt¹, J. Blair³, S. Lubbs³, D. Miller²
¹Lockheed Martin Corp., ²Evergreen Valley High School.

096.02 Stones from the Sky: Introducing Middle School Students to Meteorites
Angela R. Sarrazine¹, E. Albin¹
¹Fernbank Science Center.

096.03 Education and Public Outreach using Venus Express
Rosalyn A. Pertzborn¹, S. S. Limaye¹, H. Y. Pi¹
¹University of Wisconsin.

096.04 The eXtreme Universe: A Portable Planetarium Program
Philip Plait¹, S. Silva¹, T. Graves¹, J. Reed¹, L. Cominsky¹
¹Sonoma State Univ.

096.05 Demystifying Scientific Data
Esther A. Santos¹, P. Nassiff², P. Pratap³
¹Nashua High School South, ²Burlington High School, ³MIT Haystack Observatory.

096.06 The Impact of Science Graduate Students in Urban Science Classrooms: The SFOS Program at Cal State Los Angeles
Susan Terebey¹, D. Mayo¹
¹Cal. State Univ. at Los Angeles.

096.07 How Astronomers Can Help Prepare Future Teachers
Christine Shupla¹, L. Ruberg¹, T. F. Slater³, G. Schultz¹
¹Lunar & Planetary Institute, ²CET, Wheeling Jesuit University, ³University of Arizona CAPER Team, ⁴Center for Science Education, UC Berkeley.

Session 097 Sloan Digital Sky Survey
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4

097.01 Environments of Low-Redshift Merging Galaxies
Christina Ignarra¹, M. R. Blanton¹
¹New York University.

097.02 A Search for Low Surface Brightness Galaxies in the Ultraviolet with GALEX
Ted K. Wyder¹, GALEX Science Team
¹Caltech.
097.03  Active Galaxies in Redshift Surveys  
Pietro Reviglio¹, D. Helfand¹  
¹Columbia Univ.

Erik A. Hoversten¹, K. Glazebrook²  
¹Johns Hopkins Univ., ²Swinburne University, Australia.

097.05  The Clustering Properties of UV-selected Galaxies at Low Redshift from GALEX-SDSS Data  
Sebastien Heinis¹, T. Budavari¹, A. Szalay¹, M. Neyrinck¹, I. Szapudi¹, B. Milliard¹, S. Arnouts¹, GALEX Team  
¹Johns Hopkins Univ., ²University of Hawaii, ³Laboratoire d’Astrophysique de Marseille, France.

097.06  Arecibo Survey of HI Emission from Disk Galaxies at Intermediate Redshift  
Barbara Catinella¹, M. P. Haynes², J. P. Gardner³, A. J. Connolly¹, R. Giovanelli²  
¹NAIC-Arecibo Obs., ²Center for Radiophysics and Space Research and NAIC, Cornell Univ., ³Pittsburgh Univ.

097.07  The Star Formation History of Early-Type Galaxies  
Vaishali Bhardwaj¹, M. Blanton²  
¹UC Berkeley, ²NYU.

097.08  Dust Lanes as Markers of the Mass Transition in Edge-on Galaxies  
Mirela Obric¹, A. A. West², J. Dalcanton¹  
¹University of Washington, ²University of California, Berkeley.

097.09  A Multi-Wavelength Catalog of Radio Objects Detected by NVSS and FIRST, and (some by) WENSS, GB6, and SDSS  
Amy E. Kimball¹, Z. Ivezic¹  
¹Univ. of Washington.

097.10  Reconstruction of SDSS Nearby Galaxies  
Laura K. Kushner¹, M. Obric¹, A. A. West², J. Dalcanton¹  
¹University of Washington, ²University of California, Berkeley.

097.11  Correlation of Galaxy Types in the 2MASS Redshift Survey with 2MASS/SDSS Colors and HI Content  
Ferah Munshi¹, K. L. Masters², J. Huchra²  
¹University of California, Berkeley, ²CfA, Harvard University.

097.12  Improvement in the SDSS Photometric Calibration for Red Stars  
James R. Davenport¹, J. Bochanski¹, K. Covey², S. Hawley¹  
¹Univ. Of Washington, ²Harvard.

097.13  Minor Galaxy Interactions in the SDSS  
Deborah Freedman Woods¹, M. J. Geller²  
¹Harvard Univ., ²SAO.

Session 098 SNAP Mission  
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4

098.01  SNAP Telescope Performance for Weak Lensing Surveys  
Michael Lampton¹, M. Sholl¹, P. Jelinsky¹, H. Stabenau¹, SNAP Collaboration  
¹UC, Berkeley, ²University of Pennsylvania.

098.02  Characterization of LBNL SNAP CCD’s: Quantum efficiency, reflectivity, and point-spread function  
Donald E. Groom¹, C. J. Bebek¹, M. Fabriciuss¹, J. A. Fairfi eld¹, A. Karcher¹, W. F. Kolbe¹, N. A. Roe¹, J. Steckert¹  
¹Lawrence Berkeley Nat’l Lab.

098.03  Current-Integrating Amplifier and Computer Interface for SNAP Photodiode Readout  
Stephen J. Battazzo¹, B. Adams¹, M. Gebhard², N. Mostek², S. Mufson²  
¹Indiana University (REU)/University of Oregon, ²Indiana University.

098.04  SNAP Focal Plane Development  
Chris Bebek¹, SNAP Collaboration  
¹LBNL.

098.05  Auxiliary Science with SNAP Surveys  
Timothy McKay¹, SNAP collaboration  
¹Univ. of Michigan.
098.06 SNAPsim: A Software Package for Simulating of Astronomical Observations
Alex G. Kim1, SNAP Collaboration
1LBNL.

098.07 SNAP: The Power of Supernovae, Weak Lensing, and Space
Eric Linder1, SNAP Collaboration
1Berkeley Lab/UC Berkeley.

098.08 Computation and Data Product Model for the SNAP Mission
William Carithers1, G. E. Kushner1
1LBNL.

098.09 The SNAP Mission Overview
Patrick Jelinsky1, SNAP Collaboration
1UC, Berkeley.

098.10 Near Infrared Detectors for SNAP: Towards Precision Photometry
Michael Schubnell1, SNAP Collaboration
1Univ. of Michigan.

098.11 A Monochromatic Illumination and Cryogenic Calibration System for SNAP Calibration Studies
Stuart Mufson1, N. Mostek1, C. R. Bower1, S. S. Allam2, C. J. Bebek3, R. C. Bohlin4, S. Deustua5, S. M. Kent2, M. L. Lampton6, M. Richmond7, D. T. Tucker8, B. E. Woodgate9, SNAP Collaboration
1Indiana Univ., 2FNAL, 3LBNL, 4STScI, 5AAS, 6UC Berkeley, 7RIT, 8GSFC.

098.12 Effects of Zero Points Calibration Uncertainties in Dark Energy Supernova Surveys
Lorenzo Faccioli1, A. G. Kim1, R. Miquel2
1Lawrence Berkeley National Laboratory, 2ICREA / IFAE, Spain.

098.13 Observational Cadence vs. Exposure Time Trade-off for Supernova Surveys
Natalia Kuznetsova1, SNAP Simulation Team
1Lawrence Berkeley National Lab.

098.14 Packaging for SNAP CCDs
Charles Baltay1, A. Bauer1, W. Emmet1, T. Hurteau1, D. Rabinowitz1, A. Szymkowiak1, C. Bebek3, K. Dawson2, J. Emes2, D. Groom2, S. Holland2, A. Karcher2, B. Kolbe2, N. Roe2, T. Diehl2, M. Demarteau3, P. Derwent1, B. Bigelow4
1Yale U., 2LBNL, 3Fermi National Lab, 4U. Michigan.

098.15 Radiation Tolerance of SNAP CCDs
Koki Takasaki1, SNAP collaboration
1UC, Berkeley.

098.16 Calibration of Interference Filter Transmission using Light Emitting Diodes
1Indiana Univ., 2FNAL, 3LBNL, 4STScI, 5AAS, 6UC Berkeley, 7RIT, 8GSFC.

098.17 Critical Parameters for Supernova Cosmology
Lifan Wang1, K. Kannan1, A. Kim2
1Texas A&M University, 2Lawrence Berkeley National Laboratory.

098.18 Development of Spectrophotometric Standards to Support the SNAP
1Austin Peay State Univ., 2STScI, 3AAS, 4Fermilab, 5UC Berkeley, 6Indiana Univ., 7R.I.T., 8IPN-CNRS, France, 9NASA-GSFC.

098.19 Dark Energy Science Constraints on Calibration: Design of the SNAP Calibration System
Susana E. Deustua1, S. Allam2, R. Bohlin1, S. Kent1, M. L. Lampton3, N. Mostek4, S. L. Mufson4, M. Richmond7, J. A. Smith4, D. Tucker4, B. Woodgate4, G. Smadja10, SNAP Collaboration
1American Astronomical Society, 2Fermi National Laboratory, 3STScI, 4FNAL, 5LBNL, 6Indiana University, 7RIT, 8Austin Peay, 9NASA's GSFC, 10Institut de Physique Nucleair de Lyon, France.
098.20 The SNAP Integral Field Spectrograph
Roger F. Malina¹, A. Ealet², E. Prieto³, M. Aumeunier⁴, A. Bonissent⁵, C. Cerna⁶, G. Smadja⁷, SNAP Collaboration
¹LAM, CNRS, France, ²CPPM, CNRS, France, ³LAM, CNRS, France,
⁴LAM/CPPM, CNRS, France, ⁵IPNL, CNRS, France.

Session 099 Source Surveys, Catalogs and Astrometry
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4

099.01 Time-Series Data and the Virtual Observatory
Mark Huber¹, A. Drake², K. Vivas³, D. Gasson⁴, K. Cook¹, S. Nikolaev¹
¹LLNL, ²Caltech, ³CIDA, Venezuela, ⁴NOAO.

099.02 Basic Stellar Parameters for SIM Planet Quest Reference Grid Stars
Dmitry Bizyaev¹, V. V. Smith¹, K. Cunha¹
¹NOAO.

099.03 Milliarcsecond Accurate Astrometry for Extension of the ICRF in the Southern Hemisphere
Alan L. Fey¹, R. Ojha¹, K. Johnston¹, D. Jauncey², J. Reynolds², A. Tzioumis², J. Lovell², J. Quick², G. Nicolson², S. Ellingsen², P. McCulloch²
¹U.S. Naval Obs., ²ATNF, CSIRO, Australia, ³Hartebeesthoek Radio Astronomy Obs., South Africa, ⁴School of Math. and Physics, Australia.

099.04 Atmospheric Gravity Waves as a Source of Anomalous Refraction Observed in High Precision Astrometry
Suzanne Taylor¹, J. McGraw¹, J. Pier¹, P. Zimmer¹
¹University of New Mexico, ²USNO Flagstaff Station.

099.05 ALPACA: An Inexpensive but Uniquely Powerful Imaging Survey Telescope
Arlin P. Crotts¹, ALPACA Consortium
¹Columbia Univ.

099.06 OT060420 and the Systematic Automated All-sky Search for Bright Optical Transients
Lior Shamir¹, R. Nemiroff¹
¹Michigan Tech.

099.07 Improved UBVRI C to u'g'r'i'z' Transformation Equations: Updated Main Sequence and Giant Star Relations
Eric J. Hausel¹, D. Allen², C. Rodgers³, R. Canterna¹, M. Pierce¹, J. A. Smith³
¹University of Wyoming, ²Lowell Observatory, ³Austin Peay State University.

099.08 New DDO Photometric Equatorial Standard Stars Between 9.0 < M48 < 16.0: Preliminary Results
Christopher T. Rodgers¹, R. Canterna¹, D. Allen², E. Hausel¹, J. A. Smith³
¹Univ. of Wyoming, ²Lowell Observatory, ³Austin Peay State University.

Session 100 Star Clusters II and HST/ACS Survey of Galactic Globular Clusters
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4

100.01 M82 at the Highest Resolution
William D. Vacca¹, A. M. Gilbert², J. R. Graham³, N. McCrady⁴
¹SOFIA-USRA, ²IGPP-LLNL, ³UC Berkeley, ⁴UCLA.

100.02 Old Globular Clusters in Nearby Dwarf Irregular Galaxies
Iskren Georgiev¹, P. Goudfrooij¹, T. H. Puzia², M. Hilker³
¹STScI, ²Herzberg Institute of Astrophysics, Canada, ³ESO, Germany.

100.03 Searching for the Young Super-Star Clusters in NGC 3627
Adam Ginsburg¹
¹Rice University / NRAO.

100.04 Properties of Globular Cluster Populations of Early-Type E+A Galaxies
Aparna Maybhate¹, P. Goudfrooij¹, F. Schweizer², T. Puzia¹, D. Carter¹
¹STScI, ²Carnegie Observatories, ³Liverpool John Moores University, United Kingdom.

100.05 Resolved Massive Stellar Clusters in Nearby Starburst Galaxies
Andrea M. Gilbert¹, W. D. Vacca²
¹IGPP-LLNL, ²SOFIA-USRA.
100.06 Multi-band Photometry of Globular Cluster Systems
Sooyoung Kim¹, S. Yoon¹, H. Kim¹
¹Yonsei University, Republic of Korea.

100.07 Imaging of Globular Clusters in NGC 4365 with IRAC on the
Spitzer Space Telescope
Andrew R. Esselman¹, S. E. Zepf², A. Kundu², M. Hempel²
¹Whittman College, ²Michigan State University.

100.08 The Cluster Formation Function in Galaxies
Paul W. Hodge¹, K. Krienke²
¹Univ. of Washington, ²Seattle Pacific University.

100.09 The HST/ACS Survey of Galactic Globular Clusters: Overview and
New Photometry for Nine Clusters
Ata Sarajedini¹, J. Anderson², A. Aparicio³, L. Bedin⁴, B. Chaboyer⁵,
A. Dotter⁶, M. Hempel⁷, I. R. King⁸, S. R. Majewski⁹, A. Marin-Franch¹⁰,
A. Milone¹, N. E. Paust¹, G. Piotto¹, I. N. Reid¹, A. Rosenberg¹,
M. Siegel¹⁰
¹Univ. of Florida, ²Rice University, ³IAC, Spain, ⁴ESO, Germany, ⁵Dartmouth College, ⁶Univ. of Washington, ⁷Univ. of Virginia, ⁸Univ. of Padova, Italy, ⁹STScI, ¹⁰Univ. of Texas.

100.10 The HST/ACS Survey of Galactic Globular Clusters: New Stellar
Evolution Tracks, Isochrones and Luminosity Functions
Brian C. Chaboyer¹, A. Dotter¹, E. Baron¹, J. Ferguson¹, D. Jevremovic¹,
A. Sarajedini⁴
¹Dartmouth College, ²University of Oklahoma, ³Wichita State University,
⁴University of Florida.

100.11 The HST/ACS Survey of Galactic Globular Clusters: Luminosity
Functions
Nathaniel Paust¹, I. Reid¹, I. King¹, A. Aparicio¹, G. Piotto⁴
¹STScI, ²Dept. of Astronomy, University of Washington, ³Departamento de Astrofisica, Universidad de La Laguna: and Instituto de Astrofisica de Canarias, Spain, ⁴Dip. di Astronomica, Univ. degli stui di Padova, Italy.

100.12 The HST/ACS Survey of Galactic Globular Clusters: The Sagittarius
Dwarf Spheroidal System
Michael Siegel¹, S. R. Majewski², A. Sarajedini², B. Chaboyer³, A. Rosenberg³
¹University of Texas, ²University of Virginia, ³University of Florida, ⁴Dartmouth College, ⁵Instituto de Astrofisica de Canarias, Spain.

100.13 The HST/ACS Survey of Galactic Globular Clusters: Relative Ages
Alfred Rosenberg¹, A. Marin-Franch², A. Aparicio¹, G. Piotto¹, B.
Chaboyer¹, A. Sarajedini²
¹Instituto de Astrofisica de Canarias, Spain, ²Department of Astronomy,
University of Florida, ³Astronomy Department, Padova University, Italy,
⁴Department of Physics and Astronomy, Dartmouth College.

100.14 The HST/ACS Survey of Galactic Globular Clusters: Absolute Ages
of Selected Clusters
Iain N. Reid¹, J. Anderson¹, A. Aparicio¹, B. Chaboyer¹, A. Dotter¹,
G. Piotto¹, A. Marin-Franch⁴, A. Rosenberg¹
¹STScI, ²Rice U., ³Inst. Astrofisica de Canarias, Spain, ⁴Dartmouth Coll,
⁵Univ. di Padova, Italy, ⁶U. Florida.

Session 101 Structure of Stellar Winds
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4

101.01 The dm/dt of O-rich OH/IR Stars is Strongly Modulated
B. M. Lewis¹
¹Arecibo Obs..

101.02 Observations of Post-Asymptotic Giant Branch Objects in the Magellanic Clouds with the Spitzer Infrared Spectrograph
Kathleen E. Kraemer¹, G. C. Sloan², J. Bernard-Salas³, E. Peeters⁴, P.
R. Wood¹, S. D. Price¹, J. Cami³, J. R. Houck², M. P. Egan⁵, S. Guiles²
¹Air Force Research Lab, ²Cornell U., ³U. Western Ontario, Canada, ⁴Mt.
Stromlo Obs., Australia, ⁵National Geospatial-Intelligence Agency.

101.03 Synthesis of Observables from Numerical Simulations of Magne-
tized Hot-Star Winds
Stephen St. Vincent¹, D. H. Cohen¹, A. ud-Doula², R. H. Townsend²,
S. P. Owocki²
¹Swarthmore College, ²Bartol Research Institute, University of Delaware.
<table>
<thead>
<tr>
<th>Paper Number</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
</table>
| 101.04       | X-ray Emission Line Profiles from Clump Bow Shocks in Stellar Winds  | Alexander Burke¹, R. Ignace², J. P. Cassinelli³  
¹Vassar College, ²East Tennessee State University, ³Univ. of Wisconsin. |
| 101.05       | High Resolution Radio Observations of the Nebulae of Luminous Blue Variable Stars | Allison Mercer¹, M. Chizek¹, C. C. Lang¹, D. F. Figer², P. Najarro³  
¹Univ. of Iowa, ²Rochester Institute of Technology, ³CSIC, Spain. |
| 101.06       | Velocity Structure in the Chromosphere and Wind of VV Cephei          | Wendy H. Bauer¹, P. D. Bennett², A. Brown³  
¹Wellesley College, ²Eureka Scientific, ³CASA, University of Colorado. |
| 101.07       | Multi-dimensional Simulations of Helium Shell Flash Convection        | Robert M. Hueckstaedt¹, B. Freytag², F. Herwig³, F. Timmes¹  
¹Los Alamos National Laboratory, ²Centre de Recherche Astronomique de Lyon - Ecole Normale Supérieure, France, ³Keele Astrophysics Group, School of Physical and Geographical Sciences, Keele University, UK. |
| 101.08       | The 3D Morphology of VY CMa                                         | Terry J. Jones¹, R. M. Humphreys¹, A. Helton¹, G. Wallerstein¹, G. Herbig¹  
¹Univ. of Minnesota, ²Univ. of Washington, ³Institute for Astronomy. |
| 101.09       | VY Canis Majoris: The Astrophysical Basis of Its Luminosity          | Robert D. Gehrz¹, R. M. Humphreys¹, T. J. Jones¹  
¹Univ. of Minnesota. |
| 101.10       | VLBA Observations of the SiO Masers in the Eruptive Variable V838 Monocerotis | Mark J. Claussen¹, H. E. Bond², S. Starrfield³, K. H. Healy³  
¹NRAO, ²STScI, ³Arizona State University. |
| 101.11       | Observations of the 6 Centimeter Lines of OH in OH/IR Stars and Star Forming Regions | Laura K. Zschaechner¹, V. L. Fish², L. O. Sjouwerman², Y. M. Pihlstrom³, M. J. Claussen²  
¹University of Montana, ²National Radio Astronomy Observatory, ³University of New Mexico. |
| 101.12       | Joint VLBA/VLTI Observations of the Mira Variable GX Mon             | David A. Boboltz¹, M. Wittkowski², K. Ohnaka³, T. Driebe¹  
¹USNO, ²ESO, Germany, ³MPiF, Germany. |

**Session 102 Variable Stars and Distance Scale**  
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4
<table>
<thead>
<tr>
<th>Paper Number</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
</table>
| 102.01       | Hubble Space Telescope Fine Guidance Sensor Parallaxes of Galactic Cepheid Variable Stars: Period-Luminosity Relations and Applications | George F. Benedict¹, B. E. McArthur¹, M. W. Feast², T. G. Barnes³, T. E. Harrison¹, R. J. Patterson¹, J. W. Menzies⁴, J. L. Bean¹, W. L. Freedman⁷  
¹Univ. of Texas, Austin, ²Univ. of Capetown, South Africa, ³NSF, ⁴NMSU., ⁵Univ. of Virginia, ⁶SAAO, South Africa, ⁷Carnegie Inst.. |
| 102.02       | A Theoretical Investigation into Period-Color relations for Cepheids in the Small Magellanic Cloud | Shashi Kanbur¹, C. Ngeow², G. Feiden¹  
¹SUNY at Oswego, ²University of Illinois. |
| 102.03       | A Theoretical Approach to Investigate the Non-linearity of the LMC Cepheid Period-Luminosity Relation | Richard Stevens¹, A. Nanthakumar¹, C. Ngeow³, S. Kanbur¹  
¹SUNY Oswego, ²University of Illinois. |
| 102.04       | A Theoretical Investigation into the Properties of RR Lyrae at Maximum and Minimum Light. | Greg Feiden¹, S. Kanbur¹, R. Szabo², C. Ngeow³  
¹SUNY Oswego, ²University of Florida, ³University of Illinois. |
| 102.05       | An Empirical Investigation of the Effect of Metallicititon Linear vs. Non-linear Cepheid Period-Luminosity relations. | Daniel Crain¹, S. kanbur¹, C. Ngeow¹  
¹SUNY Oswego. |
| 102.06       | A Cepheid Distance to the Coma Cluster: Initial Progress Report | Michael Gregg¹, K. Cook², L. Macri³, D. Alves¹, D. Welch¹, P. Stetson², J. Mould¹  
¹UC, Davis, ²LLNL/NOAO, ³NOAO, ⁴Macmaster University, Canada, ⁵DAO, Canada. |
100.07 Improving the Distance Scale: NICMOS and ACS/HRC observations of Cepheids in the Maser Galaxy NGC 4258
Lucas M. Macri¹, K. Stanek², D. Bersier³, L. Greenhill⁴, M. Reid⁴
¹NOAO, ²OSU, ³Liverpool JMU, United Kingdom, ⁴CfA.

Session 103 White Dwarfs: Search, Survey, Study, and Understand?
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4

103.01 White Dwarf Kinematics vs Mass
Chris Wegg¹, E. S. Phinney¹
¹Caltech.

103.02 The Search for White Dwarfs in the Sandage Two-color Survey of the Galactic Plane
Howard H. Lanning¹, S. Lepine²
¹NOAO, ²Dept. of Astrophysics, American Museum of Natural History.

103.03 Improved Photometric Distances for White Dwarfs
Jay B. Holberg³, E. M. Sion⁴, T. D. Oswalt⁵
³Univ. of Arizona, ⁴Villanova University, ⁵Florida Institute of Technology.

103.04 The Space Motions of DQ White Dwarfs
Ralph Wasatonic¹, E. Sion¹, G. McCook¹, J. Holberg²
¹Villanova University, ²University of Arizona.

103.05 The Hunt for Nearby White Dwarfs
John P. Subasavage, Jr.¹, P. Bergeron², T. J. Henry¹, P. Dufour², N. C. Hambly³, T. D. Beaulieu⁴, RECONS
¹Georgia State University, ²University of Montreal, Canada, ³University of Edinburgh, United Kingdom.

103.06 Meet Your Local White Dwarf Neighbors: A Census of the 20 pc Sample
Sean Foran¹, E. Sion¹, J. Holberg², G. McCook¹
¹Villanova University, ²University of Arizona.

103.07 FUSE Observations of the Very Cool DB White Dwarf GD408
Pierre Chayer¹, S. Desharnais², F. Wesemael³, J. W. Kruk¹
¹Johns Hopkins Univ., ²University of Montreal, Canada.

103.08 Kinematical and Statistical Study of Magnetic White Dwarfs
Edward M. Sion¹, R. Wasatonic¹, G. McCook¹, J. Holberg²
¹Villanova Univ., ²Univ. Arizona.

103.09 G29-38: Mode Identification
Susan E. Thompson¹
¹Colorado College.

103.10 FUSE Observation of the Ultra-Massive White Dwarf GD 50
Jean Dupuis¹, P. Chayer², S. Vennes³, V. Hénault-Brunet⁴
¹Canadian Space Agency, Canada, ²Johns Hopkins University, ³Florida Institute of Technology, ⁴McGill University, Canada.

103.11 A New Look at GD358: Using Nonlinear Light Curves to Constrain Convection
Judith L. Provencal¹, H. Shipman¹, M. Montgomery², Whole Earth Telescope Team
¹U. Delaware Delaware Asteroseismic Research Center, ²U. Texas.

103.12 Quantifying Turbulence: A Nonlinear Approach
Nada Jevtic¹, J. S. Schweitzer²
¹Richard Stockton College, ²University of Connecticut.

Session 104 X-ray to IR Observations of Compact X-ray Objects
AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4

104.01 Shedding New Light on the Stellar Graveyard: Compact Objects in the Mid-IR
Magaretha L. Pretorius¹, S. Wachter¹, D. Hoard¹
¹California Institute of Technology.

104.02 Radio Emission Signatures of the Crab Pulsar’s High Frequency Interpulse
Timothy H. Hankins¹, J. A. Eilek¹
¹New Mexico Tech..

104.03 Multi-Wavelength Studies of Potential X-ray Counterparts to Unidentified EGRET Gamma-Ray Sources
Mallory Roberts¹
¹Eureka Scientific.
<table>
<thead>
<tr>
<th>Session 105 YSO / Star Formation II</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AAS Poster, Monday, 9:20am-6:30pm, Exhibit Hall 4</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>105.01</strong></th>
<th>Characterizing Star Formation Activity in Infrared Dark Cloud Cores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edward T. Chambers¹, J. M. Jackson¹, J. M. Rathborne², R. Simon³</td>
<td></td>
</tr>
<tr>
<td>¹Boston Univ., ²Harvard-Smithsonian CfA, ³Univ. zu Köln, Germany.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>105.02</strong></th>
<th>Infrared Spectroscopy of Low Mass Stars in the Cepheus A Star Forming Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eric S. Boyd¹, A. Steinhauser¹, E. Lada²</td>
<td></td>
</tr>
<tr>
<td>¹SUNY Geneseo, ²University of Florida.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>105.03</strong></th>
<th>Current Star Formation in the Perseus and Ophiuchus Molecular Clouds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jes K. Jorgensen¹, D. Johnstone², H. Kirk², P. C. Myers², Y. L. Shirley², L. E. Allen¹</td>
<td></td>
</tr>
<tr>
<td>¹CfA, ²HIA, ³U. Victoria, ⁴Steward Obs.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>105.04</strong></th>
<th>HST NICMOS Polarization Observations of Massive YSOs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Janet P. Simpson¹, M. G. Burton¹, S. W. Colgan¹, A. S. Cotera¹, E. F. Erickson¹, D. C. Hines¹, B. A. Whitney¹</td>
<td></td>
</tr>
<tr>
<td>¹NASA/Ames, ²U. New South Wales, Australia, ³SETI Inst., ⁴Space Sci. Inst.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>105.05</strong></th>
<th>Spectroscopic Investigation of Companion Stars in Herbig Ae/Be Binary Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anne Sweet¹, B. Rodgers², G. Doppmann², N. van der Bliek³, S. Thomas³, M. J. Cordero¹</td>
<td></td>
</tr>
<tr>
<td>¹CTIO REU, Chile, ²Gemini Observatory, Chile, ³CTIO, Chile</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>105.06</strong></th>
<th>Observations and Models of Very Low Luminosity Objects Discovered with the Spitzer Space Telescope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Michael M. Dunham¹</td>
<td></td>
</tr>
<tr>
<td>¹The University of Texas at Austin.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>105.07</strong></th>
<th>Star Formation in the Small Magellanic Cloud: the young star cluster NGC 602</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antonella Nota¹, L. R. Carlson¹, E. Sabbii, M. Sirtinii¹, J. L. Hora¹, M. Meixner¹, M. Clampin¹, J. Gallagher, III¹, S. Oey², A. Pasquali³, L. J. Smith³, M. Tosi¹⁰, R. Walterbos¹¹</td>
<td></td>
</tr>
<tr>
<td>¹STScI/ESA, ²JHU, ³STScI, ⁴Harvard/CfA, ⁵NASA/Goddard, ⁶U. Wisconsin, ⁷U. Michigan, ⁸MPIA, Germany, ⁹U. College London, UK, ¹⁰INAF-Oserv. Astronomico di Bologna, Italy, ¹¹NMSU</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>105.08</strong></th>
<th>The Effect of Varied Initial Conditions on the Evolution of Protoplanetary Disks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scott A. Michael¹, R. H. Durisen¹, A. C. Boley¹</td>
<td></td>
</tr>
<tr>
<td>¹Indiana Univ.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>105.09</strong></th>
<th>Radiative Transfer Model Fitting of Hubble NICMOS Data for the Class I Protostar TMC-1A (IRAS 04365+2535)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Susan Terebey¹</td>
<td></td>
</tr>
<tr>
<td>¹Cal. State Univ. at Los Angeles.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>105.10</strong></th>
<th>Statistics of Turbulence Probed by Water Masers in Star Forming Regions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benjamin H. Ripman¹, V. Strelnitski¹</td>
<td></td>
</tr>
<tr>
<td>¹Maria Mitchell Observatory.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>105.11</strong></th>
<th>Multiplicity and the Nature of Companions in Herbig Ae/Be Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bernadette Rodgers¹, N. van der Bliek², S. Thomas³, G. Doppmann⁴</td>
<td></td>
</tr>
<tr>
<td>¹Gemini Obs., Chile, ²NOAO CTIO, Chile, ³UCO Lick Obs, ⁴NOAO.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>105.12</strong></th>
<th>Monte Carlo Simulations Of The Rotational Evolution Of PMS Stars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lucas A. Cieza¹, N. Baliber², N. Counselor¹</td>
<td></td>
</tr>
<tr>
<td>¹Univ. Of Texas, Austin, ²Univ. Of California at Santa Barbara.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>105.13</strong></th>
<th>Spitzer Observations of YSO’s in the Witch Head Nebula (IC 2118)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tim S. Spuck¹, M. T. Heath¹, L. M. Rebull¹, T. E. Roelofsen Moody¹, B. Sepulveda¹, E. Sharma⁴, C. Weehler³, S. P. Weiser³</td>
<td></td>
</tr>
<tr>
<td>¹Oil City Area Sr. High School, ²SSC/JPL/Caltech, ³New Jersey Astronomy Ctr. for Education, ⁴Lincoln High School, ⁵Luther Burbank High School.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>105.14</strong></th>
<th>The Velocity Field and the Spatial Distribution of the “Hot Spots” in Methanol Masers: a Statistical Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phuongmai N. Truong¹, B. H. Ripman¹, V. Strelnitski¹</td>
<td></td>
</tr>
<tr>
<td>¹Texas A&amp;M Univ., ²Bowdoin College, ³Maria Mitchell Obs.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>105.15</strong></th>
<th>Spitzer Imaging of NGC 2467: Evidence for Triggered Low-Mass Star Formation in HII Region Environments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keely D. Snider¹, J. J. Hester¹, S. J. Desch¹, K. R. Healy¹, J. Bally²</td>
<td></td>
</tr>
<tr>
<td>¹Arizona State Univ., ²University of Colorado.</td>
<td></td>
</tr>
</tbody>
</table>
Self-Gravitational Collapse Of A Slowly Rotating Interstellar Gas Cloud  
John K. Wall

Spitzer Observations of Massive Protostars Associated with Methanol Masers  
Audrey E. Simmons¹, S. L. Skinner¹, M. Guedel²
¹Univ. of Colorado, ²Paul Scherrer Inst., Switzerland.

Large Magnetic Fields and OH Maser Motions in W75 N  
Vincent L. Fish¹, M. J. Reid²
¹NRAO Jansky Fellow, ²Harvard-Smithsonian Center for Astrophysics.

New Young Stellar Aggregates in Perseus as Revealed by the Spitzer/MIPS c2d Legacy Program  
Luisa M. Rebull¹, K. Stapelfeldt², c2d team
¹SSC/Caltech/JPL, ²JPL.

Cluster Formation in Isolation: Spitzer’s View of Bok Globule CB 34  
Dawn E. Peterson¹, R. A. Gutermuth¹, M. F. Skrutskie¹, S. T. Megeath², J. L. Piper³, L. E. Allen³, P. C. Myers³
¹Univ. of Virginia, ²Harvard-Smithsonian CfA, ³U. Toledo, ⁴U. Rochester.

The Near-IR to Submillimeter Opacity Ratio toward Low-mass Star-forming Cores  
Yancy L. Shirley¹, T. L. Huard², A. M. Stutz¹, D. J. Wilner³, K. M. Pontoppidan¹, L. G. Mundy⁴, N. J. Evans II⁵
¹Univ. of Arizona, ²CfA, ³Caltech, ⁴Univ. of Maryland, ⁵Univ. of Texas.

Variations in the Extinction Law, Ice Abundance, and Dust Grains in Molecular Cloud Cores  
Tracy L. Huard¹, K. M. Pontoppidan¹, A. Boogert¹, C. Knez¹, Y. L. Shirley¹
¹Harvard-Smithsonian CfA, ²Caltech, ³NOAO Gemini Science Center, Chile, ⁴University of Maryland, ⁵Steward Observatory.

MasteringPhysics
Commercial Workshop, Monday, 9:30-11:00am, 305
With more than 80,000 users for calculus-based physics alone, Mastering-Physics is the most widely used physics homework and tutorial system in the world. Its unprecedented popularity is due to two unique advantages. First, MasteringPhysics is the most sophisticated h/w system available - allowing for multi-part, multi-step free-response problems, an unmatched variety of wrong-answer feedback, individualized help (comprising hints or simpler sub-problems upon request), all driven by the largest metadata database of student problem-solving in the world. Secondly, MasteringPhysics is the most educationally proven system - 8 years in development and testing, NSF-sponsored published research (and subsequent studies) shows that the system has dramatic educational results with correlated gains in class finals of up to 8 times that from traditional hand-graded homework, and gains in conceptual understanding (as measured using the FCI) higher than that from group problems.

Our workshop will explain how to introduce MasteringPhysics into your course quickly and easily, the benefits to you and your students, the latest physics education research using the system, even guidelines for authoring your own problems and possible research techniques. We welcome anyone who is interested in new ways to offer more effective tutoring and testing in their calculus- and algebra/trig-based physics courses.

Chair, Claire Masson¹
¹Pearson Education.

Job Center
Attendee Services, Monday, 9:20am-5:00pm, Exhibit Hall 4

Gadgets and Gizmos
Attendee Services, Monday, 9:20am-5:00pm, South Lobby
Experience Digital Physics Curriculum I
Commercial Workshop, Monday, 9:30-11:00am, 302
View and experiment with a new digital physics textbook and virtual physics labs. Learn how a fully integrated digital physics curriculum can aid your instruction. Application of multi-learning styles and inquiry-based learning in a self-paced package provide students with the opportunity to experiment and explore.

Chair, Mark Bretl
1Kinetic Books.

Session 106 Education with Large Astronomical Surveys
AAS Special, Monday, 10:00-11:30am, 613-14

Chair, Carol A. Christian
1STScI.

106.01 Education / Outreach with Large Surveys Overview
Carol A. Christian
1STScI.

106.02 LSST Survey Data - Models for EPO Interaction
Kirk Borne
1GMU / LSST / QSS Group Inc..

106.03 Hands on Universe Applications
Carl Pennypacker
1Lawrence Berkeley Lab.

106.04 Teacher Education
Vivian Hoette
1Yerkes Observatory.

106.05 LSST EPO - Plans & Challenges
Suzanne Jacoby
1LSST Corporation.

106.06 Education with SDSS Data: Activities and Lessons Learned
M. J. Raddick
1JHU.
MONDAY Events, Sessions and Paper Titles

106.07  The Challenges of Using Virtual Observatories in the Classroom
Robert T. Sparks
1NOAO.

106.08  Introducing High School Science Teachers to Quasar Research Using
the Cyberinfrastructure
Michelle Nichols (Yehling), L. Fortson
1Adler Planetarium & Astronomy Museum.

106.09  The Amateurs’ Love Affair with Large Datasets
Aaron Price, S. H. Jacoby, A. Henden
1AAVSO/Tufts University, 2LSST Corporation, 3AAVSO.

Session 107 The Future of Astronomy and Astrophysics at NASA
AAS Special, Monday, 10:00-11:30am, 611-12
Chair, Jack O. Burns
1Univ. of Colorado at Boulder.

107.01  CAPP Panel Discussion: The Future of Astronomy & Astrophysics
at NASA
Jack O. Burns
1Univ. of Colorado at Boulder.

Session 108 HAD III
HAD Oral, Monday, 10:00-11:30am, 608-10
Session begins with a very brief introduction to posters.
Chair, Sara Schechner
1Harvard U.

108.01  The Tunguska Event and the History of Near-Earth Objects
Donald K. Yeomans
1JPL.

108.02  Einstein’s Jury -- The Race to Test Relativity
Jeffrey Crelinsten
1The Impact Group, Canada.

108.03  The Numbers of Scientific Papers Depend Only on the Numbers of
Scientists
Helmut A. Abt
1Kitt Peak National Obs..

108.04  Quasars and the Caltech-Carnegie Connection
Edward R. Waluska
1James Cook University, Australia.

Session 109 AGN Variability, Interactions and Environments
AAS Oral, Monday, 10:00-11:30am, 3A
109.01  Discovery of a Probable Triple Quasar
Stanislav G. Djorgovski, F. Courbin, G. Meylan, D. Sluse, D. Thompson, A. Mahabal, E. Glikman
1Caltech, 2EPFL, Switzerland, 3LBTO.

109.02D The X-ray Variability of Seyfert Galaxies
Kevin Marshall
1Georgia State Univ.

109.03  Monitoring of a Dramatically Variable C IV Mini-BAL in the Quasar
HS1603+3820
Toru Misawa, M. Eracleous, J. C. Charlton, N. Kashikawa
1Penn State Univ., 2National Astronomical Observatory of Japan, Japan.

109.05  Reverberation Mapping of the BLRG 3C390.3
Matthias Dietrich, B. M. Peterson
1The Ohio State University.

109.06  HCN Observations of Four High Redshift Galaxies and QSOs
Yu Gao, C. Carilli, P. Vanden Bout, P. Solomon
1Purple Mountain Observatory, China, 2NRAO-AOC, 3NRAO-CV, 4University at Stony Brook.

109.07  Radially-Inflowing Molecular Gas Deposited by a X-ray Cooling
Flow
Jeremy Lim, Y. Ao, V. Dinh
1ASIAA, Taiwan, 2Purple Mountain Observatory, Chinese Academy of Sciences, China.
Intergalactic Metal Pollution at the Highest Observable Redshifts
Emma V. Ryan-Weber, M. Pettini, P. Madau
1IoA, Cambridge, UK, 2University of California, Santa Cruz.

Session 110 Circumstellar Disks: Early
AAS Oral, Monday, 10:00-11:30am, 204

110.01D High-Resolution Imaging and Modeling of Circumstellar Debris: Architectures of Planetary Systems
Michael Fitzgerald, P. Kalas, J. R. Graham, G. Duchène, C. Pinte
1UC Berkeley, 2Laboratoire d' Astrophysique, Obs. de Grenoble, France.

110.02 SiO Outflow Observations of Young Massive Stellar Objects with Linearly Distributed Methanol Maser Emission
James M. De Buizer, R. Redman, P. Feldman, S. Longmore, J. Caswell
1Gemini Obs., Chile, 2NRC/HIA, Canada, 3UNSW, Australia, 4ATNF, Australia.

110.03 The Likelihood of Supernova Enrichment of Circumstellar Disks
Jonathan P. Williams
1Univ. of Hawaii.

110.04 New Debris Disks Around Solar-Type Stars Imaged with the HST/ACS Coronagraph
John E. Krist, K. Stapelfeldt, G. Bryden, C. Chen
1JPL, 2NOAO.

110.05 Modeling Scattered Light Images from a Planet-Forming Disk
Hannah Jang-Condell, A. P. Boss
1Carnegie Inst. of Washington.

Session 111 Dust, Starbursts and Obscured AGN
AAS Oral, Monday, 10:00-11:30am, 6A

111.02 The Top 15 Luminous Obscured Quasars: SED, Luminosity and Absorption Properties
Mari Polletta, D. Weedman, C. Lonsdale, S. Hoenig, H. Smith, J. Houck
1UC, San Diego, 2Department of Astronomy, Cornell University, 3Max-Planck-Institut fur Radioastronomie, Germany, 4IRS Science Center, Center for Radiophysics & Space Research, Cornell University.

111.03D The Nature of Dust-Reddened Quasars
Tanya Urrutia, R. R. Becker, M. Lacy, M. D. Gregg
1UC, Davis, 2Spitzer Science Center, Caltech.

111.04 A HCN and HCO+ Multi-transition Line Survey in Active Galaxies: AGN versus Starburst Environments
1Harvard-Smithsonian Center for Astrophysics, SMA project, 2IRAM, France, 3OAN, Spain, 4LERMA, France, 5University of Cologne, Germany.

111.05D Using X-rays to Probe the Physical Properties of Astrophysical Dust
Andreea Petric, F. Paerels
1Columbia Univ.

111.06D Dust within Central Regions of Seyfert Galaxies
Rajesh P. Deo
1Georgia State Univ.

Session 112 Formation History of Galaxies
AAS Oral, Monday, 10:00-11:30am, 605-07

112.01 The Current Mass Function of Galaxies
Michael Pierce, R. C. Berrington
1Univ. Of Wyoming.

112.02D High Resolution Optical Velocity Fields of LSB Galaxies and the Density Profiles of Dark Matter Halos
Rachel Kuzio de Naray
1Univ. Of Maryland.
112.03  Structure and Formation of Massive Galaxies with Old Stellar Populations at z=1.5
Elizabeth J. McGrath¹, A. Stockton¹
¹Inst. for Astronomy.

112.04  New Constraints on the History of Star Formation of Elliptical Galaxies
Ricardo P. Schiavon¹, G. J. Graves², R. W. O’Connell¹, S. M. Faber²
¹Univ. of Virginia, ²University of California.

112.05  The Spatial Distributions of Globular Cluster Systems
Eric Peng¹, M. Takamiya², P. Cote¹, M. J. West¹, J. P. Blakeslee¹, L. Ferrarese¹, A. Jordan², S. Mei³
¹NRC-HIA, Canada, ²University of Hawaii, ³Gemini Observatory, Chile.

112.06  An X-ray, IR, and Submillimeter Flare of Sagittarius A*
Daniel P. Marrone¹, F. K. Baganoff², M. Morris³, J. M. Moran⁴, A. Ghez¹, S. Hornstein¹, D. Dowell¹, M. W. Bautz⁵, G. R. Ricker², W. N. Brandt², G. P. Garmire⁶, J. Lu¹, K. Matthews², G. Bower³, J. Zhao³, R. Rao³
¹U Chicago, ²MIT Kavli Institute, ³UCLA, ⁴Harvard-Smithsonian CfA, ⁵JPL, ⁶Penn State U., ⁷Caltech, ⁸UC Berkeley, ⁹ASIAA, Taiwan.

112.07  Flaring Activity of SgrA*: Adiabatic Expansion of Nonthermal Plasma
Farhad Yusef-Zadeh¹, M. Wardle², D. A. Roberts³, C. O. Heinke³, C. D. Dowell¹, W. D. Cotton³, G. C. Bower⁴, F. K. Baganoff²
¹Northwestern Univ., ²Macquarie University, Australia, ³Northwestern Univ. & Adler Planetarium, ⁴Cal Tech, ⁵NRAO, ⁶UC Berkeley, ⁷MIT.

Session 113 Galaxy Clusters I
AAS Oral,  Monday, 10:00-11:30am, 6B

113.01D  Hydrodynamic Models of AGN Feedback in Cooling Core Clusters
John C. Vernaleo¹, C. S. Reynolds¹
¹Univ. of Maryland.

113.02  Color and Morphological Evolution in Galaxy Clusters since z ~ 1.5
Mark Brodwin¹, P. Eisenhardt¹, A. H. Gonzalez², A. Stanford³, D. Stern³, S. Perlmutter¹, SCP, NDWFS, IRAC, FLAMEX, AGES
¹JPL/Caltech, ²University of Florida, ³UC Davis, ⁴UC Berkeley.

113.03D  Characteristics of Megaparsec-scale Structures in the Horologium-Reticulum Supercluster of Galaxies
Matthew C. Fleenor¹, J. A. Rose¹, W. A. Christiansen¹, M. Johnston-Hollitt², R. W. Hunstead³, W. Saunders³
¹University of North Carolina, ²University of Tasmania, Australia, ³Sydney University, Australia.

113.04  A Robust Estimator of the Small Scale Galaxy Correlation Function
Nikhil Padmanabhan¹, M. White², D. J. Eisenstein³
¹Lawrence Berkeley National Laboratory, ²University of California, Berkeley, ³University of Arizona.

113.05  Search for Fossil Groups using NVO Technologies
Walter A. Santos, Jr¹, O. Lopez-Cruz², D. Lindler³, T. Tamura³, C. Mendes de Oliveira³, L. Sodre, Jr¹
¹Astronomy Institute - University of Sao Paulo, Brazil, ²INAOE, Mexico, ³Sigma Space Corporation, ⁴ISAS/JAXA, Japan.

113.06D  Mapping the Local Density and Velocity Fields
David J. Radburn-Smith¹
¹STScI.

Session 114 Nearby Galaxies and ANGST
AAS Oral,  Monday, 10:00-11:30am, 3B

114.01  The ACS Nearby Galaxy Survey Treasury: Overview
Julianne Dalcanton¹
¹Univ. of Washington.

114.02  The ACS Nearby Galaxies Survey Treasury: Recovering Spatially Resolved Recent Star Formation Histories
Evan D. Skillman¹, ANGST team
¹Univ. of Minnesota.
MONDAY Events, Sessions and Paper Titles

114.03 The ACS Nearby Galaxies Survey Treasury: First Age and Metallicity Distributions
Benjamin F. Williams1, J. Dalcanton1, D. Weisz2, A. Dolphin3, A. Seth4, E. Skillman2, R. Covarrubias1, J. Harris2, ANGST team
1Univ. of Washington, 2U. Minnesota, 3Steward Observatory, 4CfA.

114.04 The ACS Nearby Galaxies Survey Treasury: The Recent Star Formation History of DDO 06
Daniel R. Weisz1, ANGST team
1Univ. of Minnesota.

114.05 Modes of Star Formation in an Early Universe Laboratory: An HST/ACS Survey of Hickson Compact Groups
Jane C. Charlton1, S. C. Gallagher2, C. Gronwall1, J. English3, P. R. Durrell1, R. Chandar3, K. E. Johnson4, W. N. Brandt5, D. M. Elmegreen7, M. Eracleous1, G. P. Garmire1, J. E. Hibbard6, P. Hickson8, A. E. Hornschemeier10, S. Hunsberger1, K. A. Knierman11, A. Mayh Fritz12, C. Mendes de Oliveira13, J. S. Mulchaey5, C. Palma1, B. C. Whitmore9, A. I. Zabludoff11, S. G. Zonak14
1Penn State Univ., 2UCLA, 3U. Manitoba, Canada, 4Youngstown State Univ., 5OCW, 6Univ. of Virginia, 7Vassar College, 8NRAO, 9Univ. of British Columbia, Canada, 10NASA Goddard, 11Univ. of Arizona, 12STScI, 13Univ. of Sao Paulo, Brazil, 14Univ. of Maryland.

114.06 The Star Formation Rate Density of the Local Universe from SINGG
Daniel Hanish1, G. R. Meurer1, SINGG Team
1Johns Hopkins Univ.,

114.07 The Stellar Populations in the Outer Banks of Massive Disk Galaxies
Roelof De Jong1, GHOSTS team
1STScI.

Session 115 Pulsars and White Dwarfs I
AAS Oral, Monday, 10:00-11:30am, 201

115.01 A New Analytical Model for Bulk and Thermal Comptonization in Accretion Powered X-Ray Pulsars
Peter A. Becker1, M. T. Wolff2
1George Mason University, 2Naval Research Laboratory.

115.02 D Probing Binary Evolution Using the Pulsar Fossil Record
Robert D. Ferdman1, I. H. Stairs1, M. Kramer1, M. A. McLaughlin1, A. Faulkner2, D. C. Backer2, P. Demorest2, D. J. Nice3, M. Burgay8, F. Camilo7, N. D’Amico6, G. Hobbs3, D. R. Lorimer1, A. G. Lyne3, R. Manchester4, A. Possenti6
1UBC, Canada, 2Jodrell Bank Obs., UK, 3West Virginia U., 4U. California, 5Bryn Mawr College, 6INAF, Italy, 7Columbia U., 8ATNF, Australia.

115.03 D X-ray Emission from Millisecond Pulsars
Slavko Bogdanov1
1Harvard University.

115.04 New XMM Observations of the Accreting Millisecond X-ray Pulsar SAX J1808.4-3658 in Quiescence
Craig O. Heinke1, R. Wijnands3, P. G. Jonker1, R. E. Taam1

115.05 The Distribution of Ages, Magnetic Fields and Spin Periods of Millisecond Pulsars
Bulent Kiziltan1, S. E. Thorsett1
1Department of Astronomy & Astrophysics, U.of California, Santa Cruz.

115.06 Big, Smart Dishes to Find Thousands of New Radio Pulsars
Joeri van Leeuwen1
1UC, Berkeley.

115.07 The External Pollution of GD 362: The Bulk Composition of an Extra-Solar Asteroid?
Carl Melis1, D. Koester2, B. Zuckerman1, B. Hansen1, M. Jura1
1UC, Los Angeles, 2University of Kiel, Germany.

Session 116 Advanced Physics in the Pre-High School AP, IB and Dual Enrollment Courses
AAPT Invited, Monday, 10:00-11:30am, 310

Chair, Paul Hickman1
1Science Education Consultant.
Session 117 The Once & Future Role of Women in Astronomy
AAPT Invited, Monday, 10:00-11:30am, 615
Chair, Jill Marshall¹
¹UT at Austin.

117.01 Dorrit Hoffleit: A Century of being a Woman in Astronomy
Dorrit Hoffleit¹, P. L. Gay²
¹Yale University, ²Southern Illinois University Edwardsville.

117.02 Women in Physics and Astronomy
Rachel Ivie¹
¹American Institute of Physics.

117.03 The Progress, Status, and “Roles” of Women in Astronomy
Lynne Hillenbrand¹
¹Caltech.

Session 118 Nanoscale Physics in the Classroom
AAPT Special, Monday, 10:00-11:30am, 616
Chair, Paul W. Zitzewitz³
³University of Michigan-Dearborn.

118.01 National Center for Learning and Teaching in Nanoscale Science
and Engineering (NCLT)
Nicholas Giordano¹
¹Purdue University.

118.02 Resource Materials for Nanoscale Science and Technology Educa-
tion
George Lisensky¹
¹Beloit College.

118.03 Small Talk: Conversations about Nanotechnology through Podcasts
Stephanie V. Chasteen¹, P. Doherty¹
¹Exploratorium Teacher Institute.

118.04 Nanoscale Physics Inquiry Activities
Jill N. Johnsen¹
¹Exploratorium.

Session 119 Resource Collections and Communities Online
through ComPADRE
AAPT Special, Monday, 10:00-11:30am, 303
Chair, Bruce Mason¹
¹OU.

119.01 Overview of the Student Collection on ComPADRE
David Donnelly¹
¹Texas State University - San Marcos.

119.02 AstronomyCenter.org: Your Online Destination for Astronomy
Education Resources
Gina Brissenden¹, S. Deustua²
¹Univ. of Arizona, ²American Astronomical Society.

119.03 Physics To Go: an Outreach Digital Library
Edward V. Lee¹
¹American Physical Society.

119.04 The Physics Front: Resources for High School Physics & Physical
Science Teachers
Cathy M. Ezrailson¹
¹Texas A&M University.

Session 120 Significant Advances in Low Temperature Phys-
ics
AAPT Special, Monday, 10:00-11:30am, 307-08
Chair, Warren Hein¹
¹AAPT.

120.01 Absolute Zero
Russell J. Donnelly¹, D. Sheibley², M. Belloni², D. Stamper-Kurn³,
W. F. Vinen⁴
¹University of Oregon, ²Davidson College, ³UC, Berkeley, ⁴University
of Birmingham, United Kingdom.

120.02 Ultracold Quantum Gases
Daniel Stamper-Kurn¹
¹University of California, Berkeley.
MONDAY Events, Sessions and Paper Titles

120.03 Significant Advances in Low Temperature Physics
William F. Vinen¹
¹University of Birmingham, UK, United Kingdom.

Session 121 SPS Undergraduate Research Outreach
AAPT Oral, Monday, 10:00-11:30am, 617

Chair, Gary White¹
¹American Institute of Physics.

121.01 SPS Intern Contributions to ComPADRE and SOCK
Katherine N. Zaunbrecher¹
¹University of Louisiana at Lafayette.

121.02 Astronomy and Education
Kristen Greenholt¹, S. Deustua²
¹Society of Physics Students, ²American Astronomical Society.

121.03 Studying a Quantum ‘Bounce’
David L. Sheibley¹, M. Belloni¹
¹Davidson College.

121.04 Microsized Objects in Optical Tweezers with Orbital Angular Momentum
Kyle A. Brandenburg¹
¹Xavier University.

121.05 True Color Holography with Three Wavelengths
Jeremy R. Swearingen¹
¹Xavier University.

121.06 The Effects of Magnetic Fields on Cooling Fans
Raphael G. Cherney¹
¹Brownell-Talbot School.

121.07 Evaluation of a Novel Design for an Electrostatic Quadrupole Triplet Ion Beam Lens
L. R. Burns¹, J. D. Bouas¹, S. Matteson¹, D. L. Weathers¹
¹Ion Beam Modification and Analysis Laboratory (IBMAL) — University of North Texas.
NEW FROM
W.H. FREEMAN AND COMPANY

PHYSICS FOR SCIENTISTS AND ENGINEERS
Sixth Edition
0-7167-8964-7
Paper
Paul A. Tipler (Fairleigh Dickinson University)
Gene Mosca (University of Nevada, Las Vegas)

With its focus on conceptual understanding, problem solving, mathematical reinforcement, and multimedia integration, Tipler/Mosca supports calculus-based physics students in areas where they face the most difficulty. Long known for precise physics and high-quality problems, the new edition draws on the latest research and teaching practices to help students achieve a meaningful understanding of physics.

UNIVERSE
Eighth Edition
0-7167-8584-6
Paper
Also available:
UNIVERS: Stars and Galaxies
UNIVERSE: The Solar System
Roger Freedman (University of California, Santa Barbara)
William J. Kaufmann (late of San Diego State University)

The Eighth Edition of this widely used text: 1) provides a practical, thorough explanation of the process of science, while 2) giving students the tools they need to study, retain, and apply what they learn in introductory astronomy. Freedman's hallmark style, proven problem-solving approach, and emphasis on the "why" of astronomy make UNIVERSE an exciting and effective student resource.

FREEMAN'S PORTALS TO LEARNING
Fully Integrated Learning Management Systems

PHYSICS PORTAL and ASTROPORTAL are powerful learning environments that integrate three components (eBook, Interactive and Conceptual Resources Library, and Assignment Center) with the textbook and each other. All resources are easily accessed by students via a single login.

- The Assignment Center makes it easy to create, assign, and grade homework. Any resource in the Portal can be assigned and evaluated, including eBook sections, simulations, and problems.
- Tutorials provide instant feedback for wrong answers, including subquestions that guide students to the correct answer. Using the tutorials, students develop conceptual and problem-solving skills that will last.
- Detailed and interactive animations allow students to visualize abstract concepts and see physical events in real-life scenarios.

For further information, stop by the Freeman booth!

W. H. FREEMAN AND COMPANY
41 Madison Avenue, New York, NY 10016 • whfreeman.com

New from W. W. Norton & Company

Hans C. Ohanian and John T. Markart
Physics for Engineers and Scientists
Third Edition

This introductory, calculus-based text offers a modern view of classical mechanics and electromagnetism for today's students, including coverage of optics and quantum physics and emphasizing the relationship between macroscopic and microscopic phenomena.

Jeff Hester, David Burstein, George Blumenthal, Ronald Greeley, Bradford Smith, Howard G. Yoss
21st Century Astronomy
Second Edition

21st Century Astronomy foster scientific literacy by relating core concepts in modern astronomy to the real-world process of science. The Second Edition offers improved pedagogy and dynamic new multimedia tools for students and instructors.

smartwork

Norton's online homework management system provides ready-made self-grading assignments, including guided problems, simple feedback questions, and animated tutorials. Instructors can easily use these assignments, customize them to address specific course objectives, or use SmartWork to create their own.

Learn more or request an examination copy

www.norton.com/college/physics • 800-233-4830
121.08  **Packets in the Classical Asymmetric Infinite Square Well**  
Robert W. Correll

1Davidson College.

121.09  **Sonoluminescence at Carthage: Sound into Light**  
Lukas K. Swanson1, D. Arion1, K. Crosby1

1Carthage College.

**Session 122 Warner Prize for Astronomy**  
Plenary, Monday, 11:40am-12:30pm, Ballroom 6

122.01  **The Formation of The Solar System and The Origin of Planetary Spins**  
Re’em Sari1

1Caltech.

**Extended FUSE Operations Beyond FY08**  
AAS Splinter Meeting, Monday, 12:30-2:00pm, 607

The FUSE satellite has made a remarkable recovery from attitude control problems in late 2004. The scientific instrument remains healthy, and provides a unique capability for far-UV spectroscopy that will not be duplicated in the foreseeable future. We seek community input on an operations concept that would extend FUSE operations at reduced costs beyond the current mission horizon of September 2008. What are the primary science drivers for this time frame? What level of operations are required to support the science? The results of these discussions will likely drive automation and development of concept decisions in the upcoming months as we bring the concept to NASA for consideration.

Chair, William P. Blair

1Johns Hopkins University.

**Accessing and Using Sloan Digital Sky Survey Data**  
AAS Splinter Meeting, Monday, 12:30-2:00pm, 608

Presentations of a few specific cases showing astronomers how to access data from the Sloan Digital Sky Survey, with questions and answers from Jordan Raddick and other members of the SDSS collaboration. The session will be similar to the session given at the summer meeting in Calgary.

Chair, Jordan Raddick

1Johns Hopkins University.

**NRAO Town Meeting**  
AAS Town Hall Meeting, Monday, 12:45-1:45pm, 6A

This Town Meeting will inform the AAS membership about the status of key NRAO science operations and construction projects. Brief presentations will update the membership regarding: (a) Atacama Large Millimeter Array (ALMA) construction and planning for the North American ALMA Science Center; (b) Expanded Very Large Array (EVLA) construction and science commissioning; (c) science operations and instrument development plans at the Green Bank Telescope (GBT); and (d) science operations and instrument development at the Very Long Baseline Array (VLBA). At least half of the Town Meeting will be allocated for answering audience questions.

Chair, K Y. Lo

1NRAO.

**Session 123 Presidential Address and Awards Presentation**  
AAPT Invited, Monday, 1:00-2:00pm, Ballroom 6

1:00 Presentation by Richard Peterson of Distinguished Service Citations to the following recipients:
- Robert Beichner, North Carolina State Univ.
- John Mallinckrodt, California State Polytechnic Univ
- Deborah Rice, Kirkwood High School
- Paul Stokstad, PASCO scientific
- David and Christine Vernier, Vernier Software

1:15 Presentation of Melba Newell Phillips Award to Clifford Swartz
1:25 Presentation by James Stith of the American Institute of Physics Science Writing Award for a Work Aimed at Children to David Garrison, Shannon Hunt, and Jude Isabella, Editors of YES! Magazine
1:30 Presentation by Earl Blodgett of the SPS Outstanding Chapter Advisor Award to James Borgardt
1:35 Presidential Address by Kenneth Heller

Chair, Richard Peterson

1Bethel Univ..
MONDAY Events, Sessions and Paper Titles

Session 124 Formation and Detection of Habitable Planets
AAS Special, Monday, 2:00-3:30pm, 611-12

Chair, Nader Haghighipour¹
¹Univ. of Hawaii.
Chair, Karen J. Meech¹
¹Inst. for Astronomy.

124.01 The Limits of Organic Life in Planetary Systems
John Baross¹
¹University of Washington.

124.02 What Comets Tell us About Prebiotic Chemistry in Protoplanetary Disks
Karen Meech¹
¹Institute for Astronomy, University of Hawaii.

124.03 Planetary Environmental Signatures for Habitability and Life
Victoria Meadows¹
¹Spitzer Science Center.

124.04 Detection of Habitable Planets
Wesley A. Traub¹
¹JPL.

124.05 Habitable Planet Formation; A Review of Current Status
Nader Haghighipour¹
¹Institute for Astronomy, University of Hawaii.

124.06 Kepler Mission Development
William J. Borucki¹, D. Koch¹, N. Batalha², T. Brown³, D. Caldwell⁴, J. Christensen-Dalsgaard⁵, E. Dunham⁶, T. Gautier⁷, J. Geary⁸, R. Gilliland⁹, J. Jenkins¹⁰, D. Latham¹¹, D. Monet¹²
¹NASA/Ames, ²San Jose State Univ., ³Las Cumbres Obs., ⁴SETI Inst., ⁵Aarhus Univ., Denmark, ⁶Lowell Obs., ⁷A. Pope⁸, ⁸SAO, ⁹STScI, ¹⁰USNO.

Session 125 Galactic and Extragalactic Surveys Using AzTEC
AAS Special, Monday, 2:00-3:30pm, 204

Chair, Gary Davis¹
¹Joint Astronomy Centre.

125.01 Session Overview and AzTEC Instrument Performance
Grant Wilson¹, P. A. Ade², I. Aretxaga³, J. Austermann¹, J. J. Bock⁴, D. Hughes⁵, Y. Kang⁶, S. Kim⁷, J. Lowenthal⁸, P. Mauskopf⁹, K. Scott¹⁰, M. Yun¹¹
¹U. Massachusetts, ²Cardiff University, United Kingdom, ³INAOE, Mexico, ⁴Caltech, ⁵Sejong University, Republic of Korea, ⁶Smith College.

125.02 AzTEC Observations of the SHADES Fields at λ=1.1mm
Mark Halpern¹, J. Dunlop², SHADES and AzTEC consortia
¹UBC, Canada, ²Institute for Astronomy, United Kingdom.

125.03 AzTEC COSMOS Survey
Min Su Yun¹, P. A. Ade², I. Aretxaga³, J. Austermann¹, J. J. Bock⁴, D. Hughes⁵, Y. Kang⁶, S. Kim⁷, J. Lowenthal⁸, P. Mauskopf⁹, K. Scott¹⁰, G. Wilson¹
¹Univ. of Massachusetts, ²Cardiff University, United Kingdom, ³INAOE, Mexico, ⁴Caltech, ⁵Sejong University, Republic of Korea, ⁶Smith College.

125.04 A Deep AzTEC Map of the GOODS-North Field
Douglas Scott¹, E. Chapin¹, I. Aretxaga³, J. Austermann¹, K. Coppin¹, M. Crowe¹, L. Frey¹, A. Gibb¹, M. Halpern¹, D. Hughes², Y. Kang², S. Kim², J. Lowenthal², T. Perera², A. Pope², K. Scott², G. Wilson², M. Yun²
¹University of British Columbia, Canada, ²INAOE, Mexico, ³University of Massachusetts, ⁴Smith College, Republic of Korea, ⁵Smith College.

125.05 An AzTEC 1.1mm Survey of a Highly-biased Extragalactic Field - Tracing Accelerated Galaxy Formation at z~3.8 towards 4C41.17
David Hughes¹, P. A. Ade¹, I. Aretxaga¹, J. Austermann¹, J. J. Bock⁴, J. Dunlop⁵, E. Gaztanagal⁶, R. Ivison⁷, Y. Kang⁸, S. Kim⁸, J. Lowenthal⁹, P. Mauskopf⁹, A. Montana¹, M. Plionis¹, K. Scott¹, I. Smail¹, J. Stevens¹, J. Wagg¹, G. Wilson¹, M. Yun³
¹Inst. Nacional de Astrofisica, Optica y Electronica, Mexico, ²Cardiff U., UK, ³U. Massachusetts, ⁴Caltech, ⁵IoA, Royal Obs., UK, ⁶Sejong U., Republic of Korea, ⁷Smith College, ⁸U. Durham, UK, ⁹U. Hertfordshire, UK.
Session 126 Job Applicants: Top 10 Questions You Should Ask
AAS Special, Monday, 2:00-3:30pm, 201

Chair, Anita Krishnamurthi
1NASA's GSFC.

Chair, Kirk Borne
1George Mason University.

Session 127 Circumstellar Disks: Not So Early
AAS Oral, Monday, 2:00-3:30pm, 608-10

127.01 HST/ACS Coronagraphic Observations of the HD 163296 Circumstellar Disk
John P. Wisniewski1, M. Clampin1, C. Grady2, D. Ardila3, H. Ford4, D. Golimowski5, G. Illingworth6, J. Krist7, HST ACS Science Team
1NASA GSFC, 2Eureka Scientific/NASA GSFC, 3Spitzer Science Center, 4JHU, 5Lick Observatory, 6JPL.

127.02 The Circumstellar Environment of HD 97048: HST/ACS Scattered-Light Imaging and Dust Modeling
1Univ. of Illinois, Urbana, 2STScI, 3Jet Propulsion Laboratory, 4Spitzer Science Center/IPAC, 5ESA/STScI, 6NASA Goddard Space Flight Center.

127.03 Models of Be Star Disks Constrained by Long-baseline Interferometry
Christopher Tycner1, C. E. Jones2, T. A. Sigut2, L. Thomson2, A. Molak2
1U.S. Naval Observatory, 2Univ. of Western Ontario, Canada.

Session 128 Education Across the Spectrum
AAS Oral, Monday, 2:00-3:30pm, 605-07

128.01 Johannes Kepler's Intelligent Design
Paul M. Wallace1
1Berry College.

128.02 Is Debunking Intelligent Design an Effective Approach to Teaching?
Alex Storrs1, T. F. Slater2, CAPER team
1Towson Univ., 2Univ. of Arizona.

128.03 And now... Equations!
Ran Sivron1
1Baker Univ.

128.04 Using Streaming Video in Delivery of an On-Line Astronomy Course
Terrence F. Flower1
1College of St. Catherine.

128.05 “Workshop Astronomy” at Dickinson College
Windsor A. Morgan, Jr.1
1Dickinson College.

128.06 Integrating Observatories and Planetaria into Survey Astronomy Laboratory Curricula
Michael N. Fanelli1
1Texas Christian Univ.
128.07 A Study of 8th Grade Students Learning the Moon's Phases Using Various Multimedia Platforms
Timothy Young¹, M. Guy²
¹Univ. of North Dakota.

Session 129 Galaxy Clusters II
AAS Oral, Monday, 2:00-3:30pm, 6B

129.01 The Clustering of Galaxy Groups: Dependence on Mass and Other Properties
Andreas A. Berlind³
³New York Univ.

129.02D The Equilibrium Structure of Dark Matter Halos in a Λ-Dominated Universe
Michael T. Busha¹, A. E. Evrard¹, F. C. Adams¹
¹Univ. Of Michigan.

129.03D Environment, Kinematics, & Star Formation History of Infalling [OII] Emitters in z=0.4 cluster Abell 851
Taro Sato¹, C. L. Martin¹
¹UC, Santa Barbara.

129.04 Simulating Cosmic Reionization from Pop II and III Stars
Hy Trac¹, R. Cen¹
¹Princeton University.

129.05 A z=0.45 DLA With Only Weak MgII Absorption?
Therese Jones¹, J. C. Charlton¹, A. C. Mshar¹, G. J. Ferland¹, P. C. Stancil¹
¹Penn State Univ., °University of Kentucky, ‡University of Georgia.

129.06D From Galaxy Clustering to Dark Matter Clustering
Jaiyul Yoo¹, D. H. Weinberg¹
¹The Ohio State Univ.

Session 130 Instrumentation for Ground-Based and Airborne Observatories
AAS Oral, Monday, 2:00-3:30pm, 3B

130.01 The Hertz/SMT Submillimeter Polarimeter
David T. Chuss¹, D. J. Benford¹, S. H. Moseley¹, J. G. Staguhn¹, G. M. Voellmer¹, E. J. Wollack¹, M. Krejny², G. Novak³, C. Y. Drouet d'Aubigny³, D. R. Golish³, C. Kulesza³, C. K. Walker³, R. F. Loewenstein³
¹NASA’s GSFC, °Northwestern University, ‡University of Arizona, ‰Yerkes Observatory, University of Chicago.

130.02 SHARP: The SHARC-II polarimeter at the Caltech Submillimeter Observatory
John E. Vaillancourt¹, M. Attard², C. D. Dowell³, R. H. Hildebrand³, M. Houde³, L. Kirby³, M. Krejny³, H. Li³, G. Novak³, H. Shinnaga³
¹Caltech, °U. Western Ontario, Canada, ‡JPL/Caltech, †U. Chicago, ‡Northwestern, °Harvard-Smithsonian CfA, ‰CSO.

130.03 Gemini North Laser Adaptive Optics Performance: First Science Data
Chadwick A. Trujillo¹, F. Rigaut¹, D. Gratadour¹, M. Bec¹, T. Beck¹, S. Chan¹, A. Matulonis¹, G. Tranch¹, B. Walls¹, A. Stephens¹, M. Boccas¹, K. Grace¹, P. Gundu¹, C. d’Orgeville¹, M. Sheehan¹, J. White¹, K. White¹, R. Wyman¹, G. Herriot¹, J. Veran²
¹Gemini Obs., °NRC-HIA, Canada.

130.04 Progress Report on GISMO, a 2 mm Bolometer Camera Optimized for the Study of High Redshift Galaxies
Johannes Staguhn¹, D. Benford¹, C. Allen¹, S. Moseley¹, T. Ames¹, R. Arendt¹, W. Brunswig², D. Chuss¹, E. Dwek¹, A. Kovacs³, S. Maher¹, C. Marx¹, T. Miller¹, S. Navarro², E. Sharp¹, A. Sievers², G. Voellmer¹, E. J. Wollack¹
¹NASA’s GSFC, °IRAM, Spain, ‡MPIfR, Germany.

130.05D A Survey of 3.3 Micron PAH Emission Using FLITECAM
Erin C. Smith¹
¹UCLA.

130.06 High Contrast and Extreme AO Experiments on the Palomar Hale Telescope
Gene Serabyn¹
¹JPL.
**Session 131 Pulsars and White Dwarfs II**

AAS Oral, Monday, 2:00-3:30pm, 3A

131.01 **Spitzer Space Telescope Observations of SGR and AXP Environments**
Stefanie Wachter\(^1\), C. Kouveliotou\(^1\), S. Patel\(^1\), D. Figer\(^1\), P. Woods\(^5\)
\(^1\)Caltech, \(^2\)MSFC, \(^3\)NSSTC/USRA/MSFC, \(^4\)Rochester Institute of Technology, \(^5\)Dynetics.

131.02 **Deep Searches for Radio Pulses and Bursts from AXPs**
Fronefield Crawford, III\(^1\), J. W. Hessels\(^2\), V. M. Kaspi\(^3\)
\(^1\)Franklin & Marshall College, \(^2\)Astronomical Institute "Anton Pan-nekoek", University of Amsterdam, The Netherlands, \(^3\)McGill University, Canada.

131.03 **Observational Implications of a Fall-back Crust around a Quark-nova Compact Remnant: Application to AXPs and SGRs**
Denis A. Leahy\(^1\), R. Ouyed\(^1\), B. Niebergal\(^1\)
\(^1\)Univ. of Calgary, Canada.

131.04 **Proper Motion of Compact Objects**
Patrick B. Cameron\(^1\), S. R. Kulkarni\(^1\)
\(^1\)Caltech.

131.05 **SPITZER IRS Spectroscopy of Highly-Obscured X-ray Binaries**
Dae-Sik Moon\(^1\), D. L. Kaplan\(^2\), W. T. Reach\(^3\), F. A. Harrison\(^4\), J. Lee\(^5\)
\(^1\)University of Toronto, Canada, \(^2\)MIT, \(^3\)Spitzer Science Center, \(^4\)Caltech, \(^5\)UCLA.

131.06 **Cool Companions of White Dwarfs from 2MASS**
D W. Hoard\(^1\), S. Wachter\(^1\), L. K. Sturch\(^1\), A. M. Widhalm\(^1\), K. P. Weiler\(^1\), J. W. Wellhouse\(^2\), M. Gibiansky\(^2\)
\(^1\)California Institute of Technology, \(^2\)Harvey Mudd College, \(^3\)New Mexico State University, \(^4\)DePaul University.

131.07 **Pulsar Timing and Gravitational Wave Detection: Current Status and Future Prospects**
Fredrick Jenet\(^1\)
\(^1\)Center for Gravitational Wave Astronomy/Univ. of Texas at Brownsville.

**Session 132 UDF, GOODS and High Redshift Galaxies**

AAS Oral, Monday, 2:00-3:30pm, 613-14

132.01 **Evolution of the Rest-Frame UV LF from z~8 to z~4**
Rychard Bouwens\(^1\), G. D. Illingworth\(^1\)
\(^1\)UC, Santa Cruz.

132.02 **Spitzer/IRAC Confirmation of z850-dropout Galaxies in the Hubble Ultra Deep Field: Stellar Masses and Ages at z~7**
Ivo F. Labbe\(^1\), R. Bouwens\(^2\), G. Illingworth\(^2\), M. Franx\(^3\)
\(^1\)OCIW, \(^2\)UCSC/Lick, \(^3\)Leiden Observatory, The Netherlands.

132.03 **16 micron Imaging of the GOODS Fields**
Harry I. Teplitz\(^1\), R. Chary\(^1\), J. W. Colbert\(^1\), B. Siana\(^1\), D. Elbaz\(^2\), M. Dickinson\(^3\), C. Papovich\(^4\)
\(^1\)Spitzer Science Center, \(^2\)Saclay, France, \(^3\)NOAO, \(^4\)UA.

132.04 **Exploring the Optical and Infrared Evolution of Galaxies Since z=1**
Jason Melbourne\(^1\)
\(^1\)UC, Santa Cruz.

132.05 **Revisiting the Hubble Sequence : Comparative Studies with Sloan Digital Sky Survey and the Hubble Ultra Deep Field**
Preethi Nair\(^1\), R. G. Abraham\(^1\)
\(^1\)University of Toronto, Canada.

132.06 **Discovery of a galaxy at redshift 6.96 and its implications on galaxy formation era**
Masanori Iye\(^1\), K. Ota\(^2\), N. Kashikawa\(^1\)
\(^1\)National Astronomical Obs., Japan, \(^2\)University of Tokyo, Japan.

132.07 **The Advanced Camera Galaxy Redshift Survey**
Brenda L. Frye\(^1\), N. Benitez\(^2\), D. Coe\(^3\), H. Ford\(^3\), D. Bowen\(^4\), G. Illingworth\(^5\), P. Guhathakurta\(^3\), M. Franx\(^6\), ACS Science Team
\(^1\)Dublin City Univ., Ireland, \(^2\)Instituto de Astrofisica de Andalucia, Spain, \(^3\)JHU, \(^4\)UC Santa Cruz, \(^5\)Leiden Univ., Netherlands Antilles.
132.08 IRAC-selected Extremely Red Objects in the GOODS Fields
Haojing Yan¹, GOODS Team
¹Carnegie Observatories.

Session 133 YSOs and Early Type Stars
AAS Oral, Monday, 2:00-3:30pm, 6A

133.03D Molecular Clouds and Star Formation: A Multi-wavelength Study of Perseus, Serpens, and Ophiuchus
Melissa Enoch¹
¹Caltech.

133.02 SMA Observations of IRDC Cores: An Active Hot Core and a Quiescent Cold Core
James M. Jackson¹, J. Rathborne², E. Chambers¹, Q. Zhang³, R. Simon³
¹Boston Univ., ²Center for Astrophysics, ³University of Cologne, Germany.

133.03 VLBA Determination of the Distance to Taurus and Ophiuchus with 1% Precision
Laurent Loinard¹
¹Centro de Radioastronomia y Astrofisica, UNAM, Mexico.

133.04 Long-term Infrared Variability of FU Ori- and EX Lup-type Stars
Agnes Kospal¹, P. Abraham², D. Ardila³
¹Konkoly Obs./Caltech, ²Konkoly Observatory, Hungary, ³Caltech.

133.05 X-ray Variability in the Young Massive Triple θ2 Ori A
Norbert S. Schulz¹, P. Testa¹, D. P. Huenemoerder¹, K. Ishibashi¹, C. R. Canizares¹
¹Kavli Institute for Astrophysics and Space Research, MIT.

133.06D Metallicity-Induced Fragmentation and the Transition from Pop III to Pop II
Britton D. Smith¹, S. Sigurdsson¹
¹Pennsylvania State Univ.

133.07 Quantitative Analysis of Resolved X-ray Emission Line Profiles of O Stars
David H. Cohen¹, M. A. Leutenegger², A. ud-Doula³, S. P. Owocki³
¹Swarthmore College, ²Columbia U., ³Bartol Research Inst., U. Delaware.

Session 134 Recruiting the Next Generation of Physics Teachers
AAPT Invited, Monday, 2:00-3:30pm, 310

Chair, Paul Hickman¹
¹Science Education Consultant.

134.01 Recruiting the Next Generation of Physics Teachers: National Concerns
Theodore Hodapp¹
¹American Physical Society.

Session 135 Student Difficulties with Mathematics in Upper-Division Physics
AAPT Invited, Monday, 2:00-3:30pm, 307-08

Chair, Edward Redish¹
¹University of Maryland.

135.01 Easing the Transition to Upper-division Physics
Corinne Manogue¹, Paradigms in Physics
¹Oregon State University.

135.02 Investigating Student Connections Between Mathematics and Thermal Physics
John R. Thompson¹
¹University of Maine.

135.03 Students’ Construction of Understanding of Abstract Vector Spaces
Thomas J. Bing¹
¹University of Maryland.

Session 136 Physics Teaching Around the World
AAPT Oral, Monday, 2:00-3:30pm, 619

Chair, Gordon Ramsey¹
¹Argonne Nat’l Lab.

136.01 Teaching Gravitational Wave Astronomy in China
Robert J. Stone¹
¹University of Texas-Brownsville.
136.02  
Fifth Global Colloquium on Engineering Education  
Gerhard L. Salinger
t  
National Science Foundation.

136.03  
A Model for Bilingual Physics Teaching: “The Feynman Lectures”  
Heqing W. Metzner\textsuperscript{1}  
\textsuperscript{1}Tangshan Teachers College Physics Department, China.

136.04  
Implementing active-learning strategies to improve physics learning in Latin America  
Hugo Alarcon\textsuperscript{1}, G. Zavala\textsuperscript{1}, R. Fernandez\textsuperscript{2}, J. Benegas\textsuperscript{3}  
\textsuperscript{1}Tecnológico de Monterrey, Campus Monterrey, Mexico, \textsuperscript{2}Universidad Católica del Norte, Chile, \textsuperscript{3}Universidad Nacional de San Luis, Argentina.

136.05  
A Masterclass in Particle Physics for High School Students  
Kenneth Cecire\textsuperscript{1}, T. Entwistle\textsuperscript{2}  
\textsuperscript{1}Hampton University, \textsuperscript{2}Ward Melville High School.

136.06  
Assessing Teaching Med-Nursing Physics Replacing Introductory Physics in Nursing College  
Wen-Ruey Wang\textsuperscript{1}, Y. Lin\textsuperscript{1}, K. Chen\textsuperscript{1}  
\textsuperscript{1}Central Taiwan University of Science and Technology, (CTUST), Taichung, Taiwan.

136.07  
Ten Years of GLAPHI Method Developing Scientific Research Abilities  
Hector R. Vega-Carrillo\textsuperscript{1}  
\textsuperscript{1}Universidad Autonoma de Zacatecas, Mexico.

**Session 137 Undergraduates Research Astronomy and Physics**

AAPT Oral, Monday, 2:00-3:30pm, 616  
Chair, Chris D. Impey\textsuperscript{1}  
\textsuperscript{1}Univ. of Arizona.

137.01  
Demonstration of Electrostatic Orbits in Weightlessness  
John Janeski\textsuperscript{1}, K. Andring\textsuperscript{1}, S. Banerjee\textsuperscript{1}, D. Campbell\textsuperscript{1}, D. Keedy\textsuperscript{1}, B. Hoffmeister\textsuperscript{1}, S. Quinn\textsuperscript{1}  
\textsuperscript{1}Rhodes College.

137.02  
Building the CHEPREO Undergraduate Learning Community  
Laird H. Kramer\textsuperscript{1}, G. O’Brien\textsuperscript{1}, P. Pamela\textsuperscript{1}, J. M. Saul\textsuperscript{1}  
\textsuperscript{1}Florida International University.

137.03  
SiO Maser Monitoring at the University of Minnesota, Morris  
Gordon McIntosh\textsuperscript{1}  
\textsuperscript{1}University of Minnesota, Morris.

137.04  
Correlation of R Cassiopeia’s SiO Maser Properties  
Anne Hayes\textsuperscript{1}, G. McIntosh\textsuperscript{1}  
\textsuperscript{1}University of Minnesota, Morris.

137.05  
Orbital Parameters of R Aquarui  
Gustav Rustan\textsuperscript{1}, G. McIntosh\textsuperscript{1}  
\textsuperscript{1}University of Minnesota, Morris.

137.06  
Superhumps and Period Variability of V795 Her  
Daniel R. Malutich\textsuperscript{1}, R. P. Olenick\textsuperscript{1}, I. B. Voloshina\textsuperscript{2}  
\textsuperscript{1}University of Dallas, \textsuperscript{2}Moscow State University, Russian Federation.

**Professional Concerns of Women in Physics**

Crackerbarrel  
AAPT Crackerbarrel, Monday, 2:00-3:30pm, 615  
Chair, Dean Hudek\textsuperscript{1}  
\textsuperscript{1}Brown University.

**Session 138 Hypervelocity Stars**

Plenary, Monday, 3:40-4:30pm, Ballroom 6  
138.01  
Hypervelocity Stars Ejected from the Galactic Center  
Warren R. Brown\textsuperscript{1}  
\textsuperscript{1}Smithsonian Astrophysical Observatory.

**Session 139 Probing the Gas Content of Galaxy Groups: A Radio Perspective**

Plenary, Monday, 4:40-5:30pm, Ballroom 6  
139.01  
Probing the Gas Content of Galaxy Groups: A Radio Perspective  
Eric M. Wilcots\textsuperscript{1}  
\textsuperscript{1}Univ. of Wisconsin.
**Session 140 Hot Topics in Nanoscience**  
AAPT Invited, Monday, 6:00-8:00pm, 616  

Chair, Melissa Eblen-Zayas\(^1\)  
\(^1\)Carleton College.

140.01 Nanoelectronic Devices - What We Can Do and Why It’s Fun  
Douglas Natelson\(^1\)  
\(^1\)Rice University.

140.02 Atomic Scale Friction and Microscale Machines: These Squeaky Wheels will get no Grease.  
Jacqueline Krim\(^1\)  
\(^1\)North Carolina State University.

140.03 Voyage at the Nanoscale  
Gregory J. Salamo\(^1\)  
\(^1\)University of Arkansas.

---

**Session 141 Learning Sciences and Learning Technologies: A Convergence**  
AAPT Invited, Monday, 6:00-8:00pm, 303  

Chair, S. R. Chaudhury\(^1\)  
\(^1\)Christopher Newport University.

141.01 The Mathematics of Motion in Middle School: Findings from a Large Scale Study  
Jeremy Roschelle\(^1\)  
\(^1\)SRI International.

141.02 Supporting Classroom Interaction with Networked Tablet PCs  
Richard Anderson\(^1\)  
\(^1\)Univ. of Washington.

141.03 Technology-Enhanced Learning in Science (TELS)  
Marcia Linn\(^1\)  
\(^1\)UC, Berkeley.

---

**Session 142 Women Using Physics: Alternative Career Paths**  
AAPT Invited, Monday, 6:00-8:00pm, 615  

Chair, Margaret Hill\(^1\)  
\(^1\)Southeast Missouri State University.

142.01 Reflections on a Career in Radio Science  
Irene C. Peden\(^1\)  
\(^1\)University of Washington.

142.02 Women Using Physics: Alternate Career Paths, The Private Sector  
Jessica Tams\(^1\)  
\(^1\)FUN Technologies.

142.03 Physics in Aerospace and Military Applications  
Hong Tat\(^1\)  
\(^1\)Boeing Company.

---

**Session 143 Electronic Journaling: Fostering Reflection and Building Community**  
AAPT Special, Monday, 6:00-8:00pm, 310  

Chair, Ingrid Novodvorsky\(^1\)  
\(^1\)University of Arizona.

143.01 Connecting Master Teachers to Build a Community of Support for Teachers of Physics  
Paul Hickman\(^1\), M. Fetters\(^2\)  
\(^1\)Science Education Consultant, \(^2\)Western Michigan University.

143.02 Interactive, Collaborative, Electronic Learning Logs in the Physics Classroom  
Chris Gosling\(^1\)  
\(^1\)Saranac Lake High School / SUNY Buffalo State.
Session 144 Bringing Physics by Inquiry to K-12 Classrooms, Part I

AAPT Oral, Monday, 6:00-8:00pm, 211

Chair, Peter Shaffer¹
¹Univ. of Washington.

144.01 Teaching Inquiry Science in the Elementary-school Classroom
Dan Jordan¹, D. L. Messina², L. C. McDermott²
¹Olympic View Elementary School, ²University of Washington.

144.02 Bringing Inquiry Science to K-5 Classrooms
Paula L. Schachtel¹, D. L. Messina², L. C. McDermott²
¹Seattle Public Schools, ²University of Washington.

144.03 Teaching Inquiry Science in the Middle-school Classroom
Eleanor I. Martino¹, D. L. Messina², L. C. McDermott²
¹Seattle Country Day School, ²University of Washington.

144.04 Assessing an inquiry-oriented mechanics unit for high school students
Michael P. O’Byrne¹, M. R. Stetzer², L. C. McDermott²
¹Interlake High School, ²University of Washington.

144.05 Adapting an Inquiry-oriented Kinematics Curriculum for High School Students*
Matthew D. Randall¹, M. R. Stetzer², L. C. McDermott²
¹College of Education, University of Washington, ²University of Washington.

144.06 An Inquiry-oriented Mechanical Waves Unit for High School Students*
Thomas J. Knapton¹, R. G. Piccioni¹, M. Kryjevskaia², L. C. McDermott²
¹Garfield High School, ²University of Washington.

144.07 Adapting an electric circuits curriculum for the high school classroom
Scot A. Hovan¹, M. R. Stetzer², L. C. McDermott²
¹Mahtomedi High School, ²University of Washington.

Session 145 Students’ Use of Mathematics in Physics Contexts

AAPT Oral, Monday, 6:00-8:00pm, 307-08

Chair, Francis Tam¹
¹Frostburg State Univ.

145.01 Do We Need Remedial College Math Courses?
Anne O. Hughes¹, D. Khatri¹
¹University of the District of Columbia.

145.02 Equations In Science: Are They Hindering the Development of Reasoning Skills?
Suzanne White Brahmia¹
¹Rutgers University.

145.03 Connecting Math and Motion: A Covariational Approach
Robert J. Culbertson¹, A. S. Thompson¹
¹Arizona State University.

145.04 Principles of Covariation in the Introductory Physics Classroom
Adam S. Thompson², R. J. Culbertson¹
¹Arizona State University.

145.05 Teaching Kinematics as a Way to understand Calculus and Graphs
Genaro Zavala¹, H. Alarcon¹
¹Tecnologico de Monterrey, Mexico.

145.06 Student Understanding of Probability and Introductory Statistical Physics in Upper-division Courses on Thermal Physics
Michael E. Loverude¹
¹California State University Fullerton.

145.07 Student Solutions to First-Order Differential Equations in Intermediate Mechanics
Michael C. Wittmann¹, K. E. Black¹
¹University of Maine.

145.08 Using Mathematics to Inform Conceptual Reasoning about Quantum Tunneling
Jeffrey T. Morgan¹, M. C. Wittmann²
¹University of Northern Iowa, ²University of Maine.
Session 146 Apparatus for Astronomy Education
AAPT Poster, Monday, 6:00-8:00pm, 617

Chair, M. A. H. Klassen1
1Swarthmore College.

146.01 Teaching Astronomy at Columbus State University using Small Radio Telescopes
Zodiac T. Webster1
1Columbus State University.

146.02 Experimental and Theoretical Challenges of Creating Electrostatic Orbits in Weightlessness
Kevin W. Andring1, B. Hoffmeister1, S. Banerjee1, J. Janeski1, S. Quinn1, D. Keedy1, D. Campbell1
1Rhodes College.

146.03 Using Microsoft PowerPoint as an Astronomical Image Analysis Tool
Bernhard Beck-Winchatz1
1DePaul University.

146.04 Simulating the Nature of Science: Cosmology Distilled
Tim Erickson1
eeps media.

CTIO Blanco Telescope Dark Energy Camera
AAS Splinter Meeting, Monday, 6:00-7:30pm, 611

The 0.5 Gpixel Dark Energy Camera is expected to be commissioned on the Blanco telescope in 2010. With a 2 degree diameter field and red-sensitive CCDs it will provide a major increase in capability over the present Mosaic Imager. The camera will come with SDSS g,r,i,z filters which will be used to carry out the Dark Energy Survey, this can be thought of as a “super Sloan” imaging survey of 5000 sq. degrees of the southern sky. In this meeting the capabilities of the camera and the data products resulting from the Dark Energy Survey will be briefly described. Community comment is sought: in particular input is desired on what additional filters should be provided, so that a priority list can be developed.

Chair, Alistair R. Walker1
1CTIO.

Future of NASA Scientific Ballooning in Astronomical Research
AAS Splinter Meeting, Monday, 6:00-8:00pm, 6A

Since the dawn of space science, scientific ballooning has been a key research tool and advances in the capability of ballooning can keep it at the forefront of research. Balloon payloads can incorporate cutting edge technologies that are not yet ready for a space mission. Balloon platforms provide a cost effective means to test and demonstrate these new technologies in a space environment. Ballooning has often been the pathfinder major space missions and made early results available years in advance. Balloon payloads have also been one of the most important training grounds for the next generation of instrumentalists. This session is to update the community on new developments in the balloon program and seek input from the community on the future for this important community resource.

Chair, Jack Tueller1
1NASA’s GSFC.

Meet JWST Reception and Talks
AAS Town Hall Meeting, Monday, 6:15-9:00pm, 6E

Northrop Grumman, Goddard Space Flight Center, and the Space Telescope Science Institute are pleased to invite you to a reception and series of talks to allow you to meet many of the key people responsible for the development of the James Webb Space Telescope (JWST) and to hear them discuss compelling aspects of the mission. The reception will be held in the lobby of Room 6E at 6:15-7:00pm Monday evening, January 8. The JWST talks are from 7-8pm, and then the reception continues from 8-9pm. The organized presentations will cover JWST’s scientific promise and technology challenges. These will include introductions by Maureen Heath, Northrop Grumman VP for Civil Space, and Ed Weiler, GSFC Director. John Mather, JWST Senior Project Scientist and Nobel Laureate, will speak on lessons learned from COBE and the Science of JWST. Bob Giampaoli, Northrop Grumman Chief Engineer, will describe the challenges of deploying the JWST optics and sunshield. Mark Clampin, Observatory Project Scientist, will present the status of the key enabling technologies. Comments and questions will be welcome. Tours of the JWST full scale model will be held throughout the four day AAS meeting. Tours will not be given during the Meet JWST Event.

Chair, Peter Stockman1
1STScI.
**Graduate Student - Employer Networking**
AAS Event, Monday, 6:30-7:30pm, N. Galleria Lobby - 2nd Floor
Graduate students and those hoping to recruit them for employment in research, academia or industry are welcome to attend this evening networking event. The chair of the Employment Committee will be present to discuss the activities of the employment committee and how graduate students can benefit from them as well as briefly introducing the recruiters present. Tickets are required and are available free of charge to grad students and recruiters through the meeting registration form and will be placed in their registration envelope. Light snacks and refreshments will be provided. Organizations hoping to recruit graduate students may reserve poster display for a small fee. Contact aas@aas.org for further details.

**Chair, Anita Krishnamurthi**
1NASA’s GSFC.

**Herschel: The Coming of Observing Opportunities**
AAS Splinter Meeting, Monday, 7:00-9:30pm, 605-07
The NASA Herschel Science Center is hosting this session to provide up to date information on the capabilities and status of Herschel, the 4th Cornerstone Mission of the European Space Agency, with NASA participation. The first announcement of opportunity for Herschel observing proposals -- Key Programs -- will be issued soon. This opportunity will be discussed, as will the role of the NASA Herschel Science Center for US-based investigators, including data analysis funding for successful proposals.

**Chair, William B. Latter**
1IPAC/Caltech.

**Session 147 Supernova Neutrino Astrophysics**
Plenary, Tuesday, 8:30-9:20am, Ballroom 6

147.01 **Supernova Neutrino Astrophysics and Associated Nucleosynthesis**
Wick Haxton
1University of Washington.

**Session 148 Poster Session III**
AAPT Poster, Tuesday, 9:20am-6:30pm, Exhibit Hall 4

148.01 **Exploring Systematic Error With Digital Video**
M. A. H. Klassen, P. C. Bloom
1Swarthmore College, 2North Central College.

148.02 **100% Online College Physics at Chemeketa Community College**
Erik L. Jensen
1Chemeketa Community College.

148.03 **Effect of a Web-based Tutoring System on Introductory Physics Students**
Tom Carter, T. Smith, M. Wittman
1College of DuPage, 2University of Maine.
148.04 Bibliographic Research Projects
Carlos Delgado
1Community College of Southern Nevada.

148.05 Characteristics of the General Physics student population.
Gary L. Hunt
1Boise State University.

148.06 Intervention activities to improve the reasoning ability of students at risk in introductory physics
Vincent P. Coletta1, J. Phillips
1Loyola Marymount University.

148.07 Bachelor of Science in Medical Physics Program at Ryerson Univ.
Tetyana Antimirova
1Ryerson University, Canada.

148.08 Does it Matter Where You Sit?
Brian A. Pyper1, S. Thompson1
1BYU-Idaho.

148.09 Peer-assessment of Homework Using Rubrics
Sahana Murthy
1Massachusetts Institute of Technology.

148.10 Seeing Physics Outside the Classroom Through Journal Writing
J. Johanna Hopp
1University of Wisconsin Stout.

148.11 Path Integral Understanding in the Context of the Electromagnetic Theory
Maria D. Gonzalez
1NMSU.

148.12 Using Case Studies in Calculus-based Physics
Debora M. Katz
1USNA.

148.13 Results From the CHEPREO Undergraduate Learning Community
Laird H. Kramer1, G. O’Brien1, P. Pamela1, J. M. Saul
1Florida International University.

148.14 Preparation for Physics Redux
Edward Adelson
1The Ohio State University.

148.15 Fostering Critical Thinking in a First Year Seminar Course
Jennifer Blue1, B. A. Taylor1, J. Yarrison-Rice
1Miami University.

148.16 Crash Videos Spark Inelastic Collisions Interest
George R. Bart
1Truman College.

148.17 Interactive Low Tech Lecture Demos for Introductory Physics
Marina M. Milner-Bolotin
1University of British Columbia, Canada.

148.18 Using Students’ Design Tasks to Develop Scientific Abilities*
Xueli Zou
1California State University, Chico.

148.19 Reflection Shadows: An Unusual Example for Elementary Ray Optics
Lee C. Widmer
1University of Cincinnati.

148.20 The Effect of Uncertainty Focused Laboratory Instruction on Undergraduate Students
Kwangmoon Shin1, J. Lee1, Y. Kang1, S. Lee1
1Seoul National University, Republic of Korea.

148.21 Measuring Systematic Errors With Curve Fits
Mark E. Rupright
1Florida Atlantic University.

148.22 Opto-Mechanical Integration
Jenny Magnes1, D. Burt1, J. Hartke
1U.S. Military Academy.
148.23  Extending the Rubber Band Lab for Upper Division Thermodynamics Courses.
Stephen C. Hall1, K. T. Gimre1, K. H. Gimre1, E. A. Townsend1
1Pacific University.

148.24  Teaching Electromagnetic Waves in College Physics Laboratory
Roman Y. Kezerashvili1, L. Leng1
1Physics Department, New York City College of Technology, CUNY.

148.25  Sensitive Altimeter; A Basic Electronics Project for Undergraduates
Harry E. Bates1, J. Klupt1, C. Bolling1, M. J. Earle1, B. P. Hofmann1, J. Osman1, J. L. Sunderland1, M. Vincent1
1Towson University.

148.26  Classical Mechanics Laboratory
Juliet W. Brosing*
1Pacific University.

148.27  Static Friction - Unsung Hero of Everyday Introductory Biomechanics
Nancy Beverly1
1Mercy College.

148.28  The Scientific Method in a Cup
Bradley W. Carroll1, M. B. More1
1Weber State University.

148.29  Building a Gravitational Analogy of Electric Circuits Using LEGO®
James J. Butler1, E. A. Townsend2
1Pacific University, 2National Institute of Standards and Technology.

148.30  A 2006 SPS Summer Intern’s Experiences, Reflections, and Future Ambitions
Ann Deml1
1University of Wisconsin - River Falls.

Session 149 AGNs, QSOs and Active Galaxies 2
AAS Poster, Tuesday, 9:20am-6:30pm, Exhibit Hall 4
149.08 Modeling of IR Emission from Externally Heated Dust Clouds
Moshe Elitzur1, A. E. Kimball2, Z. Ivezic3, M. Nenkova4
1Univ. of Kentucky, 2Univ. of Washington, 3Seneca College, Canada.

149.09 Red AGNs: Dust Absorption or Intrinsic Continuum Difference?
Monica Young1, M. Elvis2, G. Risaliti3
1Boston Univ., CfA, 2CfA, 3INAF–Oss. Astronomico di Arcetri.

149.10 Decomposing Dusty Galaxies: Probing the Nature of the Obscured
Energy Source in ULIRGs
Jason A. Marshall1, L. Armus2, V. Charmandaris3, H. Spoon1, V. Desai4, T. L. Herter1
1Cornell Univ., 2Spitzer Science Center, 3Univ. of Crete, Greece, 4Caltech.

149.11 Gemini Observations of Mid-IR Emission from the Nucleus of
Centaurus A
James T. Radomski1, C. Packham2, N. A. Levenson1, E. Perlman1, L. L. Leeuw3, H. Matthews4, R. Mason7, J. M. De Buizer1, C. M. Telesco2, M. Orduna3
1Gemini Obs., Chile, 2U. Florida, 3U. Kentucky, 4U. Maryland, Baltimore County, 5Rhodes U., South Africa, 6HIA, Canada, 7Gemini Obs.

149.12 Characterization of the Baldwin Effect for AGN in the Mid Infrared
Mark Keremedjiev1, L. Hao2
1University of Florida, 2Cornell University.

149.13 Optical Color Selection of Faint AGN in the COSMOS Field
Caitlin M. Casey1, C. D. Impey2
1Steward Observatory, University of Arizona.

149.14 Preliminary SEDs of Type1 AGNs of COSMOS Survey
Heng Hao1, M. Elvis2, D. English2, J. R. Trump3, P. Capak1, M. Brusa5, V. Mainieri5, M. Salvato4, S. Gezari4, D. Schiminovich6, N. Scoville4, C. Impey1, J. Huchra1
1Harvard Univ., 2CfA, 3U. Arizona, 4Caltech, 5MPI fur Extraterrestrische Physik, Germany, 6Columbia U.

149.15 The Spectral Energy Distributions of Normal & Weakly-Active Galaxies
John K. Parejko1, A. Constantin1, M. S. Vogeley1, F. Hoyle2
1Drexel Univ., 2Widener Univ.

149.16 Multiwavelength Properties of Radio-loud Quasars
Brendan P. Miller1, N. Brandt1, D. P. Schneider1
1Penn State Univ.

149.17 Multiwavelength Observations of the Dwarf Seyfert 1 Galaxy POX 52
Carol E. Thornton1, A. J. Barth1, L. C. Ho1, R. E. Rutledge3, J. E. Greene4
1UC Irvine, 2Carnegie Observatories, 3McGill University, Canada, 4Princeton University.

149.18 Measuring Accelerations in Water Vapor Megamasers using the
Hough Transform
Destry R. Saul1, J. Braatz2
1UC Berkeley / NRAO, 2NRAO.

149.19 Time Variation in OH Megamaser Emission and Absorption toward
Radio Supernovae in Arp 220
Katherine R. de Kleer1, C. J. Lonsdale1, P. J. Diamond2, C. J. Lonsdale1, G. Smith1, H. Throll1
1MIT Haystack Observatory, 2Jodrell Bank Observatory, United Kingdom, 3California Institute of Technology, 4University of California, San Diego.

149.20 Triggering AGN Through Gravitational Perturbations: An Example
of a Student Project Using SDSS-DR5
Richard F. Gelderman1, S. McMurray1, S. Smith1
1Western Kentucky Univ.

Session 150 And Yet More Supernovae
AAS Poster, Tuesday, 9:20am-6:30pm, Exhibit Hall 4

150.01 Optical/UV Properties of High-z Supernovae Ia
Ryan J. Foley1, ESSENCE Collaboration
1UC, Berkeley.

150.02 Circles on the Sky: Confirmation of a Light Echo from the Type Ia
Supernova 1995E
Peter M. Garnavich1, J. L. Quinn2, K. Krisciunas1
1Univ. of Notre Dame, 2Central Michigan University.
150.03 Direct Analysis of Spectra of the Unusual Type Ib Supernova 2005bf
Jerod T. Parrent\textsuperscript{1}, D. Branch\textsuperscript{1}, M. Troxel\textsuperscript{1}, D. Casebeer\textsuperscript{1}, D. Jeffery\textsuperscript{1}, E. Baron\textsuperscript{1}, A. V. Filippenko\textsuperscript{2}
\textsuperscript{1}Univ. of Oklahoma, \textsuperscript{2}Univ. of California Berkeley.

150.04 Uncertainties in Supernova Yields
Patrick A. Young\textsuperscript{1}, C. L. Fryer\textsuperscript{1}
\textsuperscript{1}Los Alamos National Laboratory.

150.05 Determining the Type, Redshift, and Phase of a Supernova Spectrum
Stephane Blondin\textsuperscript{1}, M. E. Salvo\textsuperscript{2}, J. L. Tonry\textsuperscript{3}
\textsuperscript{1}Harvard-Smithsonian, CfA, \textsuperscript{2}RSAA, ANU, Australia, \textsuperscript{3}IfA.

150.06 Generating Pulsar Spin in Supernovae
John M. Blondin\textsuperscript{1}, A. Mezzacappa\textsuperscript{2}
\textsuperscript{1}North Carolina State Univ., \textsuperscript{2}Oak Ridge National Laboratory.

150.07 Near-Explosion Lightcurves of SNe Ia from the SuperMACHO Survey
Arti Garg\textsuperscript{1}, C. W. Stubbs\textsuperscript{1}, P. Challis\textsuperscript{1}, W. Wood-Vasey\textsuperscript{1}, S. Blondin\textsuperscript{1}, M. E. Huber\textsuperscript{1,2}, K. Cook\textsuperscript{2}, S. Nikolaev\textsuperscript{2}, A. Rest\textsuperscript{1}, R. Smith\textsuperscript{1}, K. Olsen\textsuperscript{1}, N. B. Suntzeff\textsuperscript{1}, C. Aguiler\textsuperscript{1}, J. L. Prieto\textsuperscript{2}, A. Becker\textsuperscript{2}, A. Miceli\textsuperscript{2}, G. Miknaitis\textsuperscript{2}, A. Clocchiatti\textsuperscript{2}, D. Minniti\textsuperscript{2}, L. Morelli\textsuperscript{2}, D. L. Welch\textsuperscript{2}
\textsuperscript{1}Harvard Univ., \textsuperscript{2}LLNL, \textsuperscript{3}CTIO/NOAO, Chile, \textsuperscript{4}Texas A and M, \textsuperscript{5}Ohio State U., \textsuperscript{6}U. Washington, \textsuperscript{7}Fermi National Accelerator Lab., \textsuperscript{8}Univ. Catolica, Chile, \textsuperscript{9}McMaster Univ., Canada.

150.08 Imaging and Spectroscopy of Ancient Supernovae Light Echoes in the LMC
Douglas L. Welch\textsuperscript{1}, A. Rest\textsuperscript{1}, R. C. Smith\textsuperscript{1}, K. Olsen\textsuperscript{1}, A. Zenteno\textsuperscript{2}, C. Aguiler\textsuperscript{2}, G. Damke\textsuperscript{2}, N. B. Suntzeff\textsuperscript{2}, T. Matheson\textsuperscript{1}, M. Bergmann\textsuperscript{2}, C. Stubbs\textsuperscript{2}, A. Garg\textsuperscript{2}, P. Challis\textsuperscript{2}, A. C. Becker\textsuperscript{2}, A. Miceli\textsuperscript{2}, R. Covarrubias\textsuperscript{2}, G. A. Miknaitis\textsuperscript{2}, J. Prieto\textsuperscript{2}, M. Huber\textsuperscript{10}, S. Nikolaev\textsuperscript{10}, K. H. Cook\textsuperscript{10}, D. Minniti\textsuperscript{10}, A. Clocchiatti\textsuperscript{10}, L. Morelli\textsuperscript{10}, A. Newman\textsuperscript{12}
\textsuperscript{1}McMaster Univ., Canada, \textsuperscript{2}CTIO/NOAO, Chile, \textsuperscript{3}TAMU, \textsuperscript{4}NOAO, \textsuperscript{5}Gemini, Chile, \textsuperscript{6}Harvard, \textsuperscript{7}U. Washington, \textsuperscript{8}FNAL, \textsuperscript{9}Ohio State, \textsuperscript{10}IGPP/LNL, \textsuperscript{11}PUC, Chile, \textsuperscript{12}Washington U.

150.09 The Discovery of an Eruptive Variable in the LMC with Light Echoes
R. Chris Smith\textsuperscript{1}, A. Rest\textsuperscript{1}, N. B. Suntzeff\textsuperscript{2}, D. L. Welch\textsuperscript{1}, G. Damke\textsuperscript{1}, A. Zenteno\textsuperscript{1}, C. Stubbs\textsuperscript{1}, A. Garg\textsuperscript{1}, A. Newman\textsuperscript{1}, A. Becker\textsuperscript{1}, G. Miknaitis\textsuperscript{1}, A. Miceli\textsuperscript{1}, K. H. Cook\textsuperscript{1}, S. Nikolaev\textsuperscript{1}, L. Morelli\textsuperscript{1}, D. Minniti\textsuperscript{1}, A. Clocchiatti\textsuperscript{1}, J. Prieto\textsuperscript{10}
\textsuperscript{1}NOAO/CTIO, \textsuperscript{2}Texas A&M University, \textsuperscript{3}McMaster University, Canada, \textsuperscript{4}Harvard University, \textsuperscript{5}Washington University, \textsuperscript{6}University of Washington, \textsuperscript{7}Fermilab, \textsuperscript{8}LLNL, \textsuperscript{9}Pontificia Universidad Catolica de Chile, Chile, \textsuperscript{10}Ohio State University.

150.10 A Survey for Ancient Supernova Light Echoes in the Milky Way Galaxy
Armin Rest\textsuperscript{1}, N. B. Suntzeff\textsuperscript{2}, R. C. Smith\textsuperscript{1}, D. L. Welch\textsuperscript{1}, G. Damke\textsuperscript{1}, A. Zenteno\textsuperscript{1}, C. Stubbs\textsuperscript{1}, A. Garg\textsuperscript{1}, P. Challis\textsuperscript{1}, A. Newman\textsuperscript{1}, A. C. Becker\textsuperscript{1}, G. A. Miknaitis\textsuperscript{1}, A. Miceli\textsuperscript{1}, K. H. Cook\textsuperscript{1}, M. Huber\textsuperscript{1}, S. Nikolaev\textsuperscript{1}, L. Morelli\textsuperscript{1}, D. Minniti\textsuperscript{1}, A. Clocchiatti\textsuperscript{1}, J. Prieto\textsuperscript{10}
\textsuperscript{1}NOAO/CTIO, \textsuperscript{2}Texas A&M University, \textsuperscript{3}McMaster University, Canada, \textsuperscript{4}Harvard, \textsuperscript{5}Washington University, \textsuperscript{6}University of Washington, \textsuperscript{7}LLNL, \textsuperscript{8}Pontificia Universidad Catolica de Chile, Chile, \textsuperscript{9}Ohio State University.

150.11 Shock Wave Stability in Core Collapse Supernovae
F. D. Swesty\textsuperscript{1}, E. S. Myra\textsuperscript{1}
\textsuperscript{1}SUNY-Stony Brook.

150.12 Galactic Analogs of the Rings around SN1987A and the Implication that LBVs are Supernova Progenitors
Nathan Smith\textsuperscript{1}
\textsuperscript{1}University of California, Berkeley.

150.13 Light Curves of Supernova/Gamma-Ray Bursts
Dean L. Richardson\textsuperscript{1}
\textsuperscript{1}Denison Univ..

150.14 Subluminous Type Ia Supernovae in the Supernova Legacy Survey
Santiago Gonzalez\textsuperscript{1}, A. Howell\textsuperscript{1}, M. Sullivan\textsuperscript{1}, A. Conley\textsuperscript{1}, R. Carlberg\textsuperscript{1}, Supernova Legacy Survey
\textsuperscript{1}University of Toronto, Canada.
150.15 **Optical Observations of SN 1999aa**  
Thea N. Steele, R. J. Foley, A. V. Filippenko, W. Li  
1University of California, Berkeley.

150.16 **The Nearby Supernova Factory**  
1LBNL., 2Dept. of Physics, Yale, 3Centre de Recherche Astronomique de Lyon, France, 4Lab. de Physique Nucléaire et des Hautes Energies, France, 5Inst. de Physique Nucléaire de Lyon, France.

150.17 **Verification Tests for Numerical 2-D Radiation-Hydrodynamics as Applied toa Core-Collapse Supernova Code**  
Eric S. Myra, F. D. Swesty  
1SUNY-Stony Brook.

150.18 **Propagation of the First Flames in Type Ia Supernovae**  
L. J. Dursi, M. Zingale  
1Univ. Of Toronto, Canada, 2SUNY Stony Brook.

150.19 **The Spatial Correlation of Type Ia Supernovae with Local StarFormation as Measured with GALEX**  
James D. Neill, GALEX Science Team  
1California Institute of Technology.

150.20 **Detailed Spectral Analysis of the Type Ib Supernova 1999dn**  
Wesley R. Ketchum, E. Baron  
1University of Oklahoma.

150.21 **The Laminar Flame Speedup by Neon-22 Enrichment in White Dwarf Supernovae**  
David A. Chamulak, E. F. Brown, F. X. Timmes  
1Department of Physics and Astronomy and the Joint Institute for Nuclear Astrophysics, Michigan State University, 2Thermonuclear Applications, X-2, Los Alamos National Laboratory.

150.22 **Steady-State Modeling and Possible Detection of HCl in Eta Carinae's -513 km/s Ejecta**  
Alissa S. Bans  
1Maria Mitchell Observatory.

150.23 **A Hubble Space Telescope WFPC-2 Optical Survey of Dust in the Crab Nebula**  
Allison M. Loll, J. Hester, R. Sankrit, W. Blair  
1Arizona State Univ., 2U.C. Berkeley, 3Johns Hopkins University.

150.24 **Optical Photometry of Supernovae Using the KAIT Pipeline**  
Mohan Ganeshalingam  
1UC Berkeley Astronomy Dept.

150.25 **Multidimensional Simulations of Mixing in Zero-Metallicity Supernovae**  
Candace M. Church, A. Heger, S. Woosley  
1UC, Santa Cruz, 2Los Alamos National Laboratory.

**Session 151 Binary Stars**  
AAS Poster, Tuesday, 9:20am-6:30pm, Exhibit Hall 4

151.01 **A Radial Velocity Study of Hot Subdwarf Stars with Composite Spectra**  
Richard A. Wade, M. A. Stark  
1Penn State Univ., 2Univ. Wyoming.

151.02 **The Eclipsing Binary MY Cygni**  
Rebecca Tucker, J. R. Sowell, R. M. Williamson  
1Georgia Tech, 2Emory.

151.03 **Analysis of the Spitzer/MIPS24 Light Curve of the M-Dwarf Eclipsing Binary GU Boo**  
Kaspar von Braun, G. T. van Belle, D. R. Ciardi, S. Wachter, D. W. Hoard  
1Caltech.

151.04 **Measurements of Position Angle and Separation of Selected Binary Stars**  
Rafael J. Muller, J. C. Cersosimo, V. J. Miranda, C. Martinez, D. Centeno, L. Rivera  
1Univ. of Puerto Rico, Humacao.
151.05  A Light Curve Study and Analysis of the Short-Period Contact Binary XZ Leonis
Jeffrey J. Massura¹, B. J. Hrivnak¹, W. Lu¹
¹Valparaiso University.

151.06  Photometric Investigation of the Eclipsing Binary Star BX Dra
Shaukat N. Goderya¹, T. Sykes¹
¹Tarleton State Univ.

151.07  FUSE Observations of the Be/X-ray Binary 4U 1145-617(V801 Cen, HD1022567)
Rosina Iping¹, G. Sonneborn¹
¹NASA's GSFC.

151.08  Massive Star Multiplicity: The Cepheids U Aql and W Sgr
Nancy R. Evans¹, D. Massa²
¹SAO, ²(NASA's GSFC, SGT, Inc.

151.09  Photometric Studies of Two Active Contact Binaries: GSC 2766-0775 and GSC 0619-0232
Ronald G. Samec¹, H. A. Chamberlain¹, C. M. Labadorf¹, R. McKenzie¹, W. Van Hamme², D. R. Faulkner³
¹Bob Jones Univ., ²Florida International Univ., ³Univ. of S. Carolina.

151.11  HST Observations of Astrophysically Important Visual Binaries
Gail Schaefer¹, H. E. Bond¹, M. Barstow², M. Burleigh¹, R. L. Gilliland¹, T. M. Girard¹, D. H. Gudehus³, J. B. Holberg², E. Nelan¹
¹Space Telescope Science Institute, ²University of Leicester, United Kingdom, ³Yale University, ⁴Georgia State University Research Foundation, ⁵University of Arizona.

151.12  The Light Curve and Parameters of Eclipsing Binary System FL Orionis
Daniel B. Caton¹, A. B. Smith¹
¹Appalachian State Univ.

151.13  Five New Low-Mass Eclipsing Binary Systems
Jeffrey L. Coughlin¹, M. López-Morales², J. S. Shaw³
¹Emory University, ²Carnegie Institution of Washington, ³University of Georgia.

151.14  Light Curve Analysis for W UMa-Type Eclipsing Binary Star Systems
Scott Henderson¹, N. Peach¹, T. Olsen¹
¹Lewis & Clark College.

151.15  Orbital Parameters of R Aquarii
Gustav Rustan¹, G. McIntosh¹
¹University of Minnesota, Morris.

Session 152 Extrasolar Planets V: Host Stars
AAS Poster, Tuesday, 9:20am-6:30pm, Exhibit Hall 4

152.01  Investigating the Rotation Periods of Exoplanet Host Stars
Elaine K. Simpson¹, S. Baliunas¹, G. Henry²
¹Harvard-Smithsonian, CfA, ²Tennessee State University.

152.02  Atmospheric Properties of Brown Dwarfs
Lauren J. McCarthy¹, K. L. Cruz²
¹Barnard College/AMNH, ²AMNH.

152.03  Determining Stellar Parameters With a Fixed Delay Interferometer
Roger Cohen¹, S. Mahadevan¹, J. Ge¹
¹University of Florida.

152.04  Characterization of Gravitational Microlensing Planetary Host Stars
David P. Bennett¹, J. Anderson², B. S. Gaudi³
¹Univ. of Notre Dame, ²Rice University, ³The Ohio State University.

Session 153 GLAST
AAS Poster, Tuesday, 9:20am-6:30pm, Exhibit Hall 4

153.01  The Gamma-ray Large Area Space Telescope (GLAST) Mission
Steven M. Ritz¹, P. F. Michelson², C. Meegan³, J. E. Grindlay⁴, GLAST Mission Team
¹GSFC & U. of MD, ²Stanford U., ³MSFC and NSSTC, ⁴Harvard U.

153.02  The Large Area Telescope (LAT) on the Gamma-ray Large Area Space Telescope (GLAST)
Toby H. Burnett¹, GLAST LAT Team
¹University of Washington.
TUESDAY Events, Sessions and Paper Titles

153.03  GLAST Large Area Telescope Multiwavelength Studies: An Invitation to Coordinated Observations
        Kent S. Wood¹, D. J. Thompson², R. A. Cameron³, GLAST Team
        ¹NRL, ²NASA-GSFC, ³SLAC.

153.04  Gamma-Ray Pulsar Candidates for GLAST
        David J. Thompson¹, D. A. Smith¹, D. Dumora¹, L. Guillemot¹, D. Parent¹, T. Reposeur¹, J. E. Grove¹, R. W. Romani¹, S. E. Thorsett¹,
        GLAST LAT Collaboration
        ¹NASA’s GSFC, ²CEN Bordeaux-Gradignan, France, ³NRL, ⁴Stanford,

153.05  Studying Gamma-ray Blazars with the GLAST-LAT
        Benoit Lott¹, LAT Blazar Science Working Group
        ¹SLAC/CENBG.

153.06  Prospects for Observations of Microquasars with GLAST
        Richard Dubois¹
        ¹Stanford Linear Accelerator Center.

153.07  Observing GRBs with the GLAST LAT Telescope
        Julie E. McEnery¹, GLAST LAT GRB science working group
        ¹NASA’s GSFC.

153.08  Future GLAST Observations of Supernova Remnants and Pulsar Wind Nebulae
        Stefan Funk¹, GLAST LAT Collab. Pulsars, SNR and Plerions group
        ¹SLAC.

153.09  GLAST Large Area Telescope Performance Monitoring & Calibrations
        Anders W. Borgland¹
        ¹SLAC.

153.10  The GLAST LAT Instrument Science Operations Center
        Robert A. Cameron¹, GLAST LAT ISOC
        ¹Stanford Univ..

153.11  GLAST User Support
        David L. Band¹, GLAST Science Support Center
        ¹University of Maryland, Baltimore County.

153.12  The GLAST Science Support Center
        Thomas E. Stephens¹, GLAST Science Support Center
        ¹NASA’s GSFC/RSIS.

153.13  GLAST Data Access and Analysis Software
        Donald J. Horner¹, GLAST Science Support Center
        ¹NASA’s GSFC.

153.14  Beyond the Event Horizon: Education with Black Holes
        Sarah Silva¹, P. Plait¹, L. Cominsky¹
        ¹Sonoma State Univ. NASA GLAST E/PO.

153.15  On the Problem of Detecting Quantum-Gravity Based Photon Dispersion in Gamma-ray Bursts
        Jeffrey D. Scargle¹, J. P. Norris², J. T. Bonnell³
        ¹NASA/Ames Research Center, ²University of Denver, ³NASA/GSFC/USRA.

Session 154 Ground-Based Instrumentation III
AAS Poster, Tuesday, 9:20am-6:30pm, Exhibit Hall 4

154.01  Pisgah Astronomical Research Institute
        J. D. Cline¹, M. Castelaz², D. Clavier³
        ¹Pisgah Astronomical Research Inst.

        James B. Battat¹, T. W. Murphy³, E. G. Adelberger³, C. D. Hoyle³, R. J. McMillan³, E. Michelsen³, K. Nordtvedt³, A. Orin³, C. W. Stubbs³, H. E. Swanson³
        ¹Harvard Univ., ²University of California San Diego, ³University of Washington, ⁴Apache Point Observatory, ⁵Northwest Analysis.

154.03  The McDonald Observatory Skycam Project
        Michael A. Gully-Santiago¹
        ¹Boston University.
154.04 ALE: Astronomical LIDAR for Extinction
Peter C. Zimmer¹, J. T. McGraw¹, G. Gimmestad², D. Roberts³, J. Stewart³, M. Dawsey¹, J. Fitch¹, J. Smith¹, A. Townsend¹, B. Black¹
¹Univ. of New Mexico, ²Georgia Tech Research Institute, ³Univ. of Arizona.

154.05 A GRB Optical Afterglow Automatic Response Telescope on Skynet
Adam B. Smith¹, D. B. Caton¹, L. Hawkins¹
¹Appalachian State Univ.

154.06 A New Sky Brightness Monitor
David L. Crawford¹, D. McKenna²
¹IDA, ²Vatican Observatory.

154.07 Brightness of Clouds at Night over a City
R. H. Garstang¹
¹Univ. of Colorado.

154.08 Performance of the Visiting Instrument TEXES on Gemini North
Andrew J. Kruger¹, J. H. Lacy², D. T. Jaffe², M. J. Richter¹, T. K. Greathouse¹, M. Bitner², P. Segura³, W. Moller³, T. R. Geballe³, K. Volk²
¹Dept. of Physics, University of California, ²Dept. of Astronomy, U. Texas, ³LPI, ³McDonald Obs., U. Texas, ³Gemini Obs..

154.09 bHROS: Year One
Steven J. Margheim¹
¹Gemini Observatory, Chile.

154.10 The Gemini Planet Imager Apodized Pupil Lyot Coronagraph
Remi Soummer¹, A. Sivaramakrishnan¹, B. R. Oppenheimer¹, B. A. Macintosh², GPI team
¹American Museum of Natural History, ²LLNL.

154.11 A Proposed GLAO System for Gemini
David R. Andersen¹, Gemini GLAO Feasibility Study Team
¹Herzberg Institute of Astrophysics, Canada.

154.12 Preliminary Optical and Mechanical Designs for a 2.2 Degree Diameter PrimeFocus Corrector for the Blanco 4 Meter Telescope
Stephen M. Kent¹, R. Bernstein¹, B. Bigelow², F. Leger¹, A. Stefanik¹, T. Abbott¹, D. Brooks¹, P. Doel¹, B. Flaugher¹, M. Gladders³, A. Walker¹, S. Worswick¹
¹Fermi Nat’l. Accelerator Lab., ²U. of Michigan, ³CTIO/AURA, Chile, ⁴University College London, United Kingdom, ⁵U. of Chicago.

154.13 Observing Techniques with the IRMOS MEMS Spectrometer
John W. MacKenty¹, M. A. Greenhouse², R. G. Ohl³, M. Robberto¹
¹STScI, ²NASA/GSFC.

154.14 Astrometric Calibration of Digitized Wide-Field Photographic Plates
Peter B. Boyce¹, P. N. Truong¹
¹Maria Mitchell Association.

154.15 2.1 meter (82 inch) Slip Ring By-Pass Project
Corby B. Bryan¹
¹Texas Tech University.

Session 155 Observations & Models of Extragalactic LMXBs
AAS Poster, Tuesday, 9:20am-6:30pm, Exhibit Hall 4

155.01 Low-Mass X-ray Binary Models for NGC3379 and NGC4278
Tassos Fragos¹, V. Kalogera¹, K. Belczynski², D. Kim³, G. Fabbiano⁴, L. Angelini⁵, R. L. Davies⁶, J. S. Gallagher⁷, A. R. King⁸, S. Pellegrini⁹, G. Trinchieri¹⁰, S. F. Zepf¹¹, A. Zezas¹²

155.02 X-ray Binaries in the Fornax Local Group Dwarf
Roy E. Kilgard¹, R. Soria¹, A. H. Prestwich¹, V. Kalogera¹
¹SAO, ²Northwestern University.
155.03 X-ray Binary Populations in Normal elliptical Galaxies
Nicola J. Brassington¹, G. Fabbiano¹, D. Kim¹, L. Angelini², R. Davies³, J. Gallagher, V. Kalogera⁴, A. King⁵, S. Pellegrini⁶, G. Trinchieri⁷, S. Zepf⁸, A. Zezas¹
¹CfA, ²GSFC, ³University of Oxford, ¹University of Wisconsin, ⁴University of Leicester, United Kingdom, ⁵University of Wisconsin, ⁶University of Wisconsin, ⁷University of Wisconsin, ⁸INAF-OABr, Italy, ⁹Michigan State University.

155.04 Low-Luminosity XLF in Normal Elliptical Galaxies
Dong-Woo Kim¹, G. Fabbiano¹, N. J. Brassington¹, V. Kalogera², A. R. King³, S. Pellegrini³, G. Trinchieri³, S. E. Zepf³, A. Zezas³, L. Angelini³, R. L. Davies³, J. S. Gallagher³
¹Harvard-Smithsonian, ²CfA, ³University of Leicester, United Kingdom, ¹University of Wisconsin, ⁴University of Wisconsin, ⁵University of Wisconsin, ⁶University of Wisconsin, ⁷University of Wisconsin, ⁸INAF Osservatorio, Italy, ⁹Michigan State University, ¹⁰NASA Goddard Space Flight Center, ¹¹University of Oxford, United Kingdom, ¹²University of Wisconsin.

Session 156 Planetary Nebulae & Supernova Remnants
AAS Poster, ¹Tuesday, 9:20am-6:30pm, Exhibit Hall 4

156.01 Discovery of Multiple Coaxial Rings in the Bipolar Nebula Hb12
Sun Kwok¹, C. Hsia²
¹University of Hong Kong, China, ²National Central University, Taiwan.

156.02 Planetary Nebulae and Stellar Kinematics in Interacting Spiral Galaxy M82
Lent C. Johnson¹, R. H. Mendez², A. M. Teodorescu²
¹Colby College & Institute for Astronomy, University of Hawaii, ²Institute for Astronomy, University of Hawaii.

156.03 Balmer Ratios and Molecular Hydrogen in M27
Roxana E. Lupu¹, S. R. McCandliss¹, K. France²
¹Johns Hopkins University, ²CITA/ University of Toronto, Canada.

156.04 Planetary Nebulae in the Large Magellanic Cloud: Results from MCELS
Alfredo Zenteno¹, R. C. Smith², A. Rest¹, S. Points¹, R. Leiton¹, C. Aguilera¹, D. Shaw², P. F. Winkler¹
¹CTIO/NOAO, Chile, ²NOAO, ³Middlebury University.

156.05 A More Complete Sample of Planetary Nebulae in the Small Magellanic Cloud: Results from MCELS
Joseph W. Coish¹, E. C. Galle¹, P. F. Winkler¹, R. C. Smith⁴, MCELS Team
¹Haverford College, ²Center for Astrophysics and Middlebury College, ³Middlebury College, ⁴NOAO.

156.06 High-resolution X-ray Imaging and Spectroscopy of the Planetary Nebula BD +30 3639
Young Sam Yu¹, J. Kastner¹, J. Houck², E. Behar³, R. Nordan³, N. Soker³
¹Center for imaging science, Rochester Inst. Of Technology, ²Kavli Institute, Massachusetts Institute of Technology, ³Department of physics, Technion-Israel Institute of Technology, Israel.

156.07 K-Band Spectroscopy of the Extragalactic Planetary Nebula Hen 2-436
Jessica L. Wood¹, H. L. Dinerstein¹, T. R. Geballe², N. C. Sterling³
¹Univ. of Texas at Austin, ²Gemini Observatory, ³Carnegy Mellon U., ⁴CTIO, Chile.

156.08 Properties of Planetary Nebulae: NGC2022
Renee C. Mateluna Perez¹, H. Monteiro², J. Richards³, H. E. Schwarz⁴
¹U. de Concepcion, Chile, ²GSU, ³Carnegy Mellon U., ⁴CTIO, Chile.

156.09 A Search for Gas-Phase Zirconium in s-process Enriched Planetary Nebulae
Harriet Dinerstein¹, J. H. Lacy¹, K. Sellgren², N. C. Sterling³
¹Univ. of Texas, Austin, ²Ohio State Univ., ³NPP Fellow, NASA Goddard Space Flight Center.

156.10 Searching for the Missing Galactic Planetary Nebulae: A Pilot [S III] Imaging Survey
Joshua H. Shiode¹, D. P. Clemens¹, K. A. Janes¹, A. Pinnick¹, B. Taylor¹
¹Boston University.
156.11 A Multi-Wavelength Investigation of Newly Discovered Supernova Remnants in the Large Magellanic Cloud
Matthew Klimek\textsuperscript{1}, S. D. Points\textsuperscript{2}, C. Smith\textsuperscript{1}
\textsuperscript{1}Rutgers University, \textsuperscript{2}CTIO, Chile.

156.12 Modeling the Crab Synchrotron Nebula by Including Radiative Losses in Flow Dynamics
Joseph P. Foy\textsuperscript{1}, J. Hester\textsuperscript{1}
\textsuperscript{1}Arizona State Univ.

156.13 Spitzer Observations of Supernova Remnant N49 in the LMC
Tea Temim\textsuperscript{1}, C. E. Woodward\textsuperscript{1}, E. F. Polomski\textsuperscript{1}, R. D. Gehrz\textsuperscript{1}
\textsuperscript{1}Univ. of Minnesota.

156.14 The N19 HII Complex in the SMC: Multiple Supernova Remnants Forming a Proto-Superbubble?
Rosa N. Williams\textsuperscript{1}, Y. H. Chu\textsuperscript{1}, C. H. Chen\textsuperscript{1}, R. A. Gruendl\textsuperscript{1}, S. D. Points\textsuperscript{2}, R. C. Smith\textsuperscript{2}
\textsuperscript{1}Univ. of Illinois at Urbana-Champaign, \textsuperscript{2}CTIO, Chile.

156.15 Balmer-Dominated Supernova Remnants Revisited
Richard McCray\textsuperscript{1}, K. Heng\textsuperscript{1}
\textsuperscript{1}JILA, University of Colorado.

156.16 Expanding Ejecta in the Core-Collapse Supernova Remnant G292.0+1.8, Cas A’s Older Cousin
Karl Twelker\textsuperscript{1}, C. N. Reith\textsuperscript{1}, P. F. Winkler\textsuperscript{1}, K. S. Long\textsuperscript{2}
\textsuperscript{1}Middlebury College, \textsuperscript{2}STScI.

156.17 A Deep Chandra Observation of Kepler’s Supernova Remnant: A Type Ia Supernova with Circumstellar Interaction
Stephen P. Reynolds\textsuperscript{1}, K. J. Borkowski\textsuperscript{1}, C. Badenes\textsuperscript{1}, J. P. Hughes\textsuperscript{1}, U. Hwang\textsuperscript{3}, J. M. Laming\textsuperscript{1}, J. M. Blondin\textsuperscript{1}
\textsuperscript{1}North Carolina State Univ., \textsuperscript{2}Rutgers U., \textsuperscript{3}NASA/GSFC, \textsuperscript{4}NRL.

156.18 A Deep Chandra Observation of the O-Rich SNR 0540-69.3 in the LMC
Sangwook Park\textsuperscript{1}, J. Hughes\textsuperscript{2}, P. Slane\textsuperscript{3}, D. Burrows\textsuperscript{1}, K. Mori\textsuperscript{4}
\textsuperscript{1}Pennsylvania State U., \textsuperscript{2}Rutgers Univ, \textsuperscript{3}CfA, \textsuperscript{4}Univ of Miyazaki, Japan.

156.19 X-Ray Imaging and Spectroscopy of Oxygen-Rich Ejecta in N132D
Kazimierz J. Borkowski\textsuperscript{1}, S. P. Hendrick\textsuperscript{2}, S. P. Reynolds\textsuperscript{1}
\textsuperscript{1}North Carolina State Univ., \textsuperscript{2}Millersville Univ.

156.20 Investigation of the Vela X Emission
Stephanie M. LaMassa\textsuperscript{1}, P. Slane\textsuperscript{2}, O. de Jager\textsuperscript{2}
\textsuperscript{1}Center for Astrophysics, \textsuperscript{2}Potchefstroom University, South Africa.

156.21 Optical Imaging and Spectroscopy of the Galactic Supernova Remnant 3C58
Robert A. Fesen\textsuperscript{1}, G. Rudie\textsuperscript{1}, A. Hurford\textsuperscript{1}, A. Soto\textsuperscript{1}
\textsuperscript{1}Dartmouth College.

Session 157 Professional Development for Scientists and Educators
AAS Poster, Tuesday, 9:20am-6:30pm, Exhibit Hall 4

157.01 The ASP: Programs to Inspire Educators
Anna Hurst\textsuperscript{1}, S. Gurton\textsuperscript{1}, M. Bennett\textsuperscript{1}, M. Berendson\textsuperscript{1}, M. Gibbs\textsuperscript{1}
\textsuperscript{1}Astronomical Society of the Pacific.

157.02 An Online Hands-On Program for Middle-School Science Teachers
Stephen Schneider\textsuperscript{1}, K. Davis\textsuperscript{1}
\textsuperscript{1}UMass.

157.03 Strategies for Professional Development for Educators
Matthew Bobrowsky\textsuperscript{1}, D. A. Smith\textsuperscript{1}, B. Eisenhamer\textsuperscript{1}, NASA Origins E/PO Leads
\textsuperscript{1}STScI.

157.04 Teaching Astronomy Graduate Students About Teaching at the 101 Level
Erika Grundstrom\textsuperscript{1}, D. R. Gies\textsuperscript{1}, J. W. Wilson\textsuperscript{1}
\textsuperscript{1}Georgia State Univ.

157.05 The NASA Center for Astronomy Education (CAE): 2007 College Astronomy Teaching Excellence Workshops
Gina Brissenden\textsuperscript{1}, E. E. Prather\textsuperscript{1}, T. F. Slater\textsuperscript{1}, W. M. Greene\textsuperscript{1}, M. Thaller\textsuperscript{1}
\textsuperscript{1}Univ. of Arizona, \textsuperscript{2}Navigator, JPL, \textsuperscript{3}Spitzer, Cal Tech.
Session 157.06 Impact of the CAE Astronomy Teaching Excellence Workshop Program
Erin F. Dokter1, E. E. Prather1, G. Brissenden1, T. F. Slater3, W. M. Greene2, M. Thaller4
1Univ. of Arizona, 2JPL Navigator, 3Caltech, Spitzer.

Session 157.07 Deciphering Stars: A Professional Development Workshop for Teachers
Mary Kay Hemenway1, S. Redfield1
1U. Texas-Austin.

Session 158 Properties of Hot Stars
AAS Poster, Tuesday, 9:20am-6:30pm, Exhibit Hall 4

158.01 Xatlas: An Online Archive of Chandra Hot Star Gratings Observations
Owen Westbrook1, N. R. Evans1, S. J. Wolk1, J. Nichols1, V. L. Kashyap1, P. J. Mendygral2, W. L. Waldron3
1Harvard-Smithsonian, CfA, 2U. Minnesota, 3Eureka Scientific, Inc.

158.02 Searching for Hidden Wolf-Rayet Stars in the Galaxy - 15 New Wolf-Rayet Stars
Lucy J. Hadfield1, S. D. van Dyk2, P. W. Morris3, J. D. Smith1, A. P. Marston5
1The University Of Sheffield, United Kingdom, 2Spitzer Science Center, IPAC, CALTECH, 3NASA Herschel Science Center, IPAC, CALTECH, 5Steward Observatory, 5ESA/ESAC, Spain.

158.03 Chandra Spectroscopy of the Hot Star Beta Cru and the Discovery of a Pre-Main Sequence Companion
Michael A. Kuhn1, D. H. Cohen1, E. L. Jensen1, M. Gagne2
1Swarthmore College, 2West Chester University.

Session 159 Pulsars
AAS Poster, Tuesday, 9:20am-6:30pm, Exhibit Hall 4

159.01 The Torque-luminosity Relation and Possible Glitches in Three X-ray Binary Systems
Michael J. Stark1, D. Meral1, A. Baykal2, J. H. Swank3
1Lafayette College, 2Middle East Technical University, Turkey, 3NASA's Goddard Space Flight Center.

159.02 New Pulsars in the Globular Cluster M28
Ingrid H. Stairs1, S. Begin1, S. Ransom2, P. Freire3, J. Hessels4, J. Katz5, V. Kaspi6, F. Camilo7
1Univ. of BC, Canada, 2NRAO, 3NAIC, 4University of Amsterdam, The Netherlands, 5University of Virginia, 6McGill University, Canada, 7Columbia University.

159.03 Discovery and Timing of Eight New Millisecond Pulsars in NGC 6440 and NGC 6441
Paulo Freire1, S. M. Ransom2, S. Begin3, I. H. Stairs3, J. W. Hessels4
1Arecibo Observatory, 2NRAO, 3University of British Columbia, Canada, 4McGill University, Canada.

159.04 A New Technique for the Characterization of Radio Pulsar Polarization Profiles
Samuel Rodarte, Jr.1, W. van Straten1
1Center for Gravitational Wave Astronomy; U. Texas at Brownsville.

159.05 Discovery of an Energetic Young Pulsar Candidate Coincident with a TeV Gamma-ray Source.
David J. Helfand1, E. V. Gotthelf2, D. Semler1, F. Camilo1, R. H. Becker2, R. L. White3
1Columbia Astrophysics Lab., 2UC, Davis, 3STScI.

159.06 Timing Pulsars in Globular Cluster NGC6441
Lucille H. Frey1, S. Ransom2
1Case Western Reserve University, 2NRAO.

159.07 Population Synthesis of Radio and Gamma-ray Millisecond Pulsars from the Galactic Plane
Sarah A. Story1, P. L. Gonthier1, B. D. Clow1, A. K. Harding2
1Hope College, 2NASA Goddard Space Flight Center.

159.08 First Results from a Galactic Center Search for Pulsars and Transients: A Rotating Radio Transient Candidate
1Cornell Univ., 2NRL, 3Swinburne Univ., Australia, 4Univ. of Sydney, Australia, 5NRAO, 6UC, Berkeley, 7Jodrell Bank Obs., United Kingdom.
159.09 Updated Timing Parameters of two Massive Binary Pulsars: J0621+1002 and J0751+1807
Laura Kasian1, I. H. Stairs1, D. J. Nice2
1Univ. Of British Columbia, Canada, 2Bryn Mawr College.

159.10 Circumpulsar Asteroids: Inferences from Nulling Statistics and High Energy Correlations
Ryan Shannon1, J. M. Cordes1
1Cornell University.

159.11 Application of Typological Sequencing for the Classification of Radio Pulsar Profiles
Rossina B. Miller1, F. Jenet1
1Center for Gravitational Wave Astronomy/ University of Texas at Brownsville.

159.12 Population Statistics of Normal Isolated, Radio and Gamma-ray Pulsars from the Galactic Plane
Peter L. Gonthier1, S. A. Story1, B. D. Clow1, A. K. Harding2, I. A. Grenier3
1Hope College, 2NASA Goddard Space Flight Center, 3CEA/Saclay & University of Paris VII, France.

159.13 Numerical Simulations of Bulk and Thermal Comptonization in X-Ray Pulsar Accretion Columns
Kenneth D. Wolfram1, P. A. Becker2, M. T. Wolff3
1Naval Research Laboratory, 2George Mason University.

159.14 The Radio Properties and Magnetic Field Configuration in Pulsar Wind Nebula G54.1+0.3
Cornelia C. Lang1, F. Lu2, Q. D. Wang3, K. I. Clubb4
1Univ. of Iowa, 2IHEP, China, 3Univ. of Mass.

Session 160 SAGE
AAS Poster, Tuesday, 9:20am-6:30pm, Exhibit Hall 4

160.01 Dust Processing Near Sites of High-Mass Star Formation in the Large Magellanic Cloud
Sacha Hony1, S. Madden1, D. Rubin1, M. S. Oey2, F. Galliano3, B. Whitney4, M. Meade2, B. Babler5, R. Indebetouw6, J. Hora7, K. Gordon8, C. Engelbracht9, B. For10, M. Block8, K. Misselt9, M. Meixner10, U. Vlah10, C. Leitherer10
1Service d'Astrophysique, CEA, France, 2U. Michigan, 3NASA GSFC, 4Space Science Inst., 5U. Wisconsin, 6Harvard-Smithsonian/CfA, 7U. Arizona, 8U. Texas, 9STScI.

160.02 SST/SAGE and HST Study of Stellar Populations and Star Formation around NGC 1850 in the LMC
Nino Panagia1, M. Romaniello2, R. Gilmozzi2, L. De Marchi3, M. Meixner1, U. Vlah1, C. Leitherer1, B. Whitney4, M. Meade5, B. Babler5, R. Indebetouw6, J. Hora7, K. Gordon8, C. Engelbracht9, B. For10, M. Block8, K. Misselt9, SAGE Group
1STScI, 2ESO, Germany, 3ESA/ESTEC, The Netherlands, 4Space Science Institute, 5U. Wisconsin, 6U. Virginia, 7Harvard-Smithsonian/CfA, 8U. Arizona, 9U. Texas.

160.03 Mass Loss from Evolved Stars in LMC Clusters
Sean Points1, K. Olsen1, R. Blum2, B. Whitney3, M. Meade3, B. Babler3, R. Indebetouw4, J. Hora4, K. Gordon5, C. Engelbracht5, B. For5, M. Block5, K. Misselt6, M. Meixner6, U. Vlah6, C. Leitherer6, S. Srinivasan6
1CTIO/NOAO, Chile, 2NOAO, 3Space Science Institute, 4U. Wisconsin, 5U. Virginia, 6Harvard-Smithsonian/CfA, 7U. Arizona, 8Univ Texas, 9STScI.

160.04 Crystalline Silicates around Asymptotic Giant Branch Stars in the Large Magellanic Cloud
Francisca Markwick-Kemper1, C. Dijkstra2
1Univ. of Manchester, United Kingdom, 2Univ. of Missouri.

160.05 The Mass Loss Return From Evolved Stars to the LMC: Empirical Relations For Excess Emission at 8 and 24 μm
Sundar Srinivasan1, M. Meixner1, U. Vlah1, C. Leitherer1, K. Volk1, F. Markwick-Kemper1, R. D. Blum1, J. R. Mould1, K. A. Olsen6, S. Points6, B. A. Whitney1, M. Meade1, B. Babler1, R. Indebetouw1, J. L. Hora2, K. Gordon3, C. Engelbracht9, B. For11, M. Block10, K. Misselt10
1JHU, 2STScI, 3Gemini Obs., 4U. Virginia, 5NOAO, 6CTIO, Chile, 7Space Science Institute, 8U. Wisconsin, 9CfA, 10U. Arizona, 11U. Texas.
160.06 Variable Sources in Large Magellanic Cloud using the SAGE Survey
Uma P. Vijh, M. Meixner, S. Srinivasan, B. Babler, M. Block, C. Engelbracht, B. For, K. Gordon, J. Hora, R. Indebetouw, C. Leitherer, M. Meade, K. Misselt, B. Whitney
1STScI, 2JHU, 3U. Wisconsin, 4U. Arizona, 5Harvard/CfA, 6U. Virginia, 7SSI.

160.07 Modelling Evolved Stars Detected by the Spitzer LMC Survey (SAGE)
1Gemini Observatory, 2Space Telescope Science Institute, 3University of Manchester, United Kingdom, 4National Optical Astronomical Observatory, 5University of Wisconsin, 6University of Virginia, 7Harvard-Smithsonian Center for Astrophysics, 8Steward Observatory, 9University of Texas.

160.08 Spitzer/SAGE Observations of Planetary Nebulae in the Large Magellanic Cloud
1CfA, 2UC. Berkeley, 3STScI, 4NOAO, 5Space Science Inst., 6Brown Univ., 7U Wisconsin, 8U Virginia, 9U Arizona, 10U. Texas.

160.09 Star Formation Tracers and Dust Emission in the Large Magellanic Cloud
1Univ. of Arizona, 2Space Telescope Science Institute, 3Space Science Institute, 4Univ. of Wisconsin, 5Univ. of Texas, 6Univ. of Virginia, 7Harvard-Smithsonian/CfA.

160.10 Spitzer SAGE Observations of Young Stellar Objects in the Large Magellanic Cloud
1Space Science Institute, 2University of Wisconsin, 3University of Virginia, 4Univ. of St. Andrews, United Kingdom, 5Space Telescope Science Institute, 6JHU, 7Harvard-Smithsonian/CfA, 8Univ. of Arizona, 9Univ. of Texas, 10Nagoya University, Japan.

160.11 Star Formation Activity in Giant Molecular Clouds in the LMC
1Nagoya University, Japan, 2STScI, 3Space Science Institute, 4University of Wisconsin, 5University of Virginia, 6Harvard-Smithsonian/CfA, 7University of Arizona, 8University of Texas, 9CEA, France, 10CNRS, France, 11IPAC/Caltech.

160.12 Spitzer Spectroscopy of Stellar Feedback on Circumstellar Gas and Dust in 30 Doradus, the Nearest Super-Star Cluster
1U. Virginia, 2U. Wisconsin, 3Institut d' Astrophysique Spatiale, France, 4U. Arizona, 5NASA GSFC, 6CfA, 7CEA, France, 8STScI, 9University College London, UK, 10NASA Ames Research Center, 11JPL, 12U. Maryland.

160.13 Viewing SAGE selected LMC Star Formation with Hubble Vision
1JHU, 2STScI, 3Loyola College, 4U. Arizona, 5U. Wisconsin, 6SSI, 7U. Texas, 8Harvard/CfA, 9U. Virginia.
160.14 **The Spitzer SAGE Survey of the Large Magellanic Cloud: Characteristics of the Epoch 1 IRAC and MIPS-24 Source Lists**
Margaret Meixner¹, B. Whitney², K. Gordon³, B. Babler⁴, M. Block⁵, M. Cohen⁶, C. Engelbracht⁷, B. For⁸, J. Hora⁹, R. Indebetouw¹⁰, C. Leitherer¹¹, M. Meade¹², K. Misselt¹³
¹STScI, ²Space Sciences Institute, ³University of Arizona, ⁴University of Wisconsin, ⁵University of California, ⁶University of Texas, ⁷Harvard/CfA, ⁸University of Virginia.

160.15 **Molecular Clouds and Star Formation in the Magellanic System by NANTEN**
Akiko Kawamura¹, T. Onishi¹, T. Minamidani¹, Y. Mizuno¹, N. Mizuno¹, A. Mizuno¹, Y. Fukui¹, M. Meixner², U. Vijh², C. Leitherer², B. Whitney³, M. Meade³, B. Babler³, R. Indebetouw³, J. Hora⁴, K. Gordon⁵, C. Engelbracht⁵, B. For⁶, M. Block⁷, K. Misselt⁷, S. Madden⁷, J. Bernard⁸, R. Paladini⁹, W. Reach¹⁰, SAGE team
¹Nagoya University, Japan, ²STScI, ³Space Science Institute, ⁴U. Wisconsin, ⁵U. Virginia, ⁶Harvard-Smithsonian/CfA, ⁷U. Arizona, ⁸U. Texas, ⁹CEA, France, ¹⁰CNRS, France, ¹¹IPAC.

**Session 161 Science from the NDWFS Boötes Field**
AAS Poster, Tuesday, 9:20am-6:30pm, Exhibit Hall 4

161.01 **Mid-Infrared Properties of X-ray Sources**
Varoujan Gorjian¹, M. Brodwin¹, C. S. Kochanek¹, S. Murray¹, D. Stern¹, K. Brand¹, P. Eisenhardt¹, M. Ashby¹, P. Barmby¹, M. J. Brown¹, A. Dey¹, W. R. Forman¹, B. T. Jannuzi¹, C. Jones¹, A. Kenter¹, M. A. Paleva², J. C. Shields², M. W. Werner¹
¹JPL, ²Ohio State University, ³CfA, ⁴NOAO, ⁵Ohio University.

161.02 **Optical and IR Diagnostics of Radio Sources in the Boötes Field**
Steve Croft¹, W. van Breugel¹, W. de Vries¹, IRAC Shallow Survey Team, NDWFS Team
¹UC Merced / LLNL, ²UC Davis / LLNL.

161.03 **A Large Population of Infrared-Selected, Obscured AGN in the Boötes Field**
Christine Jones¹, R. Hickox¹, S. Murray¹, W. Forman¹, M. Brodwin¹, XBootes, IRAC Shallow Survey, NDWFS, AGES Teams
¹Harvard-Smithsonian, CfA, ²NASA/JPL.
Session 162 Search for Variables Through Surveys, Databases and Archives

AAS Poster, Tuesday, 9:20am-6:30pm, Exhibit Hall 4

162.01 Combined NSVS/2MASS Database Search For Cool Algols and Eclipsing Subdwarf B Stars
Nicole Kelley¹, J. S. Shaw²
¹University of California, Berkeley, ²University of Georgia.

162.02 LSDAO Imaging of STEPS Astrometric Candidates
Sloane Wiktorowicz¹, S. R. Kulkarni¹, S. H. Pravdo², S. B. Shaklan²
¹Caltech, ²Jet Propulsion Laboratory.

162.03 Recovering Long-Term Lightcurves from the Harvard Plates: A Search for Eclipsing Binaries in M44
Michael S. Shaw¹, J. E. Grindlay², S. Laycock²
¹Massachusetts Institute of Technology, ²Harvard-Smithsonian, CfA.

162.04 The American Association of Variable Star Observers (AAVSO)
Travis Searle¹, M. Templeton¹, A. Price¹, A. Henden¹
¹AAVSO.

162.05 The AAVSO International Database
Rebecca Turner¹, A. Price¹, M. Templeton¹, E. O. Waagen¹, A. Henden¹
¹AAVSO.

162.06 The Precision of Visual Estimates of Variable Stars
Aaron Price¹, G. Foster², B. Skiff³, A. Henden²
¹AAVSO/Tufts University, ²AAVSO, ³Lowell Observatory.

162.07 A Bright Stellar Variability Survey in the NGC 6811 Region
Arne A. Henden¹, A. Price¹, S. Howell²
¹AAVSO, ²WIYN/NOAO.

162.08 RR Lyrae Stars in the SDSS-II Supernova Survey
Nathan M. De Lee¹, H. A. Smith¹, T. C. Beers², D. M. Bramich³, S. Vidrih³, D. B. Zucker³, Z. Ivezić³
¹Michigan State Univ., ²Michigan State Univ. & JINA, ³Institute of Astronomy, Cambridge, United Kingdom, ⁴Univ. of Washington.

162.09 GNAT Student Follow-Up Pilot Project
Noll S. Roberts⁴, N. Jaggi¹, C. Milne¹
¹Cuesta College.

162.10 Revisited - The Draco Dwarf Spheroidal Galaxy Variable Star Population
Karen Kinemuchi¹, H. C. Harris², H. A. Smith¹, N. Silbermann⁴, L. Snyder⁵, A. P. LaCluyze⁶, C. L. Clark⁶
¹Univ. of Wyoming, ²US Naval Observatory - Flagstaff, ³Michigan State University, ⁴SSC/Caltech, ⁵University of North Carolina.

162.11 Light Curves of Newly Discovered Variable Stars from ROTSE-I Observations
Douglas I. Hoffman¹, T. E. Harrison¹, B. J. McNamara¹, T. W. Vestrand²
¹New Mexico State Univ., ²Los Alamos National Laboratory.

162.12 The FUSE Survey of Algol-Type Interacting Binary Systems
Geraldine J. Peters¹, B. Andersson², T. B. Ake², R. Sankrit²
¹Univ. of Southern California, ²Johns Hopkins University.

162.13 An Update on the Radial Velocity Survey in Cygnus OB2
Daniel C. Kiminki¹, H. A. Kobulnicky¹, K. Kinemuchi¹, J. S. Irwin³, C. L. Fryer¹, R. C. Berrington¹, B. Uzpen¹, A. J. Monson¹, M. A. Pierce¹, S. E. Woosley⁴
¹Univ. of Wyoming, ²Univ. of Texas, ³Los Alamos National Laboratories, ⁴University of California Santa Cruz.

162.14 Variable Stars in the Lepine List of Nearby Stars
Melvin Blake¹, J. McNutt²
¹Pisgah Astronomical Research Institute, ²University of North Carolina Asheville.

162.15 Burrell-Optical-Kepler Survey (BOKS) I: Survey Description
John J. Feldmeier¹, S. Howell¹, P. Harding¹, C. Mihos¹, C. Rudik³, W. Sherry¹, T. Lee¹, C. Knox¹, D. Ciardi¹, K. von Braun¹, M. Everett⁷, M. Proctor⁸, G. van Belle⁶
¹Youngstown State Univ., ²NOAO/WIYN, ³CWRU, ⁴NSO, ⁵NOAO, ⁶MSC, ⁷PSI, ⁸LPL.
162.16 Burrell-Optical-Kepler Survey (BOKS) II: Early Variability Results
Steve B. Howell1, J. Feldmeier2, K. van Braun3, M. Everett4, C. Mihos5, P. Harding6, C. Knox7, W. Sherry8, T. Lee9, D. Ciardl10, C. Rudick11, M. Proctor12, G. van Belle13
1WIYN/NOAO, 2YSU, 3MSC, 4PSI, 5CWRU, 6NSO, 7NOAO, 8LPL.

162.17 WIYN Open Cluster Study Long-term Monitoring: NGC 2141
Allison M. Widhalm1, S. Kafka2
1USC, CTIO, New Mexico State University, 2CTIO, Chile.

162.18 New Close Binary Systems from the SDSS-I (Data Release Five) and the Orbital Periods for a Subset of Close White Dwarf + M Dwarf Systems
Nicole M. Silvestri1, S. L. Hawley1, L. C. Dang2, D. A. Krogsrud1, K. Smoke1, M. A. Wolfe1, L. Mannikko1
1Univ. of Washington, 2NASA GSFC.

162.19 Discovery of WD+M Binaries in the Sloan Digital Sky Survey
Robert L. da Silva1
1LBNL.

162.20 Optically Variable RASS X-ray Sources in the Northern Sky Variability Survey
Sara Gettel1, E. Rykoff2, T. McKay2
1Pennsylvania State University, 2University of Michigan.

162.21 Eclipsing Binaries in the Galactic Bulge from SWEEPS Data
Kailash C. Sahu1, T. E. Smith1, W. Clarkson1
1STScI.

162.22 Multicolor Observations of the Type II Cepheid Prototype W Virginis
Matthew R. Templeton1, A. A. Henden1, T. Crawford1, R. James1, M. Bonnardeau1, D. Wells1
1AAVSO.

Session 163 Extrasolar Planets VI: Observed Systems
AAS Poster, Tuesday, 9:20am-6:30pm, Exhibit Hall 4

163.01 Interferometric Observations of the Transiting Planet HD 189733 with the CHARA Array
Ellyn K. Baines1, G. T. van Belle2, H. A. McAlister1, T. A. ten Brummelaar1, D. H. Berger3, N. H. Turner1, P. J. Goldfinger1
1Georgia State Univ., 2Michelson Science Center, 3Univ. of Michigan.

163.02 Infrared Phase Variations of Hot Jupiters
Nicolas B. Cowan1, E. Agol1, D. Charbonneau2
1Univ. of Washington, 2Center for Astrophysics.

163.03 Eccentricities of Extrasolar Planets and Implications for Planet Formation Theory
Eric B. Ford1
1Harvard-Smithsonian Center for Astrophysics.

163.04 A Possible Planet Around a White Dwarf
Fergal Mullally1, D. Winget1
1Univ. of Texas, Austin.

163.05 MOST Spacebased Photometry of Transiting Exoplanet Systems
Jason Rowe1, J. M. Matthews1, E. Miller-Ricci2, S. Seager1, D. Sasselov2, R. Kuschnig1, D. B. Güenther1, A. F. Moffat1, M. Rucinski1, G. A. Walker1, W. Weiss2
1UBC, Canada, 2Harvard-Smithsonian CfA, 1Carnegie DTM, 4University of Texas, Austin, 5University of Montréal, Canada, 6St. Mary’s University, Canada, 7University of Wisconsin, Madison, 8University of Vienna, Austria.

Session 164 Space-Based Instrumentation I
AAS Poster, Tuesday, 9:20am-6:30pm, Exhibit Hall 4

164.01 Steps Toward a UV/Optical Interferometer in Space: FIT & SIFFT
Kenneth G. Carpenter1, R. G. Lyon1, A. Liu1, P. Dogoda2, P. Petrone2, D. Mozurkewich3, D. Miller4, S. Mohan5, P. Stahl6
1NASA’s GSFC, 2Sigma Space, 3Seabrook Eng., 4MIT, 5NASA’s MSFC.

164.02 CALISTO: A Far-Infrared Observatory for the Next Decade
Harold W. Yorke1, P. F. Goldsmith1, C. M. Bradford1, J. Zmuidzinas1, C. Paine1, M. Dragovan1, C. M. Satter1, A. E. Nash III1, R. A. Lee1, B. Khayatian1, A. R. Girerd1, S. J. MacLellan1
1Jet Propulsion Laboratory, California Institute of Technology.
164.03 Cryogenic Telescope, Scanner, and Imaging Optics for the Wide-field Imaging Survey Explorer (WISE)
Mark Schwalm1, A. Akerstrom1, M. Barry1, J. Guregian1, F. LaMalva1, P. Laquidara1, G. Perron1, D. Sampath1, V. Ugolini1
1L-3 Communications SSG-Tinsley.

164.04 Scientific Promise and Instrument Concepts for a Background-Limited Infrared-Submillimeter Spectrograph (BLISS) for SPICA
Charles Bradford1, BLISS and SPICA teams
1Caltech/ JPL.

164.05 CASTER - A Concept for a Black Hole Finder Probe based on the Use of New Scintillator Technologies
1U. New Hampshire, 2LSU / Southern Univ., 3LSU, 4LANL, 5U Alabama - Huntsville, 6UC - Berkeley, 7Southwest Research Institute.

164.06 New Worlds Observer: Mission Overview
Charles F. Lillie1, J. W. Arenberg1, W. C. Cash2, R. P. Samuele1, A. S. Lo1
1Northrop Grumman Space Technology, 2University of Colorado.

164.07 Absolute Time Calibration for the Chandra X-ray Observatory
Arnold H. Rots1
1Harvard-Smithsonian CfA.

164.08 Design and Lab Demonstration of the PIAA/Binary-Mask Hybrid Coronagraph
Shinichiro Tanaka1, O. Guyon1, E. Pluzhnik1
1Subaru Telescope.

164.09 Experimental Demonstration of Wavefront Estimation in a Shaped-Pupil Coronagraph
Ruslan Belikov1, A. Give'on2, E. Cady1, J. Kay1, L. Pueyo1, N. J. Kasdin1
1Princeton Univ., 2Caltech University.

164.10 Wavefront Compensation for High Contrast Imaging in the Presence of Fresnel Effects
Laurent A. Pueyo1, J. Kasdin1
1Princeton University.

164.11 STARCaL: A Tunable Laser in Space for Telescope Calibration and Atmospheric Studies
Justin Albert1, W. Burgett2, S. Deustua3
1Univ. of Victoria, Canada, 2Institute for Astronomy, 3AAS.

164.12 Selective Deposition of Thin Films for Future X-ray Optics
Amy M. Colon1, R. Bruni1, S. Sheldon2, S. Romaine2
1Hunter College CUNY, 2Harvard Smithsonian Center for Astrophysics.

164.13 Dynamics of an Occulter Based Planet Finding Telescope
Egemen Kolemen1, J. Kasdin1
1Princeton University.

164.14 The Lost Flux Method: A New Algorithm for Improving the Precision of Space-Based Near-Infrared Stellar Photometry with Lossy Detectors
Kenneth J. Mighell1
1NOAO.

164.15 Closed-loop Wavefront Correction for High-contrast Imaging: The “Peak-A-Boo” Algorithm.
Amir Give'on1, J. Kasdin2, S. Shaklan3, R. Vanderbei2
1Caltech Univ., 2Princeton University, 3JPL.

Session 165 Star Clusters III
AAS Poster, Tuesday, 9:20am-6:30pm, Exhibit Hall 4

165.01 Using Open Clusters to Trace the Local Milky Way Rotation Curve and Velocity Field
Peter M. Frinchaboy1, S. R. Majewski2
1Univ. of Wisconsin-Madison, 2Univ. of Virginia.

165.02 WIYN Tip-Tilt Module Observations of the Old Open Cluster NGC 1193
Myra J. Stone1, C. F. Claver2, K. J. Mighell2
1University of Georgia, 2National Optical Astronomy Observatory.
165.03 WIYN Open Cluster Study: Precision UBVRI CCD Photometry of the Open Cluster NGC 2420
Aaron J. Steinhauer¹, N. Lauffenburger¹, J. Hughto¹, C. P. Deliyannis², K. Croxall³, A. Sarajedini³
¹SUNY - Geneseo, ²Indiana University, ³University of Florida.

165.04 WIYN Open Cluster Study: Precision UBVRI CCD Photometry of the Open Cluster NGC 2506
Joseph Hughto¹, N. Lauffenburger, A. Steinhauer¹, C. P. Deliyannis², K. Croxall³, A. Sarajedini³
¹SUNY Geneseo, ²Indiana University, ³University of Florida.

165.05 The Red Buttes Observatory’s Wide-Field Telescope’s ZAMS Project
Ronald W. Canterna¹, M. MacDonald¹, D. Allen¹, E. Hausel¹, M. Pierce¹, C. T. Rodgers¹
¹Univ. of Wyoming.

165.06 The Dolidze 27 and Alessi 10 Open Star Clusters
Rosalie C. McGurk¹, M. W. Castelaz²
¹University of Washington, ²Pisgah Astronomical Research Institute.

165.07 WIYN Open Cluster Study: Binary Orbits and Tidal Circularization in NGC 6819
Meagan B. Morscher¹, R. D. Mathieu², S. Kaeppler², K. T. Hole², S. Melbom¹
¹U. Wisconsin-Milwaukee, ²U. Wisconsin-Madison, ³CfA.

165.08 WIYN Open Cluster Study: Signature(s) of Main Sequence Lithium Depletion Mechanism(s) from Subgiants of the Old (6-7Gyr) Open Cluster NGC 188
Walter Trentadue¹, K. V. Croxall¹, A. Gill¹, C. P. Deliyannis¹, J. R. King¹, L. J. Hainline⁴
¹Indiana University, ²Indiana University and Brown University, ³Clemson University, ⁴Caltech.

165.09 WIYN Open Cluster Study: Lithium Abundances in Dwarf Stars of the Old (6-7Gyr) Open Cluster NGC 188
Amandeep Gill¹, K. V. Croxall¹, W. Trentadue², C. P. Deliyannis², J. R. King³
¹Indiana University and Brown University, ²Indiana University, ³Clemson University.

165.10 WIYN Open Cluster Study: Lithium in the Young and Metal-Poor Cluster M36
Kevin V. Croxall¹, J. Cummings¹, C. P. Deliyannis³, A. Steinhauer²
¹Indiana Univ., ²SUNY - Geneseo.

165.11 The Composition of the Old, Metal-Rich Open Cluster, NGC 6791
Elizabeth Jensen¹, A. M. Boesgaard², C. P. Deliyannis³
¹Smith College, ²University of Hawaii, ³Indiana University.

165.12 The Search for Low Amplitude Pulsational Variable Stars in Six Open Clusters
Eric G. Hintz¹, M. B. Rose²
¹Brigham Young Univ., ²Utah State University.

165.13 Variable Star Search in the Open Cluster NGC 6659
William Gray¹, E. G. Hintz²
¹Utah Valley State College, ²Brigham Young Univ..

165.14 A Search for Variable Stars in the Field of NGC 7092 (M39)
Sarah Schuff¹, E. G. Hintz¹, M. D. Joner¹
¹Brigham Young University.

Session 166 Tests of Gravity & Alternative Theories of Gravity
AAS Poster, Tuesday, 9:20am-6:30pm, Exhibit Hall 4

166.01 The Implication of MOND for Dark Haloes
Yi-Cheng Huang¹, A. Kosowsky¹
¹Univ. Of Pittsburgh.

166.02 Solar System tests DO rule out 1/R gravity
Tristan L. Smith¹, A. L. Erickcek¹, M. Kamionkowski¹
¹Caltech.

166.03 Testing Alternative Theories of Gravity with Long Term Pulsar Timing
K. J. Lee¹, F. Jenet¹
¹Center for Gravitational Wave Astronomy / U. Texas at Brownsville.

166.04 21st Century Gravity
Tom Van Flandern¹
 Session 167 Stars, Gas and their Motions in Dwarfs and Irregulars
AAS Poster, Tuesday, 9:20am-6:30pm, Exhibit Hall 4

167.01 Magnetic Fields in Irregular Galaxies: NGC 4214
Amanda A. Kepley1, E. M. Wilcots1, T. Robishaw2, C. Heiles2, E. Zweibel1
1Univ. of Wisconsin-Madison, 2University of California-Berkeley.

167.02 Evidence for Tidal Heating in the Dynamics of LMC Carbon Stars and Red Supergiants
Knut A. Olsen1, P. Massey2
1NOAO, 2Lowell Observatory.

167.03 Kinematics of the dE Galaxy IC 225
Gwen C. Rudie1, B. W. Miller2
1Dartmouth College, 2Gemini Observatory, Chile.

167.04 An Examination of Kinematic Properties of Dwarf Irregular Galaxies
Elizabeth A. Adams1, L. van Zee1
1Indiana University.

167.05 Outer Disks of Dwarf Irregular Galaxies: Stars and Gas
Deidre A. Hunter1, B. G. Elmegreen2, E. Anderson3
1Lowell Obs., 2IBM T. J. Watson Research Ctr., 3Northern Arizona U.

167.06 An Interaction Induced Transformation of I Zw 18? New Results from A-Array VLA Observations
Liese van Zee1, J. M. Cannon1, E. D. Skillman1
1Indiana Univ., 2Wesleyan Univ., 3Univ. of Minnesota.

167.07 Investigation of Star Formation in Dwarf Irrregular Galaxies Using Ultra-violet Photometry
Bonnie C. Ludka1, D. Hunter2
1James Madison University, 2Lowell Observatory.

167.08 Oxygen Abundances in Starbursting Transition Dwarfs
Kate Dellenbusch1, J. S. Gallagher1, P. M. Knezek2
1University of Wisconsin, 2WIYN Consortium, Inc..

 Session 168 Stellar Populations II
AAS Poster, Tuesday, 9:20am-6:30pm, Exhibit Hall 4

168.01 Hafnium and the R-Process in the Sun and Metal-Poor Stars
Christopher Sneden1, J. E. Lawler2, E. A. Den Hartog2, Z. E. Labby2, J. J. Cowan3, I. Ivans4
1U. Texas, 2U. Wisconsin, 3U. Oklahoma, 4Carnegie Obs. & Princeton U.

168.02 Isotopic Abundances of Eu, Ba, and Sm in Metal-Poor Stars
Ian U. Roederer1, C. Sneden1, J. E. Lawler2, J. S. Sobeck1, C. A. Pilachowski2, J. J. Cowan1
1U. Texas at Austin, 2U. Wisconsin, 3Indiana U., 4U. Oklahoma.

168.03 Revisiting Zirconium: New Abundance Determinations with Improved Oscillator Strengths
Debra L. Burris1, M. Jones1, R. Nichols1
1Univ. of Central Arkansas.

168.04 Lanthanum and Europium Abundances in a Large Sample of Galactic Disk Dwarf Stars
Jennifer A. Simmerer1, C. B. Stringer1, B. W. Carney1
1Univ. North Carolina, Chapel Hill.

168.05 Lithium Production in Asymptotic Giant Branch Stars
Julie Krugler1, M. Shetrone2, C. Charbonnel3
1Michigan State U., 2McDonald Obs., 3Obs. Midi-Pyrenees, France.
168.06  Beryllium in Extremely Metal Deficient Stars
Jeffrey Rich¹, A. Boesgaard²
¹University of Hawaii Institute for Astronomy.

168.07  Metallicity in the Solar Neighborhood Out to 60pc
Roggie H. Boone, III¹, J. R. King¹, D. R. Soderblom²
¹Clemson Univ., ²Space Telescope Science Institute.

168.08  The Most Metal-Poor Candidates in SDSS-I DR-5
Timothy C. Beers¹, Y. Lee¹, T. Sivarani¹, B. Marsteller¹, J. Krugler¹,
R. Wilhelm², C. Allende Prieto¹, J. Norris¹, J. Johnson³, I. Ivans⁴, B.
Yanny⁵, C. Rockosi⁶, H. Morrison⁶, H. J. Newberg⁸, J. Knapp¹¹
¹Michigan State Univ./JINA, ²Texas Tech, ³U. Texas, ⁴Australian National Univ.,
Australia, ⁵Ohio State U., ⁶OCIW/Princeton U., ⁷FermiLab, ⁸Lick Obs.,
UCSC, ⁹Case Western, ¹⁰RPI, ¹¹Princeton U..

168.09  A Search for Evidence of an Abundance Gradient in the Galactic Halo
Based on Stars from SDSS-I DR-5
Daniela Carollo¹, T. C. Beers², Y. S. Lee², T. Sivarani², C. Allende
Prieto¹, J. Norris³, J. A. Munn³, M. Chiba⁴
¹INAF-OATO & JINA (MSU), Italy, ²Michigan State U./JINA, ³U. Texas,
⁴Australian National U., Australia, ⁵USNO, ⁶Tohoku Univ., Japan.

168.10  High-Resolution Calibration of the SDSS/SEGUE Spectroscopic Analysis Pipeline
T. Sivarani¹, T. C. Beers², Y. Lee², J. Krugler², R. Wilhelm³, C. Allende
Prieto¹, C. Sneden⁴, D. L. Lambert⁴, M. Shetrone⁴, J. Johnson⁴,
I. Ivans⁵, C. Rockosi⁶, D. Lai⁷, H. Morrison⁸, W. Aoki⁹
¹Mich. State Univ. & Joint Inst. for Nuclear Astrophysics (JINA), ²MSU
& JINA, ³Texas Tech, ⁴U. Texas, ⁵Ohio State Univ., ⁶Carnegie Obs. &
Princeton U., ⁷UCSC, ⁸Case Western, ⁹NAOJ, Japan.

168.11  A New Calibration of [Fe/H] and [C/Fe] Estimates for Medium-Resolution Spectra of Carbon-Enhanced Metal-Poor Stars
Catherine R. Kennedy¹, T. C. Beers¹, B. Marsteller¹, T. Sivarani¹, S.
Rossi², B. Plez³, T. Masseron⁴, S. Lucatello¹
¹Michigan State Univ. / JINA, ²LAG, Univ. of Sao Paolo, Brazil, ³Univ. of
Montpellier, France, ⁴Ohio State Univ., ⁵INAF-OAPD, Italy.

168.12  Evidence that R Coronae Borealis Stars Evolve from a White Dwarf Merger rather than a Final Helium Shell Flash
Geoffrey C. Clayton¹, T. R. Geballe², F. Herwig³, C. Fryer⁴, E. Tenenbaum⁵, M. Asplund⁶
¹Louisiana State Univ., ²Gemini Observatory, ³Keele University, United Kingdom, ⁴Los Alamos National Laboratory, ⁵University of Arizona,
⁶Mount Stromlo Obs., Australia.

168.13  Dust at Low Metallicity: Spitzer Observations of AGB Stars in NGC 6822
Schuyler D. Van Dyk¹, F. Kemper², A. Speck³, R. Szczepanek⁴, M. Meixner², E. Peetz³, T. Ueta⁷
¹SSC/Caltech, ²U. Manchester, United Kingdom, ³U. Missouri, ⁴NCAC, Poland, ⁵STScI, ⁶SETI Institute, ⁷NASA Ames/SOFIA.

168.14  Infrared Identification of Herbig AeBe stars in the Small Magellanic Cloud
Sweta Shah¹, L. D. Keller¹, N. Chitrakar¹
¹Ithaca College.

168.15  The SDSS-II/SEGUE Spectroscopic Parameter Pipeline
Young S. Lee¹, T. C. Beers¹, S. Thirupathi¹, R. Wilhelm¹, C. Allende
Prieto¹, J. E. Norris¹, P. R. Fiorentin¹, C. A. Bailer-Jones¹, SEGUE
Calibration Team
¹Michigan State Univ., ²Texas Tech Univ., ³Univ. of Texas, ⁴Australian National Univ., Australia, ⁵Max Planck Institute for Astronomy, Germany.

Session 169 Extrasolar Planets VII: Surveys
AAS Poster, Tuesday, 9:20am-6:30pm, Exhibit Hall 4

169.01  Observation of Transiting Extrasolar Planets and Gamma-ray Bursts with Robotic Telescopes
Jay Fisher¹, T. R. Young¹
¹Univ. Of North Dakota.

169.02  An Extrasolar Planet Transit Search in NGC 188
Laura Portscheller¹, B. Kelly¹, K. Kinemuchi¹, C. Kobulnicky¹
¹University of Wyoming.
169.03 **Planet Detection and Simulations from Multi-Object Spectrograph Surveys**  
Stephen R. Kane¹, D. P. Schneider², J. Ge¹  
¹University of Florida, ²Pennsylvania State University.

169.04 **Exoplanet Tracker Observations with a Monolithic Fixed-Delay Interferometer: First Steps Towards Long-term Stability**  
Scott W. Fleming¹, S. Mahadevan¹, X. Wan¹, C. Dewitt¹, A. Hariharan¹, D. McAvitt¹, J. van Eyken², J. Ge¹  
¹University of Florida.

169.05 **Monitoring the Long-term Radial Velocity Stability of the New Generation Multi-object Keck Exoplanet Tracker at the Sloan Telescope**  
Kaike Pan¹, S. Sneden¹, J. Ge², J. van Eyken², S. W. Fleming², S. Kane², C. Warner²  
¹APO-NMSU, ²UF.

169.06 **Latest Results from the Multi-Object Keck Exoplanet Tracker**  
Julian C. Van Eyken¹, J. Ge¹, X. Wan¹, B. Zhao¹, A. Hariharan¹, S. Mahadevan¹, C. DeWitt¹, P. Guo¹, R. Cohen¹, S. W. Fleming¹, J. Crepp¹, C. Warner¹, S. Kane¹, F. Leger², K. Pan¹  
¹Univ. of Florida, ²Fermilab, ³Apache Point Observatory.

169.07 **Measuring Precise Stellar Barycentric Radial Velocities with a Dispersed Fixed-Delay Interferometer: Implications for a Multi-Object Survey**  
Suvrath Mahadevan¹, J. van Eyken¹, J. Ge¹, C. Dewitt¹, S. Fleming¹, R. Cohen¹, J. Crepp¹, A. vanden Heuvel¹  
¹University of Florida.

169.08 **Eclipse Mapping of Hot Jupiters**  
Emily Rauscher¹, K. Menou¹, S. Seager¹, D. Deming³  
¹Columbia University, ²Carnegie Institution of Washington, ³NASA Goddard Space Flight Center.

169.09 **Simulations of Exoplanet Spectroscopy with JWST**  
Matthew Johnson¹, J. Valenti³  
¹Wesleyan Univ., ²STScI.

169.10 **New Worlds Observer: Optical Simulation**  
Tiffany M. Glassman¹, A. Lo¹, W. Cash²  
¹Northrop Grumman Space Technology, ²University of Colorado.

169.11 **New Worlds Observer: Orbit and Sky Coverage**  
Amy Lo¹, R. Malmstrom¹, T. Guilmette¹  
¹Northrop Grumman Corporation.

169.12 **On the Feasibility of Detecting UV Auroral Emission from Extrasolar Giant Planets (EGPs)**  
Michele Cash¹, E. Agol¹  
¹University of Washington.

169.13 **Spectral Bandwidth: A Key TPF Challenge for Achieving Adequate SNR**  
Martin C. Noecker¹, S. Kilston¹  
¹Ball Aerospace & Tech. Corp..

169.14 **Characterization of Exoplanet Orbits Using a Monte Carlo Bayesian Analysis**  
Jonathan Arenberg¹, T. Schuman¹, A. Lo¹  
¹Northrop Grumman.

169.15 **The PIAA Coronagraph Prototype: First Laboratory Results.**  
Eugene Pluzhnik¹, O. Guyon¹, S. Colley¹, B. Gallet¹, S. Ridgway², R. Woodruff², S. Tanaka¹, M. Warren¹  
¹Subaru Telescope, NAOJ, ²NOAO, ³Lockheed Martin Space Corporation, ⁴Axsys Technologies, Inc.

**Session 170 The Undergraduate Astronomy Course for Non-Majors**

AAS Poster, Tuesday, 9:20am-6:30pm, Exhibit Hall 4

170.01 **How Are Students’ Interests in Astronomy Affected by Doing Projects in ASTR 101 at a Two Year College?**  
Noella L. D’Cruz¹  
¹Joliet Junior College.

170.02 **For a Better Grade in Astronomy, Write About It**  
Ana M. Larson¹, N. Kool¹, C. Beyer¹  
¹Univ. Of Washington.
Is the Promise of Space Worth the Price? College Students Weigh In
Jo Eliza Pitesky¹, J. Turner²
¹JPL, ²UCLA Department of Physics and Astronomy.

Use of Clickers in Introductory Astronomy Courses at California State University Sacramento
Christopher L. Taylor³
³California State University, Sacramento.

The Story of Astronomy: An Activities-Based, Historical Approach to Classroom Instruction
Alan W. Hirshfeld¹
¹Univ. of Mass., Dartmouth.

A Spectrum is Worth a Thousand Pictures
Richard F. Gelderman¹
¹Western Kentucky Univ.

The Astronomy Workshop: Computer Assisted Learning Tools with Instructor Support Materials and Student Activities
Grace Deming¹, D. Hamilton¹, M. Hayes-Gehrke¹
¹Univ. of Maryland.

Calibrated Peer Review Essays Increase Confidence in Self-assessment
Lauren Likkel¹
¹Univ. of Wisconsin -- Eau Claire.

 Astro 001 through an Interactive, Multimedia Science Fiction Story
Christopher Palma¹, J. C. Charlton¹, N. Tr'Ehnl¹, K. A. Herrmann¹, A. Narayanan¹
¹Penn State Univ.

Course Components for Large Astronomy Lectures
Michael Stage¹, S. Schneider¹
¹Univ. of Massachusetts.

CAPER Team Innovations in Teaching and Learning in ASTRO 101
Timothy F. Slater¹, E. E. Prather¹, J. M. Bailey², E. Bardar³, G. Bris- senden³, E. F. Dokter¹, D. Hudgins¹, J. Keller⁶
¹U. Arizona, ²UNIV, ³Boston U., ⁴Rockhurst U., ⁵Cal Poly.

Lyman-alpha Emitters in the HUDF: A Population of Low Mass, Star Forming Galaxies
Norbert Pirzkal¹, S. Malhotra¹, J. E. Rhoads², C. Xu¹
¹STScI, ²Arizona State University.

Surface Brightness Properties of z~4-6 Galaxies in the HUDF
Nimish P. Hathi¹, R. A. Jansen¹, S. H. Cohen¹, R. A. Windhorst¹, S. Malhotra¹, J. Rhoads¹
¹Arizona State Univ..

The Unresolved Stellar Populations of Galaxies in the HUDF
Russell E. Ryan, Jr.¹, R. A. Jansen¹, S. H. Cohen¹, R. A. Windhorst¹
¹Arizona State Univ..

Emission Line Galaxies in PEARs: A 2-D Detection Method
Amber Straughn¹, G. Meurer¹, J. Gardner¹, S. Malhotra¹, N. Pirzkal¹, N. Hathi¹, S. Cohen¹, R. A. Windhorst¹, J. Rhoads¹, C. Xu¹, C. Gronwall⁶, PEARs Team
¹Arizona State University, ²Johns Hopkins University, ³Goddard Space Flight Center, ⁴Space Telescope Science Institute, ⁵Pennsylvania State University.

The Luminosity Function of Lyα Emitters at z=3.1
Robin Ciardullo¹, C. Gronwall¹, T. Hickey¹, E. Gawiser², J. J. Feldmeier³, MUSYC Collaboration
¹Penn State Univ., ²Yale Univ., ³Youngstown State Univ..

Evolutionary Behaviour in the HOD from the VVDS Data
Ummi Abbas¹, O. Le Fevre¹, S. deLaTorre¹, C. Marinoni¹, VVDS collaboration
¹Laboratoire D'Astrophysique Marseille, France.

A GALEX Imaging Search for Lyman Continuum Emission at z~1 in the EGS
Peter G. Friedman¹, T. A. Small¹, J. M. Deharveng², B. Milliard³, GALEX Science Team
¹Caltech, ²Laboratoire d'Astrophysique de Marseille, France.
TUESDAY Events, Sessions and Paper Titles

171.08 Measuring the Star Formation Rate of the Universe at $z \approx 1$ from H-alpha with Multi-Object Near-Infrared Spectroscopy
Andrew J. Bunker$^1$, M. Doherty$^2$, R. Sharp$^3$, I. Parry$^4$, G. Dalton$^5$, I. Lewis$^6$
$^1$Univ. of Exeter, UK, $^2$European Southern Observatory, Germany,
$^3$Anglo-Australian Observatory, Australia, $^4$Institute of Astronomy, Univ. of Cambridge, United Kingdom, $^5$Rutherford-Appleton Laboratory & Astrophysics, Univ. of Oxford, UK, $^6$Astrophysics, Univ. of Oxford, UK.

171.09 Constraining the Interaction History of Galaxies Over 4 Gyr
Kyle Penner$^1$, S. Jogee$^1$, GEMS collaboration
$^1$University of Texas at Austin.

171.10 Conditional Density Analysis of The Hubble Deep Field
Brittany L. Dames$^1$, P. H. Coleman$^1$
$^1$University of Hawai‘i, Institute for Astronomy.

Session 172 The Milky Way
AAS Poster, Tuesday, 9:20am-6:30pm, Exhibit Hall 4

172.01 A Wide Area Map of The Galactic Center at 1.1 mm
Elisabeth A. Mills$^1$, J. E. Aguirre$^2$, J. Bally$^3$, J. Glenn$^3$, M. L. Enoch$^4$, N. J. Evans, II$^5$, J. Walawender$^6$
$^1$Indiana Univ., $^2$NRAO Jansky Fellow, CASA-University of Colorado,
$^3$CASA-University of Colorado, $^4$Caltech, $^5$University of Texas, $^6$IfA-University of Hawaii.

172.02 Modeling the Galactic Center Magnetic Field Using Synchrotron Flux Density Maps
Benjamin J. Cowin$^1$, M. Morris$^2$
$^1$University of Washington, $^2$UC, Los Angeles.

172.03 New Hot Stars in the Galactic Center
Jon Mauerhan$^1$, M. Muno$^2$, M. Morris$^1$
$^1$UCLA, $^2$Space Radiation Lab, Caltech.

172.04 Is the Vertical Velocity Distribution of the Milky Way’s Thick Disk Isothermal?
Constance M. Rockosi$^1$
$^1$UCO/Lick Observatory.

172.05 Studying the Intergalactic Medium via OVI absorption in the spectra of SDSS Quasars
Stephan Frank$^1$, S. Mathur$^1$
$^1$The Ohio State University, Department of Astronomy.

172.06 A High Precision Radial Velocity Survey of the Galactic Bulge
Christian D. Howard$^1$, D. B. Reitzel$^1$, R. M. Rich$^1$
$^1$UC, Los Angeles.

172.07 43 GHz SiO Masers for Phase Calibration with VERA in the Galactic Center
Robert M. Edmonds$^1$, L. Sjouwerman$^2$, Y. Pihlstrom$^1$
$^1$University of New Mexico, $^2$NRAO.

172.08 Sagittarius Debris, the Virgo Stellar Stream, and the new stream near the Galactic Plane
Heidi J. Newberg$^1$, B. Yanny$^2$, N. Cole$^1$, T. Beers$^3$
$^1$Rensselaer Polytechnic Inst., $^2$Fermilab, $^3$Michigan State University.

172.10 Contour Map for the Gravitational Potential of the Milky Way
David F. Bartlett$^1$
$^1$Univ. of Colorado.

172.11 Abundance Patterns in High-Velocity RAVE Stars
Jon P. Fulbright$^1$, G. Ruchti$^1$, R. Wyse$^1$, RAVE Collaboration
$^1$Johns Hopkins Univ..

172.12 Gravitational Lensing and the Distance to the Galactic Center
Erin L. Gutbrod$^1$, S. Levine$^1$
$^1$University of Notre Dame, $^2$US Naval Observatory.

172.13 Smith’s Cloud (HVC) in 21 cm HI emission
A. J. Heroux$^1$
$^1$University of Wisconsin - Whitewater.

172.14 Exploring the Local Milky Way: M Dwarfs as Tracers of Galactic Populations
John J. Bochanski$^1$, S. L. Hawley$^1$, J. A. Munn$^2$, K. R. Covey$^1$, A. A. West$^1$, L. M. Walkowicz$^1$
$^1$Univ. of Washington, $^2$US Naval Observatory, $^3$CfA, $^4$Univ. of California.
TUESDAY Events, Sessions and Paper Titles

172.15  Galactic Structure Across the Sky with AAOmega
        Rosemary F. Wyse¹, G. Gilmore², J. E. Norris³
        ¹Johns Hopkins Univ., ²Institute of Astronomy, Univ. of Cambridge, United Kingdom, ³RSAA, ANU, Australia.

172.16  A High-resolution Polarimetric Survey of the Central 200 pc of the Galaxy
        Thomas M. Freismuth¹, C. C. Lang¹, T. J. Lazio², K. Golap³
        ¹Univ. of Iowa, ²NRL, ³NRAO.

172.17  The Line of Sight Velocity Distribution of the Galactic Bulge
        David B. Reitzel¹, C. Howard¹, R. M. Rich¹, H. Zhao², Y. Wang³
        ¹UCLA, ²University of St. Andrews, United Kingdom, ³National Astronomical Observatory, China.

172.18  Deep Astrometry of the Galactic Bulge with the HST ACS-WFC
        Will Clarkson¹, K. Sahu¹, E. Smith¹, S. Casertano¹
        ¹STSCI.

172.19  An Arecibo HI 21-cm Absorption Survey of X-ray Rich Clusters
        Hector Hernandez¹, T. Ghosh¹, C. J. Salter², E. Momjian¹
        ¹Arecibo Observatory.

172.20  A New Distance Calibration for Blue Stars in the Direction of Galactic High-Velocity Clouds
        Ronald J. Wilhelm¹, J. Barentine², T. C. Beers³, B. P. Wakker⁴, D. G. York⁵
        ¹Texas Tech Univ., ²University of Texas, ³Michigan State University, ⁴University of Wisconsin, ⁵University of Chicago.

172.21  Elemental Abundances of Metal-Poor Thick Disk Stars from the RAVE Survey
        Gregory R. Ruchti¹, J. Fulbright¹, R. F. Wyse¹, RAVE Collaboration
        ¹Johns Hopkins Univ..

172.22  The Identification of the Microlens in Event MACHO-LMC-20
        Michael W. Werner¹, N. Kallivayalil², B. M. Patten², M. Marengo², C. Alcock², G. Fazio²
        ¹JPL/Caltech, ²CfA.

172.23  GPIPS: Season One
        Dan P. Clemens¹, A. Pinnick¹, M. Pavel¹, B. Taylor¹, K. Jameson¹
        ¹Institute for Astrophysical Research, Boston Univ..

172.24  An HI Absorption Survey of the Central 250 pc of the Galactic Center: Distance Constraints & Understanding the Complex ISM
        Kelsey I. Clubb¹, C. C. Lang¹, W. M. Goss²
        ¹University of Iowa, ²National Radio Astronomy Observatory.

172.25  Spectroscopic Observations of the Galactic Center with OSIRIS
        Tuan Do¹, A. Ghez¹, J. Lu¹, K. Matthews², M. Morris³, A. Stolte¹, E. Becklin¹, J. Larkin¹, S. Wright¹
        ¹UC, Los Angeles, ²Caltech.

172.26  A Comparison of Spitzer, WIYN 0.9m, and Chandra Point Source Populations in the Inner Galaxy
        Luis C. Vargas¹, R. A. Benjamin²
        ¹University of Kansas, ²University of Wisconsin-Whitewater.

172.27  Probing the Interstellar Medium using the Vela Pulsar
        Shauna Sallmen¹, D. C. Backer², L. Marschke³
        ¹Univ. of Wisconsin, La Crosse, ²Univ. of California at Berkeley, ³Univ. of Northern Colorado.

172.28  VERITAS Observations of LSI +61 303
        Andrew W. Smith¹
        ¹Harvard-Smithsonian CfA.

Session 173 Instrumentation and Community Analysis
AAS Poster, Tuesday, 9:20am-4:00pm, Exhibit Hall 4

173.01  Evaluation of a Novel Design for an Electrostatic Quadrupole Triplet Ion Beam Lens
        L. R. Burns¹, J. D. Bouas¹, S. Matteson¹, D. L. Weathers¹
        ¹Ion Beam Modification and Analysis Laboratory (IBMAL) — University of North Texas.
TUESDAY Events, Sessions and Paper Titles

173.02 Finding Astronomical Communities Through Co-readership Analysis
   Edwin A. Henneken¹, M. J. Kurtz¹, G. Eichhorn¹, A. Accomazzi¹, C. Grant¹, D. Thompson¹, E. Bohlen¹, S. S. Murray¹
   ¹Smithsonian Astrophysical Obs.

173.03 Single Baseline Phases in Optical Interferometry
   Anders M. Jorgensen¹, D. Mozurkewich², H. Schmitt³, C. Tycner⁴, R. Hindsley³, T. A. Pauls⁴, J. T. Armstrong⁴, D. Peterson⁵
   ¹NMT and LANL, ²Seabrook Engineering, ³Naval Research Laboratory, ⁴US Naval Observatory, ⁵Stony Brook University.

Job Center
   Attendee Services, Tuesday, 9:20am-5:00pm, Exhibit Hall 4

Gadgets and Gizmos
   Attendee Services, Tuesday, 9:20am-5:00pm, South Lobby
   See Sunday’s listing for details.

Experience Digital Physics Curriculum II
   Commercial Workshop, Tuesday, 9:30-11:00am, 302
   View and experiment with a new digital physics textbook and virtual physics labs. Learn how a fully integrated digital physics curriculum can aid your instruction. Application of multi-learning styles and inquiry-based learning in a self-paced package provide students with the opportunity to experiment and explore.
   Chair, Mark Bretl¹
   ¹Kinetic Books.

WebAssign

And You Thought It Was About Homework
   “The way you imagined teaching could be.”

Put WebAssign to Work
   • Questions from all major physics and astronomy textbooks or write your own.
   • Hints, conditional feedback, and group assignments.
   • Give practice questions or questions from a pool.
   • New publisher questions.

Streamlined Workflow
   • Quickly access student responses.
   • Communicate with class forums & announcements.
   • Give students access to their grades and class stats.
   • Propagate assignments to large courses.
   • Integrates with Blackboard.

Tuesday
   9:30–11:00
   Convention Ctr
   Classroom 305

And You Thought It Was About Homework (The way you imagined teaching could be)
   Commercial Workshop, Tuesday, 9:30-11:00am, 305
   Find out how to deliver with WebAssign. WebAssign, the premier online homework, quizzing, and testing system, continues to have all of the features you want. We listen!
   Access Questions from all major physics and astronomy textbooks, or write your own. Check out our latest offerings with assignable simulations, assignable examples with basic and specific feedback. Give partial credit with conditional weighting. Assign practice questions or pick questions from a pool. Give group assignments. Streamline your work flow with WebAssign. It is easy to use, reliable, and helps you stay connected, your way. Quickly access student responses, communicate with class forums, Ask Your Teacher, and announcements, give students access to all of their course grades with complete class statistics, propagate common assignments to many sections, give secure quizzes and tests. Find out how to integrate WebAssign with Blackboard and WebCT.
   Over 190,000 students are using WebAssign. Find out why. Visit us at http://webassign.net.

Chair, John S. Risley¹
   ¹WebAssign.
Session 174 Impact of Intelligent Design and Responses to It  
AAS Special, Tuesday, 10:00-11:30am, 204

174.01 Overview of the Nature of Intelligent Design as a Pseudoscience  
Matthew Bobrowsky¹  
¹STScI.

174.02 The AAS Resolution on Teaching Evolution  
George D. Nelson¹  
¹Western Washington University.

174.03 Francis Slakey¹  
¹American Physical Society.

174.04 Science and Faith: Discussing Astronomy Research with Religious Audiences  
Anton M. Koekemoer¹  
¹STScI.

Session 175 Observations & Models of Extragalactic LMXBs  
AAS Special, Tuesday, 10:00-11:30am, 201

Chair, Stephen E. Zepf¹  
¹Michigan State Univ.

175.01 Deep Chandra Studies of LMXB Populations in Elliptical Galaxies  
Giuseppina Fabbiano¹  
¹Harvard-Smithsonian Center for Astrophysics.

175.02 The Low Mass X-Ray Binary - Globular Cluster Connection and its Implications  
Arunav Kundu¹  
¹Michigan State University.

175.03 Theoretical Models of LMXBs in Elliptical Galaxies  
Vicky Kalogera¹  
¹Northwestern University.

Session 176 GLAST Science and Opportunities at All Wavelengths  
HEAD Special, Tuesday, 10:00-11:30am, 611-12

176.01 GLAST Science Across Wavelengths  
R. D. Blandford¹  
¹SLAC.

176.02 Enhancing GLAST Science Through Complementary Radio Observations  
James S. Ulvestad¹  
¹NRAO.

176.03 Galaxy Formation, Cold Dark Matter Substructure, and GLAST  
Piero Madau¹  
¹UC, Santa Cruz.

176.04 GLAST Mission Overview and Science Opportunities  
Julie E. McEnery¹  
¹NASA’s GSFC.

Session 177 Andromeda All the Time  
AAS Oral, Tuesday, 10:00-11:30am, 6B

177.01 The Surface Brightness Profile of the Bulge and Halo of the Andromeda Spiral Galaxy (M31) from R = 10 to 165 kiloparsecs  
Puragra Guhathakurta¹, K. Gilbert¹, J. Kalirai¹, J. Ostheimer², S. Majewski², R. Patterson², M. Geha², M. Cooper³, D. Reitzel³, R. Rich³  
¹UC, Santa Cruz, ²U Virginia, ³DAO/HIA, NRC, Canada, ⁴UC, Berkeley, ⁵UCLA.

177.02 New Substructure in the Spheroid of the Andromeda Spiral Galaxy  
Karoline Gilbert¹, J. Isler², J. Kalirai¹, M. Fardal³, P. Guhathakurta¹, R. M. Rich³, D. Reitzel³, S. Majewski², M. Cooper³, M. Geha², J. Ostheimer², R. Patterson³  
¹UC/Lick Obs, ²Vanderbilt/UCSC, ³UMass, ⁴UCLA, ⁵U Virginia, ⁶UC, Berkeley, ⁷DAO/HIA/NRC, Canada.
177.03 Unraveling NGC 205’s Interaction with Andromeda (M31) 
Kirsten Howley¹, M. Geha², P. Guhathakurta¹, R. Montgomery¹, G. Laughlin¹
¹UCO/Lick Observatory, University of California Santa Cruz, ²The Observatories of the Carnegie Institution of Washington.

177.04 Reconstructing a Recent Collision in Andromeda 
Mark Fardal¹, P. Guhathakurta², A. Babul¹, A. McConnachie¹, C. Dodge⁺
¹UMass, ²UCO/Lick, ³UVic, Canada, ⁴Smith.

177.05 Constraints on the Chemical Evolution of the M31 Spheroid 
Henry C. Ferguson¹, O. Certik¹, T. Brown¹, E. Smith¹, M. Rich², R. Guhathakurta¹, J. Kalirai³, A. Renzini¹, A. Sweigart⁶
¹STScI, ²UCSC, ³UC Santa Cruz, ⁴Univ. Padova, Italy, ⁵GSFC.

177.07 Characterizing the Metallicity Distribution of the Extended Bulge of the Andromeda Spiral Galaxy (M31). 
Jedidah C. Isler¹, J. Kalirai², K. Gilbert², P. Guhathakurta², M. Geha³, S. Majewski¹, J. Ostheimer¹, R. Patterson¹, D. Reitzel³, R. Rich⁷
¹Fisk U, Vanderbilt U, UC, Santa Cruz (Visiting Student), ²UCO/Lick Obs., ³DAO/HIA/NRC, Canada, ⁴U Virginia, ⁵UCLA.

177.08 Keck/Deimos Spectroscopy of Distant M31 fields with Deep HST Imaging 
Robert M. Rich¹, T. M. Brown², D. B. Reitzel¹, H. Ferguson², A. Koch¹, E. Smith¹, P. Guhathakurta¹, J. Kalirai¹, A. Renzini², R. Kimberly³, A. Sweigart⁶, K. Gilbert¹, M. Chiba⁴, M. Iye¹, Y. Komiyama², M. Tanaka⁷
¹UCLA, ²STScI, ³Lick Observatory/UCSC, ⁴UCSC, ⁵INAF-Padova, Italy, ⁶GSFC, ⁷NAOJ, Japan.

Session 178 Dwarf Galaxies: Don’t Let Their Size Fool You
AAS Oral, Tuesday, 10:00-11:30am, 3B

178.01 Environment and the Gas Content of Dwarf Galaxies 
Marla C. Geha¹, M. Blanton², A. A. West³
¹Herzberg Institute of Astrophysics, Canada, ²New York University, ³UC Berkeley.

178.02 Spitzer Mid-Infrared Observations of Blue Compact Dwarf Galaxies 
Yanling Wu¹, V. Charmandaris¹, L. Hao¹, J. Bernard-Salas¹, L. Hunt³, J. R. Houck¹
¹Cornell Univ, ²University of Crete, Greece, ³INAF-IRA, Italy.

178.03D Mass and Substructure in Dwarf Spheroidal Galaxies 
Matthew G. Walker¹
¹Univ. of Michigan.

178.04 Compact Elliptical Galaxies and Ultracompact Dwarfs in the Sloan Digital Sky Survey 
Ronald O. Marzke¹, P. Pellegrini², L. da Costa³, M. Maia³, D. Burstlin³
³San Francisco State University, ²ON/CNPq, Brazil, ³Arizona State University.

178.05 A New Population of Ultra-faint Local Group Galaxies 
Daniel B. Zucker¹, V. Belokurov¹, N. W. Evans¹, G. Gilmore¹, M. I. Wilkinson¹
¹University Of Cambridge, United Kingdom.

178.06 The Dwarf Galaxy Leo A: A Survivor From the Epoch of Reionization 
Andrew A. Cole¹, E. D. Skillman¹, A. E. Dolphin³, J. S. Gallagher, III³, E. Tolstoy⁴, C. Gallart⁵, D. Weisz⁵, S. L. Hidalgo¹, A. Saha⁶, P. B. Stetson⁷, A. Aparicio⁸
¹U. Minnesota, ²U. Arizona, ³U. Wisconsin, ⁴Kapteyn Inst., The Netherlands, ⁵IAU, Spain, ⁶NOAO, ⁷DAO, Canada.

178.07 Spitzer Observations of the Far-Infrared Radio Continuum Correlation in the Small Magellanic Cloud 
Karim M. Sandstrom¹, A. Bolatto¹, A. Leroy², S. Stanimirovic³, J. D. Simon⁴, L. Staveley-Smith⁵, J. R. Dickel⁶, R. Shah⁵, P. F. Winkler⁸, R. C. Smith⁹, N. Mizuno¹⁰
¹University of California, Berkeley, ²Max Planck Institute for Astronomy, Germany, ³University of Wisconsin, Madison, ⁴California Institute of Technology, ⁵Australia Telescope National Facility, CSIRO, Australia, ⁶University of New Mexico, ⁷Institute for Astrophysical Research, Boston University, ⁸Middlebury College, ⁹NOAO, ¹⁰Department of Astrophysics, Nagoya University, Japan.
Session 179 Extrasolar Planets I
AAS Oral, Tuesday, 10:00-11:30am, 605-07

179.01 The Migration of Giant Planets
Richard G. Edgar¹
¹University of Rochester.

179.02 Behavior of Apsidal Orientations in Planetary Systems
Rory Barnes¹, R. Greenberg¹
¹Univ. Of Arizona.

179.03D Turbulent Torques on Protoplanets in a Dead Zone
Jeffrey S. Oishi¹, M. Mac Low², K. Menou³
¹AMNH/UVa, ²AMNH, ³Columbia University.

179.04D Stellar Magnetic Activity and the Detection of Exoplanets
Jason Wright¹
¹UC, Berkeley.

179.05D A Survey of Close, Young Stars with SDI at the VLT and MMT
Beth A. Biller¹, L. Close¹, E. Masciadri¹, R. Lenzen¹, W. Brandner¹, D. McCarthy¹, T. Henning¹, E. Nielsen¹, M. Hartung¹
¹Univ. Of Arizona, ²Observatorio Astrofisico di Arcetri, Italy, ³MPIA-Heidelberg, Germany, ⁴European Southern Observatory, Chile.

179.06 Planets Formed in Habitable Zones of M Dwarf Stars Probably Lack Volatiles
Jack J. Lissauer¹, E. V. Quintana¹
¹NASA/Ames Research Center.

Session 180 Galaxy Clusters III
AAS Oral, Tuesday, 10:00-11:30am, 613-14

180.01 Projected 3pt Correlation Function in the Sloan Digital Sky Survey
Cameron McBride¹, R. Scranton¹, A. Connolly¹, J. Gardner²
¹University of Pittsburgh, ²Pittsburgh Supercomputing Center.

180.02D High-Redshift Clusters in the SpARCS Survey
Adam Muzzin¹, H. Yee¹, G. Wilson², SpARCS Collaboration
¹Univ. of Toronto, Canada, ²Spitzer Science Center.

180.03D AGN Heating and the Growth of Black Holes and Bulges in Cluster Cores
David A. Rafferty¹, B. R. McNamara², P. E. Nulsen³, M. W. Wise⁴
¹Ohio University, ²University of Waterloo, Canada, ³CfA, ⁴University of Amsterdam, The Netherlands.

180.04 Simulating the Universe: Large Area Synthetic Galaxy Cluster Surveys
Eric J. Hallman¹, B. O’Shea², M. Norman¹, R. Wagner¹, J. Burns¹
¹University of Colorado, ²Los Alamos National Laboratory, ³University of California-San Diego.

180.05D Galaxy Populations in Clusters and the Estimation of Cluster Optical Richness in Wide-Field Surveys
Ben Koester¹
¹University of Michigan.

180.06 Probing Structure Formation Physics with the Evolution of Galaxy Cluster Properties
Douglas J. Burke¹, M. Arnaud², H. Boehringer¹, S. Borgani⁴, C. Collins⁵, C. Mullis⁶, R. Nichol⁷, E. Pointecouteau⁸, G. Pratt¹, K. Romer⁹, S. Sabirli¹⁰, P. Viana¹¹, A. Vikhlihnin¹, M. Voit¹²
¹SAO, ²CEA - Service d'Astrophysique, France, ³MPE, Germany, ⁴Observatorio Astronomico di Trieste, Italy, ⁵Liverpool John Moores University, United Kingdom, ⁶University of Michigan, ⁷University of Portsmouth, United Kingdom, ⁸Centre d’Etude Spatiale des Rayonnements, France, ⁹University of Sussex, United Kingdom, ¹⁰Carnegie Mellon University, ¹¹Universidade do Porto, Portugal, ¹²MSU.

Session 181 Galaxy Evolution with DEEP2
AAS Oral, Tuesday, 10:00-11:30am, 608-10

181.01D The DEEP2 Galaxy Redshift Survey: the Formation of the Red Sequence
Michael C. Cooper¹
¹University of California at Berkeley.

181.02 Are Massive Galaxies Formed by z−1?
Christopher Conselice¹, AEGIS Team
¹Univ. of Nottingham, United Kingdom.
181.03D The Evolution of the Blue Galaxy Fraction in DEEP2 Groups and Isolated Galaxies
Brian Gerke
1UC-Berkeley.

181.04 Redshift Identification of Single-Line Emission Galaxies in the DEEP2 Survey
Evan Kirby1, P. Guhathakurta1, S. M. Faber1, B. J. Weiner2
1UC Santa Cruz, 2University of Maryland.

181.05D Galaxies in Transition: AGN Activity and Environments of Post-starburst Galaxies
Renbin Yan1, DEEP2 Team
1UC, Berkeley.

181.06 The Stellar Mass Tully-Fisher Relation to z=1.2
Susan A. Kassin1, B. Weiner2, D. Koo3, J. Lotz2, DEEP2 Team
1UC Santa Cruz, 2Steward Observatory.

Session 182 Novae/Cataclysmic Variables
AAS Oral, Tuesday, 10:00-11:30am, 6A

182.01 Radio Imaging of the Recurrent Nova RS Ophiuchus
Michael P. Rupen1, A. J. Mioduszewski1, J. L. Sokoloski2, C. R. Kaiser3, C. Brocksopp4
1NRAO, 2Columbia University, 3University of Southampton, United Kingdom, 4Mullard Space Science Laboratory, Univ. College London, United Kingdom.

182.02 Hubble Space Telescope Observations of the 2006 Outburst of RS Ophiuchi
1Liverpool John Moores University, United Kingdom, 2Jodrell Bank Observatory, United Kingdom, 3STScI, 4Arizona State University, 5American Museum of Natural History, 6University of Central Lancashire, United Kingdom, 7Keele University, United Kingdom.

182.03 The Metallicity and Lithium Abundances in the Repeating Novae, RS Oph and T CrB
George Wallerstein1, T. Harrison1, U. Munari2
1Univ. of Washington, 2Osservatorio Asiago, Italy.

182.04D Mass Transfer and Evolution of Compact Binaries
Vayujeet Gokhale1
1Louisiana State Univ..

182.05 Hubble Space Telescope Observations of Thirteen Novae Candidates in the Core of M87
Juan P. Madrid1, W. B. Sargent1, H. Ferguson1, M. Livio1, D. Macchetto2
1STScI, 2STScI/ESA.

182.06 X-ray Ne/O Ratio in Cataclysmic Variables
Eric M. Schlegel1, V. Rana2, K. Singh3, V. Girish2, P. Barrett3
1Univ. of Texas, San Antonio, 2Tata Inst. of Fundamental Research, India, 3US Naval Observatory.

182.07 Accreting Pulsating White Dwarfs: Hotter than Single DAVs
Paula Szkody1, A. Mukadam1, B. T. Gaensicke2, P. A. Woudt3, J. Solheim1, E. M. Sion1, A. Nitta4, B. Warner1, D. K. Sahu5, T. Prabhu7, A. Henden8
1U. Washington, 2U. Warwick, UK, 3U. Cape Town, South Africa, 4Inst. of Theoretical Astrophysics, Norway, 5Villanova U., 6Gemini Obs., 7Indian Inst. of Theoretical Astrophysics, India, 8AAVSO.

Session 183 SDSS and GALEX
AAS Oral, Tuesday, 10:00-11:30am, 3A

183.01 The Intrinsic Properties of SDSS Galaxies: Taking off the Rose Tinted Glasses
Ariyed Maller1, A. Berlind1, M. Blanton1, D. Hogg2
1New York City College of Technology, 2CCPF, NYU.

183.02D Dependence of Merger Rates and Ram Pressure Stripping on Environment and Galaxy Mass
Janice Hester1
1Princeton Univ.
183.03D Reflections of Cluster Assembly in the Stellar Populations and Dynamics of Member Galaxies
Sean Moran\textsuperscript{1}, R. S. Ellis\textsuperscript{1}, T. Treu\textsuperscript{2}, G. P. Smith\textsuperscript{3}, N. Miller\textsuperscript{4}
\textsuperscript{1}Caltech, \textsuperscript{2}University of California, \textsuperscript{3}University of Birmingham, United Kingdom, \textsuperscript{4}Caltech/UC Santa Cruz.

183.04 The Star Formation and Extinction Evolution of UV-Selected Galaxies over 0<cz<1.25
Christopher D. Martin\textsuperscript{1}, GALEX Science Team, Spitzer-MIPS Science Team
\textsuperscript{1}Caltech.

183.05D How Special are Brightest Cluster Galaxies?
Anja Von Der Linden\textsuperscript{1}, P. N. Best\textsuperscript{2}, G. Kauffmann\textsuperscript{1}, S. D. White\textsuperscript{1}
\textsuperscript{1}Max-Planck-Institut fuer Astrophysik, Germany, \textsuperscript{2}Institute for Astronomy, Royal Observatory Edinburgh, United Kingdom.

183.06 Star Formation and Attenuation in SDSS Galaxies from GALEX and Spitzer: Exploring the Links
Benjamin D. Johnson\textsuperscript{1}, D. Schiminovich\textsuperscript{1}, GALEX Science Team
\textsuperscript{1}Columbia University.

Session 184 Helping Faculty/Teachers Become More Adept at Working with Under-represented Groups
AAPT Panel, Tuesday, 10:00-11:30am, 615

Chair, Juan R. Burciaga\textsuperscript{1}
\textsuperscript{1}Whitman College.

184.01 Stalking the Anti-Racist Atom: Engaging Educational Equity and Diversity in Physics Teaching
Apriel K. Hodari\textsuperscript{1}
\textsuperscript{1}The CNA Corporation.

184.02 Practical Ways to Improve Physics Education
Daryao S. Khatri\textsuperscript{1}
\textsuperscript{1}University of the District of Columbia.

184.03 Labels Matter: Changing the Conversation From “-isms” to Privilege
Melissa H. Dancy\textsuperscript{1}
\textsuperscript{1}UNC-Charlotte.

184.04 Designing a Workshop for Change in the Community of Physics
Juan R. Burciaga\textsuperscript{1}
\textsuperscript{1}Whitman College.

Session 185 NAEP Science 2009: Why Should Physics Teachers Care?
AAPT Panel, Tuesday, 10:00-11:30am, 310
Panelists: Arthur Eisenkraft, Univ. of Massachusetts-Boston; Jack Hehn, American Institute of Physics; Jim Minstrell, FACET Innovation National Assessment of Educational Progress (NAEP) is commonly called “The Nation's Report Card.” Beginning in 2009 there will be a new science test that is based on a framework developed over the last two years. The panelists, who were members of the steering and planning committees, will describe the need for this new instrument, outline the development process, compare the old and new frameworks and explain why this new exam is important and will represent a new trend-line to measure student achievement in science.

Chair, Paul Hickman\textsuperscript{1}
\textsuperscript{1}Science Education Consultant.

Session 186 1957: the Legacy of Sputnik
AAPT Special, Tuesday, 10:00-11:30am, 303

Chair, Richard Jacob\textsuperscript{1}
\textsuperscript{1}Arizona State U..

186.01 Eisenhower, Scientists, and Sputnik
John S. Rigden\textsuperscript{1}
\textsuperscript{1}Washington University.

186.02 The Influence of Sputnik on U.S. Science Education and Research
Leon M. Lederman\textsuperscript{1}
\textsuperscript{1}Illinois Institute of Technology and Illinois Mathematics and Science Academy.

Session 187 Virtual Observatories
AAPT Special, Tuesday, 10:00-11:30am, 618

Chair, Jordan Raddick\textsuperscript{1}
\textsuperscript{1}Johns Hopkins University.
**TUESDAY Events, Sessions and Paper Titles**

187.01 *The Science and Technology of the National Virtual Observatory*
Alex Szalay¹
¹Johns Hopkins University.

187.02 *Education Potential of the National Virtual Observatory*
Carol Christian¹
¹STScI.

187.03 *The Challenges of Using Virtual Observatories in the Classroom*
Robert T. Sparks¹
¹National Optical Astronomy Observatory.

187.04 *Discover an Asteroid Using SDSS*
Elizabeth A. Ramseyer¹
¹Niles West High School.

**Session 188 PER: Student Understanding & Student Reasoning**

AAPT Oral, Tuesday, 10:00-11:30am, 307-08

Chair, Marina M. Milner-Bolotin¹
¹University of British Columbia, Canada.

188.01 *Techniques and Tools for Teaching the Photoelectric Effect*
S. B. McKagan¹, W. Handley¹, K. K. Perkins¹, C. E. Wieman¹
¹University of Colorado.

188.02 *Examining Student Understanding of Quantum Wavefunctions*
Homeyra R. Sadaghiani¹, P. S. Shaffer¹, L. C. McDermott¹
¹University of Washington.

188.03 *Pedagogical Landscape in Upper-Level Thermal Physics*
David E. Meltzer¹, W. M. Christensen²
¹University of Washington, ²Iowa State University.

188.04 *“Is Entropy Conserved?” Student Understanding of Entropy in Introductory Physics*
Warren M. Christensen¹, D. E. Meltzer²
¹Iowa State University, ²University of Washington.

188.05 *Longitudinal Standing Waves in a Tutorial Environment*
Jack Dostal¹
¹Montana State University.

188.06 *Investigating Student Understanding of Wave Behavior at Boundaries*
Mila Kryjevskai¹, M. R. Stetzer¹, P. R. Heron¹, L. C. McDermott¹
¹University of Washington.

188.07 *Investigating Student Understanding of Control of Variables*
Andrew Boudreaux¹, P. R. Heron¹, P. S. Shaffer²
¹Western Washington University, ²University of Washington.

188.08 *Modeling Student Thinking about Motion in Tutorial*
Brian W. Frank¹, R. E. Scherr¹
¹University of Maryland.

188.09 *Sensemaking: Conceptualizing and Coding for “Good” Student Reasoning*
Andrew Elby¹, R. Scherr¹, T. Bing¹
¹University of Maryland.

**Session 189 Techniques in Introductory Physics Teaching**

AAPT Oral, Tuesday, 10:00-11:30am, 616

Chair, Frieda Stahl¹
¹California State Univ., Los Angeles.

189.01 *Aesthetic Physics Education: A Symmetry Based, Physics and Fine Arts Curriculum*
Jatila van der Veen¹, P. M. Lubin¹, J. Cook-Gumperz³, J. D. Raley³, E. Mazur¹
¹Gevirtz Graduate School of Education and Physics Dept., University of California, Santa Barbara, ³Physics Dept. UCSB, ⁴Gevirtz Graduate School of Education, UCSB, ⁵Physics Dept, Harvard University.

189.02 *Science One: An Interdisciplinary First-year Science Program*
Domingo J. Louis-Martinez¹, N. Dryden¹, M. Maclean¹
¹University of British Columbia, Canada.
Curbing “Math Anxiety” with Galileo - While Teaching Physicists, too
Brian P. Schwartz¹
¹Carthage College.

Using Whole Vector Force Representations for “Friction Problems”
Daniel H. Phelps¹
¹Columbia College (Retired), Canada.

Teaching Physics for Conceptual Understanding - Exemplified for Einstein’s Special Relativity
Lucian M. Undreiu¹
¹UVA’s College at Wise.

Student Reported Learning Gains From Pre-Class Questions
David T. Kagan¹
¹California State University, Chico.

High School Physics Experience and Learning Outcomes in Introductory Physics Courses
Tetyana Antimirova¹
¹Ryerson University, Canada.

The Impact of Teaching Technologies in the Introductory Physics Classroom
William W. McNairy¹
¹Duke University.

Examples from Research on the Learning and Teaching of Quantum Mechanics
Andrew D. Crouse¹, P. S. Shaffer¹, L. C. McDermott¹
¹Univ. of Washington.

Begin With Special Relativity
Commercial Workshop, Tuesday, 12:30-2:00pm, 302
For nearly a century we have lived with an introductory physics curriculum that divides physics into classical and modern parts, and teachers only the classical part to the majority of students. The Physics2000 workshop demonstrates how to easily overcome this divide by starting with special relativity in the first week, and fitting in 20th century topics as you go along.
As examples we will discuss introducing magnetism from Coulomb’s Law and the Lorentz contradiction teach the time-energy form of the uncertainty principle and introduce Fourier Optics using the pulse Fourier Transformation capability of MacScopeII.
Chair, Elisha Huggins¹

Session 190 Heineman Prize Lecture
Plenary, Tuesday, 11:40am-12:30pm, Ballroom 6

The DEEP2 Redshift Survey: From Galaxies to Large-Scale Structure
Marc Davis¹
¹UC, Berkeley.
Decadal Survey Town Hall

AAS Town Hall Meeting, Tuesday, 12:45-1:45pm, 613

In our field, the National Academy of Sciences - National Research Council (NRC) is best known as the organization that convenes the Astronomy and Astrophysics Decadal Surveys (AADSs). The series of AADS reports has provided priorities for the federal investment that has, in turn, enabled the remarkable success of the field. The January 2007 AAS meeting will provide a good opportunity to take stock of the progress that has been made since the 2001 AADS and to begin to turn our attention forward to planning the next one. The AADS process is organized by the NRC’s Board on Physics and Astronomy, in cooperation with the Space Studies Board and with the active involvement of their joint subcommittee, the Committee on Astronomy and Astrophysics. With this session, the BPA/SSB/CAA will begin a dialogue with the community about the next AADS. The Boards are considering whether, in light of the current circumstances in the field, to recommend some adjustments in the decadal survey process. AAS members are encouraged to take the opportunity presented by this Town Hall to comment on this issue.

Chair, Anneila I. Sargent
(Caltech), Chair, Board on Physics and Astronomy NRC.
Chair, Lennard A. Fisk
(U. Michigan), Chair, Space Studies Board.
Chair, C. M. Urry
(Yale Univ.), Cochair, Committee on Astronomy and Astrophysics.

HEAD Business Meeting

AAS Splinter Meeting, Tuesday, 12:45-1:45pm, 609

Chair, Mitchell C. Begelman
Univ. of Colorado.

Astronomy Education Research Town Hall

AAPT Crackerbarrel, Tuesday, 1:00-2:00pm, 617

Chair, Edward Prather
Univ. of Arizona.

Physics and Society Education

AAPT Crackerbarrel, Tuesday, 1:00-2:00pm, 619

Are you looking for ways to incorporate societal issues into a physics course? Join your colleagues to share questions and ideas in an informal discussion about how to accomplish this. A small number of people will make brief presentations on their successful activities, then the session will open for all to share and discuss. Information about presenters will be posted through the PHYSOC listserv prior to the meeting.

Chair, Jane Flood
Muhlenberg College.

High Performance Computing for Undergraduate Physics and Astronomy Education - Let’s talk about it

AAPT Crackerbarrel, Tuesday, 1:00-2:00pm, 618

For years supercomputers have been the domain of the relatively few researchers whose extreme computational performance demands could justify the costs - both time and equipment - of this extreme technology. Now anyone can afford mega-mega flops, even on their laptops, and software with which they can create numerical simulations without expensive support staff. So why are we inviting you to talk about high performance computing? Come; find out why; and join in this discussion. Discussion Leader: Scott Lathrop (lathrop@mcs.anl.gov), TeraGrid Director of Education, Outreach and Training, SC07 Education Program Chair. Session sponsor: “Computing in Science and Engineer”, the AIP/IEEE-CS technical magazine for computational science.

Chair, Norman Chonacky
Yale U.

Session 191 Next Generation Radial Velocity Planet Surveys

AAS Special, Tuesday, 2:00-3:30pm, 3B

191.01 N2K and Beyond
Greg Laughlin
UC Santa Cruz.

191.02 Status of the All Sky Extrasolar Planet Survey and Early Results
Jian Ge
University of Florida.
191.03 Spectroscopic Follow-Up Observations of Transiting Planet Candidates Identified by the Kepler Mission
David Latham¹, D. D. Sasselov¹, A. H. Szentygyorgyi¹
¹Harvard-Smithsonian Center for Astrophysics.

191.04 An Infrared Precision Radial Velocity Spectrograph for Gemini
John Rayner¹
¹University of Hawaii Institute for Astronomy.

191.05 Big Questions About Planet Formation That Can Be Addressed By Next-Generation Radial Velocity Planet Searches
Eric B. Ford¹, E. Agol²
¹Harvard-Smithsonian Center for Astrophysics, ²U. Washington.

Session 192 SAGE: Surveying the Agents of a Galaxy’s Evolution
AAS Special, Tuesday, 2:00-3:30pm, 201

Chair, Alexander G. Tielens¹
¹NASA Ames Research Center.

192.01 The Large Magellanic Cloud as a Galaxy
John (Jay) Gallagher¹, M. Meixner², J. Bernard³, R. Blum³, K. Gordon³, R. Indebetouw⁴, W. Reach³, B. Whitney³, B. Babler⁴, M. Block⁴, E. Churchwell³, C. Engelbracht², B. For³, J. Hora⁴, C. Leitherer³, M. Meade³, K. Misselt³, A. Tielens¹, U. Vijh³, SAGE Team
¹University of Wisconsin-Madison, ²NASA Space Telescope Science Institute, ³CESR, France, ⁴NOAO, ⁵University of Arizona, ⁶University of Virginia, ⁷Caltech, ⁸Space Science Institute, ⁹University of Texas, ¹⁰Harvard-Smithsonian/CfA, ¹¹NASA/Ames.

192.02 Spitzer SAGE Survey of the Large Magellanic Cloud: Project Overview
Margaret Meixner¹, B. Babler¹, J. Bernard¹, M. Block¹, R. Blum², C. Engelbracht³, B. For³, K. Gordon³, J. Hora², R. Indebetouw³, C. Leitherer¹, M. Meade¹, K. Misselt¹, W. Reach³, A. G. Tielens¹, U. Vijh³, B. Whitney¹, S. Team¹
¹STScI, ²University of Wisconsin, ³CESR, France, ⁴NOAO, ⁵University of Arizona, ⁶University of Texas, ⁷Harvard-Smithsonian/CfA, ⁸University of Virginia, ⁹SSC/Caltech, ¹⁰NASA/Ames, ¹¹Space Science Institute.

192.03 The Spitzer/SAGE View of Star Formation in the LMC
Remy Indebetouw¹, B. Whitney³, M. Sewilo¹, T. Robitaille¹, M. Meade¹, B. Babler², J. Hora³, K. Gordon⁴, C. Engelbracht⁴, B. For⁵, M. Block⁶, K. Misselt⁶, M. Meixner⁶, U. Vijh⁷, K. Leitherer⁶, SAGE Team
¹Univ. of Virginia, ²Space Science Institute, ³Univ. of Wisconsin, ⁴Univ. of St-Andrews, United Kingdom, ⁵Harvard-Smithsonian/CfA, ⁶Univ. of Arizona, ⁷Univ. of Texas, ⁸STScI.

192.04 Dust and gas in the Interstellar Medium of the LMC
William T. Reach¹, J. Bernard², D. Paradis³, M. Meixner⁴, A. Kawamura¹, Y. Fukui¹, SAGE Legacy Team
¹Caltech, ²CESR, France, ³STScI, ⁴Nagoya Univ., Japan, ⁵Nagoya Univ., Japan.

192.05 Mass Loss from Evolved Stars in the LMC: A Spitzer SAGE View
Robert D. Blum¹, K. Volk², S. Srinivasan³, F. Markwick-Kemper¹, M. Meixner¹, S. Points³, K. Olsen³, K. Gordon³, C. Engelbracht⁴, B. For⁴, M. Block⁵, K. Misselt⁵, B. Whitney⁵, M. Meade⁵, B. Babler⁵, R. Indebetouw¹, J. Hora², U. Vijh³, C. Leitherer³, J. Mould¹, SAGE Team
¹NOAO, ²Gemini Observatory, ³Johns Hopkins University, ⁴University of Manchester, United Kingdom, ⁵STScI, ⁶CTIO, Chile, ⁷Steward Observatory, ⁸University of Texas, ⁹Space Science Institute, ¹⁰University of Wisconsin, ¹¹University of Virginia, ¹²Harvard-Smithsonian/CfA.

192.06 Spitzer Spectroscopy of Evolved Stars in the LMC
Joel H. Kastner¹
¹RIT Center for Imaging Science.

Session 193 Science from the NDWFS Bootes Field
AAS Special, Tuesday, 2:00-3:30pm, 3A

Chair, Daniel Stern¹
¹JPL/Caltech.

193.01 The NOAO Deep Wide-Field Survey - An Introduction
Buell Jannuzi¹
¹NOAO.
### Session 194 Short Gamma-Ray Bursts

**HEAD Special, Tuesday, 2:00-3:30pm, 205**

**Chair, Neil Gehrels**

*NASA’s GSFC.*

<table>
<thead>
<tr>
<th>Paper Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>On the Prompt Gamma-ray Emission Properties of Short GRBs</td>
<td>Chryssa Kouveliotou</td>
</tr>
<tr>
<td></td>
<td><em>MSFC.</em></td>
</tr>
<tr>
<td>X-ray Afterglows of Short Gamma-Ray Bursts</td>
<td>David N. Burrows</td>
</tr>
<tr>
<td></td>
<td><em>Penn State Univ.</em></td>
</tr>
<tr>
<td>The Host Galaxies and Host Clusters of Short Gamma Ray Bursts: Constraints on the Progenitor Age Distribution</td>
<td>Edo Berger</td>
</tr>
<tr>
<td></td>
<td><em>Carnegie Observatories.</em></td>
</tr>
</tbody>
</table>

### Session 195 AGN, Starbursts and Sub-mm Galaxies

**AAS Oral, Tuesday, 2:00-3:30pm, 6C**

<table>
<thead>
<tr>
<th>Paper Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><em>IPAC, Caltech, Institut d' Astrophysique de Paris, France, UCSD, IRAM, France, University of Padova, Italy, IAS, France, Cornell, University of Bonn, Germany, ESO, France, MPIE, Germany, Instituto Astrofisica, Spain, Service d'Astrophysique, CEA, France, Service d'Astrophysique, CEA, France, Imperial College, United Kingdom.</em></td>
</tr>
<tr>
<td>The Masses and Luminosities of Submillimeter-Selected Galaxies</td>
<td>Laura J. Hainline</td>
</tr>
<tr>
<td></td>
<td><em>Caltech.</em></td>
</tr>
<tr>
<td>Mid-Infrared Spectral Diagnostics of Submillimetre Galaxies</td>
<td>Alexandra Pope, R. Chary, M. Dickinson, D. Scott</td>
</tr>
<tr>
<td></td>
<td><em>Univ. of British Columbia, Canada, Spitzer Science Center, National Optical Astronomy Observatory.</em></td>
</tr>
<tr>
<td>The Redshift Distribution of 24 micron sources in the NDWFS Bootes Field</td>
<td>Vandana Desai</td>
</tr>
<tr>
<td></td>
<td><em>Caltech.</em></td>
</tr>
<tr>
<td>History and Modes of Star Formation since z~1 in Field Galaxies: A New Picture from the AEGIS Collaboration</td>
<td>Kai Noeske, AEGIS collaboration</td>
</tr>
<tr>
<td></td>
<td><em>UC, Santa Cruz.</em></td>
</tr>
</tbody>
</table>
TUESDAY Events, Sessions and Paper Titles

195.06D The Molecular ISM of Quasar Host Galaxies in the Early Universe
Dominik A. Riechers¹
¹Max-Planck Institut fuer Astronomie, Germany.

195.07 The Hard X-ray 20–40 keV AGN Luminosity Function
Volker Beckmann¹, S. Soldi², C. R. Shrader¹, N. Gehrels¹, N. Produ-­it²
¹NASA’s GSFC, ²INTEGRAL Science Data Centre, Switzerland.

Session 196 Extrasolar Planets III
AAS Oral, Tuesday, 2:00–3:30pm, 605-07

196.01 MIPS Lightcurves for Extrasolar Planets
Bradley M. Hansen¹, J. Harrington², S. Luszcz³, D. Deming⁴, S. Seager⁵, K. Menou⁶, J. Cho⁷, J. Richardson⁴
¹UC, Los Angeles, ²U. Central Florida, ³UC, Berkeley, ⁴GSFC, ⁵OCIW, ⁶Columbia, ⁷QMUL, United Kingdom.

196.02 Infrared Spectroscopy of the Transiting Extrasolar Planet
HD209458b
Lee J. Richardson¹, D. Deming¹, K. Horning², S. Seager³, J. Harrin-­gton⁴
¹NASA’s GSFC, ²Florida Institute of Technology, ³Carnegie Institution of Washington, ⁴University of Central Florida.

196.03 The Thermal Flux of the Extrasolar Planet HD 209458b at 7-14 Microns
Drake Deming¹, S. Seager², L. J. Richardson¹, K. Horning³, J. Harrin-­gton⁴
¹NASA’s GSFC, ²CIW/MIT, ³FIT, ⁴UCF.

196.04 High Precision Differential Photometry of the Transit and Secondary Eclipse of HD209458b
Daniel E. Potter¹
¹Univ. of Arizona.

196.05 First High-Contrast Science with an IFU: The Sub-Stellar Comp-­panion to GQ Lup
Stanimir A. Metchev¹, M. McElwain¹, J. Larkin¹
¹UCLA.

196.06 Search for Planetary Transits of the Debris Disk Star AU Mic
Larry D. Petro¹, L. Hebb², H. Ford³, D. Golimowski¹, J. Rogers³, P. Sackett², K. Lewis¹, M. Clampin³, J. Wisniewski², D. Minniti¹, I. Toledo⁶, P. Espinoza⁷, D. Ardila⁷
¹STScI, ²University of St. Andrews, United Kingdom, ³Johns Hopkins University, ⁴Australian National University, Australia, ⁵NASA’s Goddard Space Flight Center, ⁶Pontificia Universidad Catolica de Chile, Chile, ⁷CalTech/Spitzer Science Center.

196.07D Forming Earth-like Planets With Migrating Giants: Modeling and Observations
Avi Mandell¹, S. Sigurdsson², S. Raymond³, M. Mumma⁴, G. Blake⁵
¹Penn State University / NASA GSFC, ²Penn State University, ³Univ. of Colorado / VPL, ⁴NASA GSFC, ⁵Cal Tech.

196.08 Correlations Between Stellar Metallicity and the Frequency of Plan-­etary and Stellar Companions
Charles Lineweaver¹, D. Grether²
¹Australian National University, Australia, ²University of New South Wales, Australia.

Session 197 Galaxy Clusters IV
AAS Oral, Tuesday, 2:00–3:30pm, 608-10

197.01D Radio and X-ray Properties of Cavities in the Hot Atmospheres of Ellipticals, Groups, and Clusters
Laura Birzan¹, B. R. McNamara², C. L. Carilli³, P. E. Nulsen³, M. Wise⁶
¹Ohio University, ²University of Waterloo, Canada, ³NRAO, ⁴CfA, ⁵University of Amsterdam, The Netherlands.

197.02D The X-Ray Luminosity-Mass Relation for Local Clusters of Galaxies
Rebecca Stanek¹, A. Evrard¹, H. Boehringer¹, P. Schuecker¹, B. Nord¹
¹Univ. of Michigan, ²Max-Planck-Institut fur extraterrestrische Physik, Germany.

197.03D Cosmological Constraints from the maxBCG Cluster Sample
Eduardo Rozo¹
¹Ohio State University.
TUESDAY Events, Sessions and Paper Titles

197.04 The Age Dependence of Galaxy Clustering
Darren S. Reed¹, E. Governato², T. Quinn³, J. Stadel³, G. Lake³
¹Los Alamos National Laboratory, Theoretical Astrophysics (T-6), ²Univ. of Washington, ³Univ. of Zurich, Switzerland.

197.05 Tracing Galaxy Evolution in Clusters and Groups at z>1
Simona Mei¹, A. Stanford², J. Blakeslee³, R. Demarco⁴, P. Eisenhardt², H. Ford¹, B. Holden¹, N. Homeier¹, M. J. Jee³, T. Kodama¹, F. Nakata¹, M. Postman⁵, P. Rosati⁵, R. White⁹
¹Johns Hopkins Univ., UC Berkeley, Observatoire de Paris, ²IGPP/LLNL, ³Washington State University, ⁴Johns Hopkins Univ., ⁵JPL, ⁶University of California - Santa Cruz, ⁷National Astronomical Observatory of Japan (NAOJ), Japan, ⁸University of Tokyo, Institute of Astronomy, Japan, ⁹Space Telescope Science Institute, ¹⁰European Southern Observatory, Germany.

197.06 Evidence of Hierarchical Galaxy Formation from Strong MgII Absorbers
Andrew Mshar¹, J. C. Charlton¹, C. W. Churchill¹, T. Kim³
¹Penn State, ²NMSU, ³Institute of Astronomy, United Kingdom.

Session 198 ISM/Star Formation
AAS Oral, Tuesday, 2:00-3:30pm, 611-12

198.01 Using Cloudshine to Constrain Turbulent Star Formation
Jonathan B. Foster¹, A. A. Goodman¹, J. Pineda¹, P. Caselli²
¹Harvard Univ., ²Osservatorio Astrofisico di Arcetri, Italy.

198.02 The Scale of Turbulence in Molecular Clouds
Naomi A. Ridge¹, A. A. Goodman¹, N. Whitehorn¹
¹Harvard-Smithsonian, CfA.

198.03 What is the True Core Mass Function?
D. Li, X. Guan², Y. Dai²
¹Jet Propulsion Laboratory / Caltech, ²Peking University, China.

198.04D Updated Interstellar Abundance Studies with FUSE and STIS
Adam G. Jensen¹
¹Univ. Of Colorado.

198.05 Study of Diffuse Interstellar Bands in 7 Intermediate Redshift Galaxies
Brandon L. Lawton¹, C. W. Churchill¹, B. A. York², S. L. Ellison², T. P. Snow³, R. A. Johnson⁴, S. G. Ryan⁵
¹New Mexico State Univ., ²U. Victoria, Canada, ³U. Colorado, ⁴Oxford U., United Kingdom, ⁵U. Hertfordshire, United Kingdom.

198.06 The Discovery of Extragalactic Magnetic Fields in OH Megamasers
Timothy Robishaw¹
¹UC Berkeley.

198.07 The Effect of Star Formation Activity on the Far-Infrared--Radio Correlation within Spiral Galaxies
Eric J. Murphy¹, G. Helou², R. Braun³, J. D. Kenney¹, L. Armus², the SINGS team
¹Yale Univ., ²Caltech, ³ASTRON, The Netherlands.

198.08 Disentangling Density and Heating Effects in the Infrared Emission of SINGS Galaxies
Caroline Bot¹, SINGS team
¹Caltech.

Session 199 Kinematics of Galaxies - Internal and External
AAS Oral, Tuesday, 2:00-3:30pm, 204

199.01 The Kinematics of the Disk-Halo Interaction in Spiral Galaxies
George H. Heald¹, R. J. Rand², R. A. Benjamin³
¹ASTRON, The Netherlands, ²U. New Mexico, ³U. Wisconsin.

199.02D Thick Disks in External Galaxies: Structure, Kinematics, and Abundances
Peter Yoachim¹
¹Univ. of Washington.

199.03 Dwarf Satellites of Distant Galaxies
Michael R. Blanton¹
¹New York Univ.

199.04D The Motions of the Magellanic Clouds About the Milky Way
Nitya Kallivayalil¹, R. van der Marel², C. Alcock¹
¹Harvard-Smithsonian Center for Astrophysics, ²STScI.
TUESDAY Events, Sessions and Paper Titles

199.05  Spectral Indices of Early Type Galaxies in Rich Clusters of Galaxies
Robert C. Berrington1, M. Pierce1, A. Monson1
1Univ. of Wyoming.

199.06  Gas Dynamics and Star Formation in the Barred Galaxy NGC 4303
Jin Koda1
1Caltech.

Session 200 Supernovae Ia, Ib, Ic & II
AAS Oral, Tuesday, 2:00-3:30pm, 613-14

200.01  Type Ia Supernova Spectral Line Ratios as Luminosity Indicators:
“From Phenomenology to Radiative Transfer and Back Again”
Sebastien Bongard1, E. Baron2, G. Smadja3, D. Branch4, P. Hauschildt4
1Lawrence Berkeley Lab., 2University of Oklahoma City, 3Institut de Physique Nucléaire de Lyon, France, 4Hamburger Sternwarte, Germany.

200.02  Type Ia Supernova Model Light Curves And The Width-Luminosity
Relation
Daniel Kasen1
1Johns Hopkins Univ.

200.03  Numerical Simulations of Carbon Ignition in Type Ia Supernovae
Haitao Ma1, S. Woosley1, M. Kuhlen2, M. Evonuk1, G. Glatzmaier
1UC, Santa Cruz, 2Institute for Advanced Study.

200.04D Varied Deaths of Massive Stars: Optical and NIR Properties of Type
Ib/c Supernovae
Maryam Modjaz1
1Harvard Univ.

200.05  VLT-FORS1 Spectropolarimetry of Core-Collapse Supernovae
Justyn R. Maund1, L. Wang2, F. Patat3, P. Hoeflich4, D. Baade3, C.
Wheeler1
1U. Texas, Austin, 2Texas A&M, 3ESO, Germany, 4Physics, Florida State.

200.06  Lost and Found: Another Missed Type IIn SN, CG X-2
Franz E. Bauer1, S. Smartt2, W. N. Brandt1, S. Immler4
1Columbia Univ., 2Queen’s U. Belfast, Ireland, 3Penn State, 4GSFC.

Session 201 Effective Mentoring of Women and Minority Students in Physics and Astronomy
AAPT Invited, Tuesday, 2:00-3:30pm, 615

Chair, Timothy F. Slater1
1Univ. of Arizona.

201.01  Building Bridges to Diversity in Graduate Physics & Astronomy:
The Fisk-Vanderbilt Masters-to-PhD Bridge Program
Keivan G. Stassun1
1Vanderbilt University and Fisk University.

201.02  A Novel Approach to Improving Diversity in Science: A Post-Bac-
calurate Research Year
Kartik Sheth1
1Caltech / Spitzer Science Center / IPAC.

201.03  Increasing Underrepresented Student Participation in Science Ma-
jors: The Pre-Major in Astronomy Program
Daryl Haggard1
1University of Washington.

Session 202 Visualizing and Simulating the Cosmos with Computers
AAPT Invited, Tuesday, 2:00-3:30pm, 616

Chair, Wolfgang Christian1
1Davidson College.

202.01  Discovering the Complexity of Supernovae through Three-Dimen-
sional Simulations
John M. Blondin1
1North Carolina State University.

202.02  Scientific Computation and Astrophysical Gas Dynamics
James M. Stone1
1Princeton University.
202.03  Computational Astrophysics reaches its Third Age: From Star Formation to the Death of the Sun.
Adam Frank
1University of Rochester.

Session 203 Panel on Choosing a Keypad System
AAPT Panel, Tuesday, 2:00-3:30pm, 303
The panelists will present different perspectives concerning the choice and effective use of wireless keypads. These viewpoints describe the wide range of applications for keypads, from their use in small high school classes to large university lectures. Panelists: C. Fred Moore, Univ. of Texas, Austin, TX; Tim Stelzer, Univ. of Illinois, Urbana, IL; and Paul Williams, Austin Comm. College, Austin, TX
Chair, Ray Burnstein
1Illinois Institute of Technology.
Chair, Leon M. Lederman
1Illinois Institute of Technology.

Session 204 University Supervisors and Cooperating Teachers: Their Critical Roles for Student Teaching
AAPT Special, Tuesday, 2:00-3:40pm, 310
Chair, Stamatis Vokos
1Seattle Pacific University.

204.01  Field Experiences for Prospective Physics Teachers*
Ingrid Novodvorsky
1University of Arizona.

204.02  Essential Support Systems for Emerging Physics Teachers
Sally Luttrell-Montes
1University of Washington.

204.03  Teachers in Residence: University Supervisors, Cooperating Teachers, and In-Service Mentors
Michael D. Wolter, Mr.
1Muncie Central HS.

204.04  A Student Teacher Effectiveness Review System
Carl J. Wenning
1Illinois State University.

Session 205 Implementing Reform Instruction
AAPT Oral, Tuesday, 2:00-3:30pm, 307-08
Chair, Ann Brandon
1Joliet West HS.

205.01  Promoting Instructional Change: Beyond an Emphasis Curriculum
Charles Henderson
1Western Michigan University, M. H. Dancy
2University of North Carolina at Charlotte.

205.02  Replicating Reforms in a Large-scale Lecture Environment
Noah Finkelstein
1University of Colorado at Boulder.

205.03  Implementation and Results of a Learning Assistant Program
Thomas B. Bogue
1Seattle Pacific University.

205.04  Understanding Graduate Teaching Assistants as Tutorial Instructors
Rachel E. Scherr
1University of Maryland.

205.05  Graduate TAs as Tutorial Instructors: A Case Study
Renee Michelle Goertzen
1University of Maryland.

205.06  Teaching AP Physics with the Activity Based Physics CD
Maxine C. Willis
1Dickinson College.

205.07  Adventures in Studio Physics
Sarah D. Johnson
1Simon Fraser University, Canada.
205.08 Tracking and Analyzing Student Writing in Physics by Inquiry
   Dedra Demaree\textsuperscript{1}, G. Aubrecht\textsuperscript{2}, L. Bao\textsuperscript{3}, W. Zhao\textsuperscript{4}
   \textsuperscript{1}College of the Holy Cross, \textsuperscript{2}The Ohio State University.

205.09 Student Evaluation Differences between Different Physics by Inquiry Courses
   Gordon J. Aubrecht, II\textsuperscript{1}
   \textsuperscript{1}Ohio State University at Marion.

Session 206 Stardust Mission
Plenary, Tuesday, 3:40-4:30pm, Ballroom 6
206.01 The Return of Stardust
   Andrew J. Westphal\textsuperscript{1}
   \textsuperscript{1}UC, Berkeley.

Session 207 Richtmyer Memorial Lecture
Plenary, Tuesday, 4:40-5:30pm, Ballroom 6
   Chair, Richard Peterson\textsuperscript{1}
   \textsuperscript{1}Bethel Univ..

207.01 Evidence from Type Ia Supernovae for an Accelerating Universe and Dark Energy
   Alexei V. Filippenko\textsuperscript{1}
   \textsuperscript{1}University of California, Berkeley.

Banquet
Joint Event, Tuesday, 7:15 pm - 9:30 pm, Sheraton
Food choices are beef, chicken, or vegetarian. More details on this event to come.
Tickets: $55

WEDNESDAY

Speaker Ready Room
Attendee Services, Wednesday, 7:30am-4:00pm, 603-04
See Saturday’s listing for AV instructions.

Registration
Attendee Services, Wednesday, 8:00am-2:00pm, South Lobby

Cyber Café
Attendee Services, Wednesday, 8:00am-3:30pm, South Lobby
See Sunday’s listing for details.

Session 208 Rossi Prize Lecture
Plenary, Wednesday, 8:30-9:20am, Ballroom 6
208.01 Spin and Magnetic Evolution of Millisecond Pulsars in X-Ray Binaries
   Deepo Chakrabarty\textsuperscript{1}
   \textsuperscript{1}MIT.

208.02 Burst Oscillations: A New Spin on Neutron Stars
   Tod E. Strohmayer\textsuperscript{1}
   \textsuperscript{1}NASA’s GSFC.

208.03 Accreting Millisecond Pulsars - An Overview of Recent Developments
   Rudy Wijnands\textsuperscript{1}
   \textsuperscript{1}University of Amsterdam, The Netherlands.

Gadgets and Gizmos
Attendee Services, Wednesday, 9:20am-1:00pm, South Lobby
See Sunday’s listing for details.

Job Center
Attendee Services, Wednesday, 9:20am-12:00pm, Exhibit Hall 4
Session 209 Poster Session IV

AAPT Poster, Wednesday, 9:20am-4:00pm, Exhibit Hall 4

209.01 Reasoning Ability and Epistemological Attitudes as Predictors of Success
Elizabeth B. Etters\(^1\), O. Tfeily\(^1\), M. Dancy\(^1\)
\(^1\)UNC-Charlotte.

209.02 Optical Limiting in Solid-Core Holey Fibers
Stacey R. Sueoka, Ms.\(^1\), J. Butler\(^1\), S. Montgomery\(^2\), J. Shirk\(^3\), S. Flom\(^3\), R. Pong\(^3\), B. Wright\(^3\), T. Tauney\(^3\), A. Rosenberg\(^3\), C. Menyuk\(^4\), J. Hu\(^4\)
\(^1\)Pacific University, \(^2\)United States Naval Academy, \(^3\)NRL, \(^4\)U. Maryland.

209.03 Is Fresnel Diffraction a Unified Diffraction Model?
Mark P. Neyer\(^1\), H. Schmitzer\(^1\)
\(^1\)Xavier University.

209.04 Repeatability and Precision of Laser Diffraction Measurements of Small Objects
Scott C. Dudley\(^1\), R. Mudry\(^1\)
\(^1\)USAF Academy.

209.05 Applying Archimedes' Law to Ice Melting in Sea Water
Peter D. Noerdlinger\(^1\), K. R. Brower\(^2\)
\(^1\)St Mary's University, Halifax, NS Canada, \(^2\)New Mexico Institute of Technology.

209.06 Spherical Rare Earth Magnets And The Dipole-Dipole Interaction
Al J. Adams\(^1\)
\(^1\)University Arkansas Little Rock.

209.07 The Effects of Magnetic Fields on Cooling Fans
Raphael G. Cherney\(^4\)
\(^4\)Brownell-Talbot School.

209.08 Using SAT scores to identify students at risk in introductory physics
Vincent P. Coletta\(^1\), J. Phillips\(^1\)
\(^1\)Loyola Marymount University.

209.09 A Methodology for Developing Diagnostic Concept Inventories
Rebecca Lindell\(^1\)
\(^1\)Southern Illinois University Edwardsville.

209.10 A Classification Scheme for Categorizing Different Concept Inventories
Rebecca Lindell\(^1\), T. Foster\(^1\)
\(^1\)Southern Illinois University Edwardsville.

209.11 Student Perceptions of Science Ability, Experiences, Expectations, and Career Choices
Michael Cherney\(^1\), I. Cherney\(^1\)
\(^1\)Creighton University.

209.12 “Is Entropy conserved?” Student Understanding of Entropy in Introductory Physics
Warren M. Christensen\(^1\), D. E. Meltzer\(^2\)
\(^1\)Iowa State University, \(^2\)University of Washington.

209.13 Sensemaking: Conceptualizing and Coding for “Good” Student Reasoning
Andrew Elby\(^1\), R. Scherr\(^1\), T. Bing\(^1\)
\(^1\)University of Maryland.

209.14 Modeling Student Thinking about Motion in Tutorial
Brian W. Frank\(^1\), R. E. Scherr\(^1\)
\(^1\)University of Maryland.

209.15 Keeping a Good Things Going: What does sustaining reforms in physics mean?
Noah D. Finkelstein\(^1\), S. Pollock\(^3\)
\(^1\)University of Colorado at Boulder.

209.16 Graduate TAs as Tutorial Instructors: A Case Study
Renee Michelle Goertzen\(^1\), R. E. Scherr\(^4\), A. Elby\(^1\)
\(^1\)University of Maryland.

209.17 The Epistemological Development of Physics Majors
Elizabeth Gire\(^1\), E. Price\(^1\), B. Jones\(^1\)
\(^1\)UC, San Diego, \(^2\)California State University, San Marcos.
209.18 Concepts Retention and Its Dependence on the Type of Instruction
Hugo Alarcon1, J. J. Velarde-Magana2, G. Zavala1
1TecnolÃ³gico de Monterrey, Mexico, 2Tecnologico de Monterrey, Mexico.

209.19 Group Problem Solving as a Zone of Proximal Development activity
Eric Brewe1
1Hawaii Pacific University.

209.20 Student Estimates of Probability and Uncertainty in Statistical Physics
Donald B. Mountcastle1, B. R. Bucy1, J. R. Thompson1
1University of Maine.

209.21 Swoosing: Why and When does it Occur in a Physics Class?
Valerie K. Otero1, S. Jalovec1, I. Her Many Horses1, D. Harlow1
1University of Colorado, Boulder.

209.22 Proportional Reasoning: A Valid Instrument to Survey Understanding
Cheryl P. Schaefer1
1Missouri State University.

209.23 Stabilization: A Descriptive Framework for Problem Solving
Sherry L. Savrda1
1Seminole Community College.

209.24 The Background of PER People: A Survey
Laura McCullough1
1University of Wisconsin-Stout.

209.25 What Gets Swept Under the Rug in Teaching Quantum Tunneling
S. B. McKagan1, K. K. Perkins1, C. E. Wieman1
1University of Colorado.

Session 210 Space-Based Instrumentation II

210.01 Status of the James Webb Space Telescope (JWST)
Mark Clampin1, C. Bowers1, L. Feinberg1, JWST Project
1NASA’s GSFC.

210.02 JWST Mirror Building Paradigms at Tinsley, Part 3
Anthony B. Hull1, J. Kincade1, G. Cole1, R. Garfield1, R. Bernier1, C. Kilkka1, J. Daniel1, R. Brown2, B. Gallagher3, D. Chaney3, A. McKay3, D. Neal3, L. Cohen3
1L-3 Communications, Tinsley, 2BATC, 3NGST, 4WFSI, 5SAO.

210.03 Status of Wavefront Sensing and Control of the James Webb Space Telescope
Charles W. Bowers1, S. Acton2, A. Contos2, B. Dean1, L. Feinberg1, B. Hayden1, D. Shields2
1NASA’s GSFC, 2BATC.

210.04 Progress on NIRCam, the Near-Infrared Camera for JWST
Marcia J. Rieke1, S. Horner1, D. Kelly1, J. Stansberry1, E. Young1, D. Eisenstein1, D. McCarthy1, M. Meyer1, G. Rieke1, S. Baum1, C. Beichman1, R. Doyon2, A. Dressler2, L. Ferrarese2, T. Greene3, D. Hall4, K. Hodapp5, D. Johnstone5, S. Lilly6, P. Martin11, T. Roellig8, J. Stauffer12, J. Trauger4
1U. Arizona, 2Lockheed Martin Advanced Tech. Ctr., 3RIT, 4U. Montreal, Canada, 6Carnegie Obs., 7HIA/DAO, Canada, 8NASA/ARC, 9U. Hawaii, 10ETH, Switzerland, 11U. Toronto, Canada, 12Spitzer Science Center.

210.05 Detectors for the James Webb Space Telescope Near Infrared Spectrograph: Test Performance and Calibration Studies
Bernard J. Rauscher1
1NASA Goddard Space Flight Center.

210.06 Building the Mid-Infrared Instrument for JWST
George Rieke1, G. S. Wright2, MIRI Science Team
1Univ. of Arizona, 2Royal Observatory, United Kingdom.

210.07 How can the James Webb Space Telescope measure First Light, Reionization, and Galaxy Assembly?
Rogier A. Windhorst1, R. A. Jansen1, S. H. Cohen1, M. Mechtley1, H. Yan3, C. Conselice3
1Arizona State Univ., 2Carnegie Obs., 3U. Nottingham, United Kingdom.

210.08 Optimization of the Kepler Field of View
Natalie M. Batalha1, W. Borucki2, D. A. Caldwell1, H. Chandrasekaran1, T. N. Gautier1, J. Jenkins1, D. G. Koch2
1San Jose State University, 2NASA Ames, 3SETI Inst., 4JPL.
210.09  Photometric Analysis for the Kepler Mission: Optimal Aperture Photometry and Difference Image Analysis
Jon M. Jenkins¹, R. L. Gilliland², H. Chandrasekaran¹, S. T. Bryson³, D. A. Caldwell¹, W. J. Borucki³
¹SETI Institute, ²STScI, ³NASA Ames Research Center.

210.10  Simulating Kepler Data: the End-To-End Model of the Kepler Photometer
Stephen T. Bryson¹, J. M. Jenkins², D. J. Peters¹, W. J. Borucki¹
¹NASA Ames Research Center, ²SETI Institute, ³Ball Aerospace.

210.11  First Photometric Performance Results of the Kepler Single String Focal Plane
David G. Koch¹, W. Borucki¹, E. Dunham², J. Geary³, J. Jenkins⁴, V. Argabright⁵, R. Bauer⁵, C. Dumont⁵, S. McArthur⁵, D. Peters⁵, R. Philbrick⁵, A. Rudeen⁵, J. VanCleve⁶, F. Witteborn⁶
¹NASA/Ames Research Center, ²Lowell Observatory, ³SETI Institute, ⁴Ball Aerospace, ⁵UC, Irvine, ⁶US Naval Research Laboratory.

210.12  Quick Look Software for the Kepler Photometer
Kenneth Topka¹, J. Jenkins¹, D. Caldwell¹, W. J. Borucki²
¹SETI Institute, ²NASA Ames Research Center.

210.13  Validation of Kepler Planet Candidates
Douglas A. Caldwell¹, N. M. Batalha², W. J. Borucki¹, D. G. Koch³, H. Chandrasekaran¹, J. M. Jenkins¹, K. P. Topka¹, T. N. Gautier⁴, R. L. Gilliland³
¹SETI Institute, ²San Jose State University, ³NASA Ames, ⁴JPL, ⁵STScI.

210.15  Carbon Star Science with SIM
Guy Worthey¹
¹Washington State University.

Session 211 Studying Galaxy Evolution with Nearby Galaxies
AAS Poster, Wednesday, 9:20am-4:00pm, Exhibit Hall 4

211.01  Numerical Simulations of Major Barred Galaxies
Chien-Chang Yen¹, L. Lin¹, C. Yuan¹
¹Inst. of Astronomy & Astrophysics, Taiwan, ²Dept. of Physics, National Taiwan University, Taiwan.

211.02  The Carnegie-Irvine Nearby Galaxies Survey (CINGS): Surface Brightness Profiles, Color Profiles and 1-D Decompositions
Marc Seigar¹, L. C. Ho², A. J. Barth², C. Y. Peng¹
¹UC, Irvine, ²OICIW, ³STScI.

211.03  The Angular Momentum of Disk Galaxies: A Multi-Wavelength Study Using the Virtual Observatory
Luca Cortese¹, B. Catinella¹, C. M. Springob³
¹Cardiff Univ, United Kingdom, ²NAIC-Arecibo Observatory, ³US Naval Research Laboratory.

211.04  Tests of the Modified Tremaine-Weinberg Method
Sharon Meidt¹, R. J. Rand¹, M. R. Merrifield², V. P. Debattista³, J. Shen¹
¹Univ. of New Mexico, ²U. Nottingham, UK, ³U. Washington, ⁴U. Texas.

211.05  A New Method for Detecting Stellar Streams in the Halos of Galaxies
Jonathan Sick¹, R. S. de Jong²
¹Rice University, ²Space Telescope Science Institute.

211.06  Characterizing Disk Truncations with N-Body Simulations
Rok Roskar¹, V. P. Debattista¹, G. S. Stinson¹, T. R. Quinn¹, T. Kaufmann¹, J. Wadsley³
¹Univ. of Washington, ²University of California, Irvine, ³McMaster University, Canada.

211.07  A Detailed Look at 13 of the Nearest E+A Galaxies
James E. Turner¹, M. P. Bergmann¹, W. J. Couch², C. Blake², K. Gebhardt³, K. Bekki¹, B. W. Miller¹
¹Gemini Observatory, Chile, ²Swinburne University of Technology, Australia, ³U. Texas at Austin, ⁴University of New South Wales, Australia.

211.08  Modes of Star Formation in an Early Universe Laboratory: HST/ACS Imaging of Hickson Compact Group 31
Joshua Tobolewski¹, S. C. Gallagher¹, R. Chandra², C. Gronwall¹, J. English², K. E. Johnson¹, P. R. Durrell¹, J. E. Hibbard¹, C. Mendes de Oliveira³, B. C. Whitmore³, J. C. Charlton¹
¹Penn State Univ., ²UCLA, ³OICIW, ⁴U. Manitoba, Canada, ⁵U. Virginia, ⁶Youngstown State Univ., ⁷NRAO, ⁸Univ. of Sao Paulo, Brazil, ⁹STScI.
211.09 Analysis of Star Formation in Closely Interacting Galaxy Pairs
Jacob Arnold¹, E. J. Barton¹
¹University of California, Irvine.

211.10 Modes of Star Formation in an Early Universe Laboratory: HST/ACS Imaging of Hickson Compact Group 7
Patrick Durrell¹, S. C. Gallagher¹, C. Gronwall², J. English³, R. Chandar⁴, K. E. Johnson⁴, J. E. Hibbard⁴, A. L. Heiderman⁴, B. C. Whitmore⁴, J. C. Charlton⁴
¹Youngstown State Univ., ²UCLA, ³Penn State Univ., ⁴Univ. of Manitoba, Canada, ⁵OCIW, ⁶Univ. of Virginia, ⁷Univ. of Texas, ⁸STScI.

211.11 Where in the Virgo Cluster are Galaxies Stripped?
Hugh H. Crowl¹, J. D. Kenney¹, J. H. vanGorkom², A. Chung³, J. A. Rose⁴
¹Yale University, ²Columbia University, ³University of Massachusetts, ⁴University of North Carolina.

211.12 Deep X-ray (and Multiwavelength) Survey of the Coma Cluster of Galaxies
Ann E. Hornschemeier¹, B. Mobasher², L. P. Jenkins¹, N. A. Miller¹, C. A. Kilbourne¹, M. W. Bautz³, D. M. Hammer³
¹NASA GSFC, ²StScI, ³Johns Hopkins University, ⁴MIT.

211.13 Grism Selected Emission Line Galaxies in the Field Of Abell 1689
Gerhardt R. Meurer¹, N. Benitez², D. Coo¹, J. M. Vilchez³, B. L. Frye³, H. C. Ford¹, G. D. Illingworth¹, C. Gronwall⁵, ACS Science-Team
¹Johns Hopkins Univ., ²Instituto de Astrofisica de Andalucia, Spain, ³Dublin City University, Ireland, ⁴University of California Santa Cruz, ⁵Pennsylvania State University.

211.14 A UV-NIR Photometric Comparison of Simulated and Observed Cluster Galaxies
Cameron B. Hummels¹, D. Schiminovich¹, G. Bryan¹, GALEX Science Team
¹Columbia Univ.

Session 212 Gamma-Ray Bursts
AAS Poster, Wednesday, 9:20am-4:00pm, Exhibit Hall 4

212.01 Multi-wavelength Study of Prompt Optical Counterparts of Swift GRBs Detected by ROTSE-III
¹Univ. of Michigan, ²MPIK, Germany, ³UNSW, Australia, ⁴GSFC, ⁵Sabanci U., Turkey, ⁶Univ. of Istanbul, Turkey, ⁷METU, Turkey, ⁸COMU, Turkey, ⁹Univ. of Texas, ¹⁰Univ. of Adelaide, Australia, ¹¹Univ. of Arizona, ¹²LSU, ¹³Gulf College, ¹⁴LANL.

212.02 The Diverse eV Emission from Gamma-ray Bursts
Sarah Yost¹, F. Aharonian², C. Akerlof³, M. Ashley³, S. Barthelmy³, N. Gehrels³, E. Gogus³, T. Guver³, D. Horns³, U. Kiziloglu³, H. Krimm³, T. McKay³, M. Ozel³, A. Phillips³, R. Quimby³, G. Rowell⁷, W. Rujopakarn⁸, E. Rykoff¹, B. Schaefer⁹, D. Smith¹¹, H. Swan¹¹, W. Vestrand¹², C. Wheeler¹³, J. Wren¹⁴, S. Yost¹
¹Univ. of Michigan, ²MPI fur Kernphysik, Germany, ³Univ. of New South Wales, Australia, ⁴Goddard, ⁵Sabanci University, Turkey, ⁶Univ. of Istanbul, Turkey, ⁷METU, Turkey, ⁸Canakkale University, Turkey, ⁹Univ. of Texas, ¹⁰Louisiana State University, ¹¹Gulf College, ¹²LANL.

212.03 Temporal and Angular Properties of GRB Jets Emerging from Massive Stars
Brian J. Morsony¹, D. Lazzati¹, M. C. Begelman¹
¹University of Colorado, Boulder.

212.04 An Estimation Of The Gamma-Ray Burst Afterglow Apparent Optical Luminosity Distribution Function
Carl W. Akerlof¹, H. F. Swan¹
¹Univ. of Michigan.

212.05 A Search for Short Timescale Structure in GRB041223
Stephanie L. Fiorenza¹, E. E. Fenimore², M. Galassi², B. Norman²
¹Pennsylvania State University, ²Los Alamos National Lab.

212.06 Probing the Early Universe with GRBs
Adria C. Updike¹, D. H. Hartmann¹, J. R. King¹, S. D. Brittain¹
¹Clemson University.
Session 213 How To ... Resources for Scientist Educators
AAS Poster, Wednesday, 9:20am-4:00pm, Exhibit Hall 4

213.02 SABER: The Searchable Annotated Bibliography of Education Research in Astronomy
David H. Bruning\(^1\), J. M. Bailey\(^2\), G. Brissenden\(^3\)
\(^1\)Univ. of Wisconsin-Parkside, \(^2\)UNLV, \(^3\)Univ. of Arizona.

213.03 Edplum: A Wikipedia-Style Resource for Educators
David M. Rothstein\(^1\)
\(^1\)Cornell Univ.

213.04 Best Practices for Modifying Astronomy Curriculum for Special Needs Students
Julia K. Olsen\(^1\), T. F. Slater\(^1\)
\(^1\)University of Arizona.

213.05 Resources and Issues to Consider for Astronomers Who Wish to Work with Out-of-School Time Organizations and Programs
Julie H. Lutz\(^1\), D. Powell\(^2\), J. Frieling\(^3\)
\(^1\)Univ. of Washington, \(^2\)Univ. of Washington, \(^3\)School’s Out Washington.

213.06 Adapting Formal Education Materials for Out-of-School Settings
Denise A. Smith\(^1\), H. Gibbons\(^2\)
\(^1\)STScI, \(^2\)Pacific Science Center.
215.06 Galaxy Cluster Correlation Function in the Dark Energy Survey
Juan Estrada\textsuperscript{1}, A. Plazas\textsuperscript{2}, Fermilab Galaxy Cluster Group
\textsuperscript{1}Fermilab, \textsuperscript{2}Universidad de Los Andes, Colombia.

215.07 A Systematic Search for High Surface Brightness Giant Arcs in a Sloan Digital Sky Survey Cluster Sample
Victor Scarpine\textsuperscript{1}, S. Allam\textsuperscript{1}, J. Annis\textsuperscript{1}, T. Diehl\textsuperscript{1}, J. Estrada\textsuperscript{1}, P. Hall\textsuperscript{1}, T. Las\textsuperscript{1}, H. Lin\textsuperscript{1}, M. Makler\textsuperscript{1}, W. Merritt\textsuperscript{1}, D. Tucker\textsuperscript{1}, D. McGinnis\textsuperscript{1}, J. Kubo\textsuperscript{1}, D. Kubik\textsuperscript{1}
\textsuperscript{1}Fermi National Accelerator Laboratory, \textsuperscript{2}York University, Canada, \textsuperscript{3}Centro Brasileiro de Pesquisas Fisicas, Brazil, \textsuperscript{4}Northern Illinois University.

215.08 Red Sequence Cluster Finding in the Millennium Simulation
August E. Evrard\textsuperscript{1}, D. Croton\textsuperscript{2}, M. White\textsuperscript{2}, J. Cohn\textsuperscript{2}, E. Ellingson\textsuperscript{1}
\textsuperscript{1}Univ. of Michigan, \textsuperscript{2}Univ. of California, Berkeley, \textsuperscript{3}Univ. of Colorado.

215.09 The SDSS Southern Survey Coadd Data
James T. Annis\textsuperscript{1}, H. Lin\textsuperscript{1}, G. Miknaitis\textsuperscript{1}, R. Lupton\textsuperscript{1}, M. Strauss\textsuperscript{1}, J. Gunn\textsuperscript{1}, L. Jiang\textsuperscript{1}, A. Becker\textsuperscript{1}
\textsuperscript{1}Fermi National Accelerator Lab., \textsuperscript{2}Princeton University, \textsuperscript{3}University of Arizona, \textsuperscript{4}University of Washington.

Session 216 Modelling Variable and Binary Stars
AAS Poster, Wednesday, 9:20am-4:00pm, Exhibit Hall 4

216.01 Light Curves and Spot Modelling for V471 Tauri
Valmin J. Miranda\textsuperscript{1}, T. Vaccaro\textsuperscript{1}
\textsuperscript{1}Florida Institute of Technology.

216.02 Polaris' Pulsational Mass
Siobahn Morgan\textsuperscript{1}
\textsuperscript{1}Univ. of Northern Iowa.

216.03 Modeling the Stellar Evolution of V725 Sgr
Holly M. Kagy\textsuperscript{1}, S. M. Morgan\textsuperscript{1}
\textsuperscript{1}University of Northern Iowa.

216.04 Angular Momentum Transport in Double White Dwarf Binaries
Patrick M. Motl\textsuperscript{1}, J. E. Tohline\textsuperscript{1}, J. Frank\textsuperscript{1}
\textsuperscript{1}Louisiana State University.

216.05 A Pulsational Study of V823 Cas
Jennifer N. Wahl\textsuperscript{1}, S. M. Morgan\textsuperscript{1}
\textsuperscript{1}University of Northern Iowa.

216.06 How Do Starspots Affect Light Curves of Contact Binary Stars?
Robert L. Hill\textsuperscript{1}
\textsuperscript{1}Ball State University.

216.07 Extending the Model of KH 15D
Devin W. Silvia\textsuperscript{1}, E. Agol\textsuperscript{1}
\textsuperscript{1}University of Washington.

Session 217 Starbursts & Interacting Galaxies
AAS Poster, Wednesday, 9:20am-4:00pm, Exhibit Hall 4

217.01 The Extended Environments of ULIRGS and LIRGS: Clusters in Formation
Edward A. Laag\textsuperscript{1}
\textsuperscript{1}UC, Riverside.

217.02 The Nature of the Densest Gas in Nearby Starbursts
David S. Meier\textsuperscript{1}, J. L. Turner\textsuperscript{2}
\textsuperscript{1}Jansky Fellow; NRAO, \textsuperscript{2}UCLA.

217.03 The Radio Continuum, Far-infrared Emission, and Dense Molecular Gas in Star-forming Galaxies
Fan Liu\textsuperscript{1}, Y. Gao\textsuperscript{1}
\textsuperscript{1}Purple Mountain Observatory, China.

217.04 IRS Spectroscopy of Collisional Ring Galaxies
Philip N. Appleton\textsuperscript{1}, P. Beirao\textsuperscript{2}, L. Armus\textsuperscript{1}, B. Brandl\textsuperscript{1}, V. Charmandaris\textsuperscript{1}, T. Jarrett\textsuperscript{1}, S. Lord\textsuperscript{1}, B. Madore\textsuperscript{1}, J. Mazzarella\textsuperscript{1}, W. T. Reach\textsuperscript{1}, M. Seibert\textsuperscript{1}, B. J. Smith\textsuperscript{1}, C. Struck\textsuperscript{1}
\textsuperscript{1}NHSC-Caltech, \textsuperscript{2}Leiden University, Netherlands Antilles, \textsuperscript{3}SSC-Caltech, \textsuperscript{4}Crete University, Greece, \textsuperscript{5}OCIW, \textsuperscript{6}IPAC-Caltech, \textsuperscript{7}ETSU, \textsuperscript{8}ISU.

217.05 A Radio Spectral Line Study of the 2-Jy IRAS-NVSS Sample
Maria Ximena Fernandez\textsuperscript{1}, E. Momjian\textsuperscript{2}, T. Ghosh\textsuperscript{1}, C. J. Salter\textsuperscript{2}
\textsuperscript{1}Vassar College, \textsuperscript{2}NAIC.
### Session 218 The 3Ts: Telescopes, Technologies and Techniques for Astronomy Education

**AAS Poster, Wednesday, 9:20am-4:00pm, Exhibit Hall 4**

<table>
<thead>
<tr>
<th>Paper Title</th>
<th>Presenters</th>
<th>Affiliations</th>
</tr>
</thead>
<tbody>
<tr>
<td>An Optical Datacube of Seyfert/Starburst Composite Galaxy NGC1365</td>
<td>Katie M. Chynoweth, R. A. Knop, Jr., R. A. Gibbons</td>
<td>1Vanderbilt Univ.</td>
</tr>
<tr>
<td>A Labview-controlled Small Radio Telescope</td>
<td>Robert L. Mutel, T. Jaeger, V. Poole</td>
<td>1Univ. of Iowa, 2Truman State University.</td>
</tr>
<tr>
<td>GNAT Educational Opportunities</td>
<td>Roger B. Culver, E. R. Craine</td>
<td>1Colorado State Univ./GNAT, 2Western Research Company/GNAT.</td>
</tr>
<tr>
<td>The Little Thompson Observatory Receives the Retired Mt. Wilson 24-inch Telescope</td>
<td>Andrea E. Schweitzer</td>
<td>1Little Thompson Obs.</td>
</tr>
<tr>
<td>NIRo Telescope: Research and Education</td>
<td>Adam W. Rengstorf, S. Slavin</td>
<td>1Purdue University Calumet.</td>
</tr>
<tr>
<td>The MTSU Uranidrome: A Naked-Eye Observatory for Teaching Astronomy and Geometry</td>
<td>Eric W. Klumpe</td>
<td>1Middle Tennessee State University.</td>
</tr>
<tr>
<td>The New Physics and Astronomy Education Portal of the Smithsonian/NASA Astrophysics Data System</td>
<td>Michael J. Kurtz, G. Eichhorn, A. Accomazzi, C. Grant, E. Henneken, D. Thompson, E. Bohlen, S. S. Murray</td>
<td>1Harvard-Smithsonian, CfA.</td>
</tr>
<tr>
<td>Sharing Images Intelligently: The Astronomical Visualization Metadata Standard</td>
<td>Robert L. Hurt, L. Christensen, A. Gauthier</td>
<td>1Spitzer Science Center/Caltech, 2ESA/Hubble, Germany, 3University of Arizona.</td>
</tr>
<tr>
<td>Ensuring Quality of Digital Library Learning Objects for Computational Physics and Astronomy Education</td>
<td>David A. Joiner</td>
<td>1Kean Univ.</td>
</tr>
<tr>
<td>Use Authentic Digital Sky Data to Investigate Earth's Motions</td>
<td>Rick Kang</td>
<td>1Friends of Pine Mountain Obs.</td>
</tr>
</tbody>
</table>
218.15 **Spitzer Space Telescope Research Program for Teachers and Students: Using Spitzer data in your classroom with (relatively) simple software**  
Theresa E. Roelofsen Moody¹, J. J. Feldmeier², V. Gorjian³, B. Sepulveda⁴, E. Sharma⁵, T. Spuck⁶, C. Weehler⁶  
¹New Jersey Astronomy Center for Education, ²YSU, ³JPL/Spitzer Science Center, ⁴Lincoln High School, ⁵Oil City Area Senior High School, ⁶Luther Burbank High School.

218.16 **MPS Internships in Public Science Education: Sensing the Radio Sky**  
Melvin Blake¹, M. W. Castelaz¹, D. Moffett², L. Walsh¹, M. LaFratta³  
¹Pisgah Astronomical Research Institute, ²Furman University, ³University of North Carolina-Ashville.

**Session 219 YSO / Star Formation III**  
AAS Poster, Wednesday, 9:20am-4:00pm, Exhibit Hall 4

219.01 **Young Spectroscopic Binary M Stars in Ophiuchus**  
Lisa A. Prato¹  
¹Lowell Observatory.

219.02 **Keck HiRES Spectroscopy of Candidate Post T Tauri Stars**  
Eric J. Bubar¹, J. King¹, D. Soderblom², C. Deliyannis³, R. Boone¹  
¹Clemson Univ., ²Space Telescope Science Institute, ³Indiana University.

219.03 **Spitzer IR Study of Sar Formation in an Embedded Young Cluster NGC2316**  
William Langer¹, T. Velusamy¹, T. Thompson¹  
¹JPL/Caltech.

219.04 **SiO Masers in the Orion BN-KL Outflow**  
Christopher Beaumont¹, S. S. Doeleman²  
¹Calvin College, ²MIT Haystack Observatory.

219.05 **Infrared and Optical Spectroscopy of Protostars in the Elephant Trunk Nebula**  
Dohy Faied¹, W. T. Reach¹, A. Tappe¹, J. Rho¹  
¹Caltech.

219.06 **Statistical Analysis of the Relationship Between Rotation, Disks, and X-rays Among Low-Mass Pre-Main-Sequence Stars**  
Keivan Stassun¹, D. Ardila¹, S. Matt¹, E. Feigelson¹  
¹Vanderbilt Univ., ²Spitzer Science Center, ³University of Virginia, ⁴Penn State Univ.

219.07 **Pure Rotational H2 Emission from GSS 30 IRS 1**  
¹UC, Davis, ²Univ of Texas, ³Lunar and Planetary Institute, ⁴California Institute of Technology, ⁵NOAO Gemini Science Center, Chile, ⁶Naval Research Lab, ⁷Harvard-Smithsonian Center for Astrophysics, ⁸Univ of California, ⁹NASA-Ames, ¹⁰Univ of Maryland, ¹¹SRON-Groningen, The Netherlands, ¹²NOAO.

219.08 **Young Vega and Altair Analogs: Rotationally-Enhanced Activity in HD 169142 and HD 135344**  
C. A. Grady¹, G. Schneider¹, K. Hamaguchi¹, M. Sitko¹, W. Carpenter¹, K. Collins¹, G. Williger¹, B. Woodgate¹, R. Petre¹, J. Nuth¹, III¹, D. Hines¹, T. Henning¹, A. Quirrenbach¹, F. Menard¹⁰, D. Wilner¹¹  
¹Eureka Scientific and GSFC, ²U. of Arizona, ³USRA and GSFC, ⁴Space Sciences Institute and U. Cincinnati, ⁵U. Cincinnati, ⁶U. Louisville, ⁷NASA’s GSFC, ⁸Space Sciences Institute, ⁹MPIA, Germany, ¹⁰Laboratoire d’Astrophysique de Grenoble, France, ¹¹CFA.

219.09 **The Spin of Accreting Stars and Accretion-Powered Stellar Winds**  
Sean Matt¹, R. E. Pudritz²  
¹University of Virginia, ²McMaster University, Canada.

219.10 **The Gould’s Belt Spitzer Legacy Project**  
Lori Allen¹, Gould’s Belt Team  
¹Harvard-Smithsonian Center for Astrophysics.

219.11 **The Cores to Disks (c2d) Spitzer Legacy Program: Summary of Revolution Evolution in Five Large Clouds**  
Neal J. Evans, II¹, c2d Team  
¹Univ. of Texas.
219.12 Near-Infrared Spectroscopy of Young Binaries
Mary A. Barsony¹, T. P. Greene², K. E. Haisch, Jr.³
¹San Francisco State Univ. & Space Science Institute, ²NASA’s Ames Research Center, ³Utah Valley State College.

219.13 A Non-Magnetocentrifugal Jet Model for Young Stellar Objects
Peter T. Williams¹
¹M.O.I.O.

219.14 An Archive of Chandra Observations of Regions of Star Formation (ANCHORS)
Bradley D. Spitzbart¹, S. J. Wolk¹
¹Smithsonian Astrophysical Obs.

219.15 Star Formation in the Gum Nebula: Cometary Globules CG4/6/SA101
Jinyoung S. Kim¹, F. M. Walter², S. J. Wolk³, W. H. Sherry⁴, M. Foster⁵
¹Univ. of Arizona, ²Stony Brook University, ³CfA, ⁴NSO/NOAO.

219.16 Clustering around Herbig Ae/Be Stars
Nicole S. Van Der Bliek¹, B. Rodgers³, S. Thomas¹, G. Dopmann²
¹CTIO, Chile, ²Gemini Observatory, Chile, ³Lick Observatory.

219.17 MOMIE: MIKE Observations of Mid-Infrared Excesses
Brian R. Uzpen¹, H. A. Kobulnicky¹, C. Thom¹, M. E. Putman¹
¹Univ. of Wyoming, ²University of Chicago, ³Univ. Of Michigan.

219.18 Visible Spectra of the Central Stars of Proplyds in Orion
Michael W. Castelaz¹, B. McCollum², F. W. Bruhweiler³, M. W. Niedner¹, A. B. Schultz¹, C. Mickey¹, D. J. MacConnell³
¹Pisgah Astronomical Research Inst., ²Spitzer Science Center / IPAC / Caltech, ³Catholic University of America, ⁴NASA/GSFC, ⁵CSC/STScI.

219.19 An X-ray Survey of FU Orionis Stars and Unusual X-ray Emission from Embedded Young Stars in NGC 2071
Steve L. Skinner¹, A. E. Simmons¹, M. Audard¹, K. R. Briggs¹, M. Guedel¹, M. R. Meyer¹

219.20 The Eagle Nebula: Pillars of Creation, EGGs, and PMS Stars in NGC 6611
Jeffrey Linsky¹, M. Gagne², A. Mytyk², M. McCaughrean³, M. Andersen⁴

219.21 Outflows in the Galactic Legacy Infrared Mid-Plane Survey Extraordinaire (GLIMPSE)
Douglas F. Watson¹, B. A. Whitney², M. Gomez³, P. M. Denzmore⁴, R. Indebetouw⁵, M. Meade⁶, B. Babler⁷, E. Churchwell⁸, GLIMPSE Team
¹U. Wisconsin-Madison, ²Space Science Inst., ³Obs. Astronomico, Univ. Nacional de Cordoba, Observatorio, Argentina, ⁴Rice University, ⁵University of Virginia.

Session 220 Fortune and Fame: Fellowships, Textbooks, Cartoons
AAS Poster, Wednesday, 9:20am-4:00pm, Exhibit Hall 4

220.01 The Lowell Observatory Predoctoral Program
Lisa A. Prato¹, W. M. Grundy³
¹Lowell Observatory.

220.02 The Textbook of the Future: What Will It Look Like?
Harry L. Shipman¹, N. Finkelstein³, D. McCray¹, M. Mac Low⁴, D. Zollman³
¹Univ. of Delaware, ²University of Colorado, ³Univ. of Colorado, ⁴American Museum of Natural History, ⁵Kansas State University.

220.03 Eustace Tilley Views our Profession: The Astronomer as Portrayed in the Cartoons of The New Yorker Magazine
Kenneth S. Rumstay¹
¹Valdosta State Univ.

Session 221 Biology of Astrobiology I Extremes of Earth Life
AAS Special, Wednesday, 10:00-11:30am, 611-12

Chair, Sanjoy Som¹
¹University of Washington.
Session 222 Optical Cluster Finding: SDSS, RCS, DEEP
AAS Special, Wednesday, 10:00-11:30am, 613-14

Chair, Timothy A. McKay¹
¹University of Michigan.

222.01 Photometrically Identified Clusters from the RCS
Michael Gladders¹, RCS Collaboration
¹University of Chicago.

222.02 Optical Clusters from SDSS Imaging: The MaxBCG Cluster Catalog
Ben Koester¹
¹University of Michigan.

222.03 Groups and Clusters in DEEP2: The Evolution of Massive Halos and their Contents over 10 Gyr
Brian Gerke¹
¹UC-Berkeley.

222.04 Cluster Mass Profiles and Mass-to-light Ratios from Weak Lensing in the SDSS
Erin Sheldon¹
¹New York University.

222.05 Simulating Galaxy Populations in Clusters
Risa H. Wechsler¹
¹Stanford University.

Session 223 AGN General Properties & Relativistic Jet Acceleration
AAS Oral, Wednesday, 10:00-11:30am, 6A

223.01 Probing the Black Hole-Galaxy Connection with AGN Host Galaxy Morphologies
Brooke Simmons¹, C. M. Urry¹, COSMOS Team
¹Yale Univ.

223.02D Refining the Radius-Luminosity Relationship for AGNs
Misty C. Bentz¹, B. M. Peterson¹, R. W. Pogge¹
¹Ohio State Univ..

223.03D Models of the Molecular Interstellar Medium in Starbursts and AGN from z=0-6
Desika T. Narayanan¹, T. Cox¹, S. Chakrabarti², R. Dave¹, T. Di Matteo¹, B. Kelly¹, L. Hernquist³, P. Hopkins³, C. Kulesa¹, Y. Li², B. Robertson¹, C. Walker¹
¹Univ. of Arizona, ²CfA, ³CMU, ⁴KICP, University of Chicago.

223.04 The Black Hole Mass and Eddington Ratio Distributions of the 2QZ
Christopher A. Onken¹, J. A. Kollmeier¹
¹Herzberg Inst. of Astrophys., Canada, ²OCIW & Princeton.

223.05 Radiation from Relativistic Poynting Jets and Collisionless Shocks
Edison P. Liang¹, K. Noguchi¹, S. Sugiyama²
¹Rice Univ., ²Osaka University, Japan.

223.06 Local Electron Acceleration in GRB Shocks
Mikhail Medvedev¹
¹Univ. of Kansas.

Session 224 CMB Theory and 21 cm Cosmology
AAS Oral, Wednesday, 10:00-11:30am, 6B

224.01D Probing the First Sources with the Redshifted 21 cm Line
Jonathan R. Pritchard¹, S. R. Furlanetto², M. Kamionkowski¹
¹Caltech, ²Yale.

224.02D Revealing the Epoch of Reionization with Redshifted 21 cm Measurements
Judd D. Bowman¹
¹MIT.
WEDNESDAY Events, Sessions and Paper Titles

224.03 Integrated Sachs-Wolfe Effect Tomography
Shirley Ho1, C. Hirata2, N. Padmanabhan3, U. Seljak4
1Princeton Univ., 2Institute of Advanced Studies, 3Lawrence Berkeley
Lab/ UC Berkeley, 4International Center for Theoretical Physics, Italy.

224.04 Measurement of Gigaparsec-Scale Perturbation Modes with Remote
Quadrupole Observations
Emory F. Bunn1
1Univ. of Richmond.

224.05 Sunyaev-Zeldovich effect from Active Galactic Nuclei
Suchetana Chatterjee1, A. Kosowsky4
1Univ. Of Pittsburgh.

224.06 Improving the Cosmological Recombination Calculation
Wan Yan Wong1, D. Scott1
1Univ. Of British Columbia, Canada.

Session 225 COSMOS and Other Surveys
AAS Oral, Wednesday, 10:00-11:30am, 605-07

225.01 First Results from S-COSMOS: the Spitzer Legacy Survey of the
HST-ACS 2sq.deg. Field
David B. Sanders1, M. Salvato2, O. Ilbert1, H. Aussel1, J. Kartaltepe1,
J. Surace1, D. Frayer1, K. Sheth1, N. Scoville1, B. Bhattacharya1, T. Brooke1,
G. Helou1, L. Yan4
1Univ. of Hawaii, 2Caltech, 3CEA/Saclay, France, 4SSC/Caltech.

225.02 Large Structures and Galaxy Evolution in the COSMOS Survey
Nicholas Scoville1
1Caltech.

225.03 The Evolution of Bulges in COSMOS Spirals
Kartik Sheth1, L. Spasibury1, N. Scoville1, COSMOS Collaboration
1Caltech.

225.04 Morphology of z~0.7 Star-forming Galaxies from Deep GALEX
Imaging of the COSMOS Field
Michel A. Zamojski3, D. Schiminovich1, M. Rich1, B. Mobasher3, A.
M. Koekemoer3, P. Capak4, GALEX Team, COSMOS Team
1Columbia Univ., 2UCLA, 3Space Telescope Science Institute, 4Caltech.

225.05 The X-ray Evolution of Early-Type Galaxies in the Extended Chandra
Deep Field-South
Bret Lehmer1
1Pennsylvania State University.

225.06 Revealing the Star-formation History of the Universe up to z=2.5
from Deep Radio Surveys
Nick Seymour1, I. McHardy2, M. Page3, D. Moss2, T. Dwelly2
1SSC/Caltech, 2U. Southampton, UK, 3UCL/MSSL, UK.

225.07 The Nature of Lyman Alpha Emitters at z=3.1 in the MUSYC Survey
Eric J. Gawiser1, C. Gronwall2, R. Ciardullo3, H. Francke1, P. G. van
Dokkum1, J. Feldmeier4, C. M. Urry5, MUSYC Collaboration
1Yale Univ., 2Penn State, 3U. de Chile, Chile, 4Youngstown St..

225.08 Cosmic Shear and its Redshift Evolution from the Deep Lens Survey
Vera E. Margoniner1, D. M. Wittman1, D. Rusin1, T. Tyson1, I. P.
Dell'Antonio2
1UC, Davis, 2Brown University.

Session 226 Extrasolar Planets II
AAS Oral, Wednesday, 10:00-11:30am, 608-10

226.01 Results From the KELT Transit Survey
Joshua Pepper1
1The Ohio State University.

226.02 Detection and Exploration of Planets from the Trans-atlantic Exo-
planet Survey
Francis T. O’Donovan1, D. Charbonneau1, L. Hillenbrand1
1Caltech, 2Harvard-Smithsonian CfA.

226.03 An I’ and M-band AO Imaging Survey for Extrasolar Giant Planets:
Progress and Preliminary Results
Aren Heinze1, P. Hinz2, S. Sivanandam1, M. Meyer1
1Univ. of Arizona.

226.04 Astrometric Discovery of M-Dwarf Planets
Steven H. Pravdo1, S. B. Shaklan1, M. J. Ireland1, P. G. Tuthill1
1JPL, Caltech, 2Caltech, 3U. of Sydney, Australia.
226.05 A KECK HIRES Doppler Search for Planets Orbiting Metal-Poor Dwarfs. II. On the Frequency of Short-Period Giant Planets in the Low-Metallicity Regime
Alessandro Sozzetti¹, D. W. Latham¹, G. Torres¹, B. W. Carney², A. P. Boss³, J. B. Laird⁴, R. P. Stefanik⁴
¹Harvard-Smithsonian, CfA, ²University of North Carolina, ³Carnegie Institution of Washington, ⁴Bowling Green State University.

226.06 The All Sky Extrasolar Planet Survey Using New Generation Multi-object Keck Exoplanet Tracker Instruments at the SDSS 2.5m telescope
Jian Ge¹, J. C. van Eyken, M¹, S. Mahadevan¹, X. Wan¹, B. Zhao¹, A. Harirhan¹, C. DeWitt¹, P. Guo¹, R. Cohen¹, S. W. Fleming¹, J. Crepp¹, C. Warner¹, S. Kane¹, F. Leger¹, K. Pan¹, S. Sneden², S. Shaklan², E. Ford³, D. P. Schneider³, S. Seager³, E. Agol⁴, H. Ford⁴
¹Univ. of Florida, ²Fermilab, ³Apache Point Obs., ⁴JPL, ⁵CFA, Harvard U., ⁶Penn State, ⁷Carnegie Inst. of Washington, ⁸U. Washington, ⁹JHU.

Session 227 Gamma-Ray Bursts
AAS Oral, Wednesday, 10:00-11:30am, 3B

227.01 GRB 060607A: A Bright Early Optical Afterglow with Minimal Prompt Emission
Stephen Holland¹, Swift Science Team
¹NASA’s GSFC & USRA.

227.02D A Multi-wavelength Perspective on the GRB-SN Connection
Alicia M. Soderberg¹
¹Caltech.

227.03 Pulse-Width Evolution of Late Time X-ray flares in GRBs
Daniel Kocevski¹, N. Butler¹, J. Bloom¹
¹UC Berkeley.

227.04 X-ray Flares in GRB Afterglows: Spectral and Temporal Characteristics
David Morris¹
¹PSU.

227.05 Observations of Unusual Gamma-ray Burst Afterglows with the Robotic Palomar 60-inch Telescope
Stephen B. Cenko¹
¹Caltech.

227.06 Afterglow and Environment of the High-redshift GRB 050904
Lijun Gou¹, D. Fox¹, P. Meszaros¹
¹Penn State Univ.

227.07 GRB 060614 Opens a New Window on Short and Long Burst Categorization
Neil Gehrels¹, Swift Team
¹NASA’s GSFC.

Session 228 Star Clusters I
AAS Oral, Wednesday, 10:00-11:30am, 204

228.01 The Convergence Age of the Globular Cluster NGC 6397
Harvey B. Richer¹, B. M. Hansen², S. Davis¹, J. Anderson³, G. G. Fahlman⁴, J. S. Kalirai⁵, I. R. King⁶, M. Rich⁷, M. M. Shara⁸, P. B. Stetson⁹
¹Univ. of British Columbia, Canada, ²UCLA, ³UC, Santa Cruz, ⁴Herzberg Institute of Astrophysics, Canada, ⁵UCSC, ⁶Carnegie Inst. of Washington, ⁷U. Washington, ⁸American Museum of Natural History.

228.02 Globular Clusters in a Globular Cluster
Jason S. Kalirai¹, H. Richer¹, J. Anderson¹, J. Strader¹, K. Forde¹
¹UC, Santa Cruz, ²U. British Columbia, Canada, ³Rice University.

228.03 Are white dwarfs born with a `KICK’?
Saul Davis¹, H. B. Richer¹, J. Coffey¹, J. Anderson¹, J. Brewer¹, G. G. Fahlman¹, B. M. Hansen¹, J. Hurley³, J. S. Kalirai³, I. R. King³, D. Reitzel¹, R. M. Rich¹, M. R. Rich¹, M. M. Shara⁸
¹UBC, Canada, ²Rice Univ., ³HIA, Canada, ⁴UCSC, ⁵Monash Univ., Australia, ⁶UC, ⁷U. Washington, ⁸American Museum of Natural History.

228.04 Chemical Composition of Globulars of the Sagittarius System
Marta Mottini¹, G. Wallerstein¹, A. McWilliam²
¹Univ. of Washington, ²Obs. of the Carnegie Inst. of Washington.

228.05 NGC 346: Mass Function at Low Metallicty
Elena Sabbi¹, M. Sabbi¹, A. Nota¹, M. Tosi², J. Gallagher, III³, M. Meixner³, S. Oey³
¹STScI, ²STScI/ESA, Space Telescope Operation Division, ³INAF-Osservatorio Astronomico di Bologna, Italy, ⁴University of Wisconsin, ⁵UNIVERSITY of Michigan.
Wednesday Events, Sessions and Paper Titles

Session 229 The Supernova Legacy Survey and other SN Ia Surveys

AAS Oral, Wednesday, 10:00-11:30am, 3A

229.01 Galaxy Clustering in Environments of Type Ia Supernovae from the CFHT Supernova Legacy Survey (SNLS).  
Melissa L. Graham¹, C. J. Pritchet¹, Supernova Legacy Survey  
¹University of Victoria, Canada.

229.02 Dark Energy Constraints from the Supernova Legacy Survey  
Mark Sullivan¹, Supernova Legacy Survey  
¹University of Toronto, Canada.

229.03 Analysis Techniques and Systematics in the Supernova Legacy Survey  
Alexander J. Conley¹, Supernova Legacy Survey  
¹University of Toronto, Canada.

229.04 Predicted Evolution in the Mean Properties of SNe Ia from SNLS Data  
Dale A. Howell¹, Supernova Legacy Survey  
¹University of Toronto, Canada.

229.05D The Texas Supernova Search  
Robert Quimby¹  
¹University of Texas.

229.06D Spectropolarimetry of Type Ia Supernovae  
Ryan Chornock¹  
¹UC Berkeley.

229.07 Nearby Supernova Factory Spectroscopy of the Type Ia Supernova 2006D  
Rollin Thomas¹, G. Aldering¹, S. Bailey¹, S. Bongard¹, S. Loken¹, P. Nugent¹, S. Perlmutter¹, R. Scalzo¹, L. Wang¹, B. Weaver¹, P. Antilogus², S. Gilles², R. Pain², R. Pereira², C. Buton², Y. Copin², E. Gangler², G. Smadja³, E. Pecontal³, G. Rigaudier³, R. Kesseler³, E. Baron³, J. Parrent³, C. Baltay³, D. Rabinowitz³  
¹LBNL, ²LPNHE, France, ³IPNL, France, ⁴CRAL, France, ⁵KICP, ⁶University of Oklahoma, ⁷Yale University.

Session 230 Variable and Binary Stars

AAS Oral, Wednesday, 10:00-11:30am, 201

230.01 Interacting Binaries with Eccentric Orbits  
Jeremy F. Sepinsky¹, B. Willems¹, V. Kalogera¹  
¹Northwestern Univ.

230.02 StarSpotz: A Sensitive Probe of the Differential Rotation Profile of Stars using MOST Photometry  
Bryce Croll¹, G. A. Walker², R. Kuschnig³, J. M. Matthews², J. F. Rowe², A. Walker², S. M. Rucinski¹, A. P. Hatzes², W. D. Cochran³, R. M. Robb³, D. B. Guenther³, A. E. Moffat³, D. Sasselov⁴, W. W. Weiss⁴  
¹University of Toronto, Canada, ²University of British Columbia, Canada, ³Sumus Technology Limited, Canada, ⁴Thuringer Landesernwarte Tautenburg, Germany, ⁵McDonald Observatory, ⁶University of Victoria, Canada, ⁷St. Mary's University, Canada, ⁸Universite de Montreal, Canada, ⁹Harvard-Smithsonian Center for Astrophysics, ¹⁰Universitat Wien Turkenschanzstrasse, Austria.

230.03 Mean Pulsation Period of Cool White Dwarf Variables Gauges Stellar Temperature  
Anjum S. Mukadam¹, M. H. Montgomery², A. Kim³, D. E. Winget³, S. O. Kepler³, J. C. Clemens⁴  
¹Univ. of Washington, ²Univ. of Texas at Austin, ³Universidade Federal do Rio Grande do Sul, Brazil, ⁴Univ. of North Carolina.

230.04 Measurement of the Surface Gravity of η Boo  
Gerard van Belle¹, D. R. Ciardi¹, A. F. Boden¹  
¹Michelson Science Center.
230.05 An X-ray View of the Interacting Binary Beta Lyrae with Suzaku
Richard Ignace1, L. Oskinova2, W. Waldron1, J. Hoffman1, W. Hamann1
1East Tennessee State Univ., 2U. Potsdam, Germany, 3Eureka Scientific.

230.06 Late-Type Near-Contact Binary [HH97] FS Aur-79
Scott J. Austin1
1Univ. Of Central Arkansas.

230.07 A Search for Variable Stars in Selected Fields of the Open Cluster
NGC 752
Eugene F. Milone1, M. D. Williams1, L. Kim1, T. Lenhardt1, S. J. Schiller1
1University of Calgary, Canada.

230.08 Mid-IR Keck Segment-Tilting Observations of the Disk Around Mira B
Michael J. Ireland1, J. D. Monnier2, P. G. Tuthill3, R. Cohen4
1Caltech, 2University of Michigan, 3University of Sydney, Australia,
4W. M. Keck Observatory.

Session 231 Physics in Art and Art in Physics
AAPT Invited, Wednesday, 10:00-11:30am, 211

Chair, Stanley Micklavzina1
1University of Oregon.

231.01 Did the great masters “cheat” using optics? Image analysis of Re-
naissance masterpieces sheds light on a bold theory
David Stork1
1Ricoh Innovations.

231.02 Science Circus
Rhys D. Thomas1
1Up For Grabs, Inc.

Session 232 Demonstrations for Teaching Astronomy
AAPT Special, Wednesday, 10:00-11:30am, 617

Chair, Stephen M. Pompea1
1NOAO.

232.01 Astronomy LITE Demonstrations
Kenneth Brecher1
1Boston University.

232.02 A Status Report on the ALIVE Project
James B. Dove1
1Metropolitan State College of Denver.

232.03 Using Planetarium Software as a Virtual Observatory
Richard Ditteon1
1Rose-Hulman Institute.

232.04 Affordable Laser Communication in the Classroom
Constance E. Walker1, R. Sparks1, S. Pompea1
1National Optical Astronomy Observatory.

Session 233 Bringing Physics by Inquiry to K-12 Classrooms, Part II
AAPT Oral, Wednesday, 10:00-11:30am, 303

Chair, Paula Heron1
1Univ. of Washington.

233.01 Teaching Physical Science by Inquiry in the K-12 Classroom
Brian E. Meza1, D. L. Messina2, L. C. McDermott2
1Seattle Preparatory School, 2Univ. of Washington.

233.02 Effects of a Research-based Curriculum on the Learning of Physics
by K-12 Teachers and Students
Donna L. Messina1, M. R. Stetzer1, L. C. McDermott1
1Univ. of Washington.

Session 234 Introductory Physics Curriculum and Delivery
AAPT Oral, Wednesday, 10:00-11:30am, 616

Chair, Charles F. Niederriter1
1Gustavus Adolphus College.
234.01 A Mechanics Curriculum as a Prelude to Electricity and Magnetism
Poovan Murugesan¹
¹San Diego City College.

234.02 Scientific Reasoning Outcomes and the General Education Physics Course
Stephen P. Phipps¹, D. B. Morris¹, M. E. Dearborn¹, G. M. Novak¹
¹United States Air Force Academy.

234.03 Teaching to Promote Deep Understanding and Instigate Conceptual Change
Esther Zirbel¹
¹Tufts University.

234.04 Implementing Interactive Lecture Experiments in Large Introductory Physics Courses (Part I)
Rachel Moll¹, M. M. Milner-Bolotin¹, K. McPhee¹, S. Zhdanovich¹, A. Kotlicki¹, G. Rieger¹, F. Bates¹
¹University of British Columbia, Canada.

234.05 The Impact of Interactive Lecture Experiments on Student Academic Achievement, Motivation and Attitudes towards Science (Part II)
Marina M. Milner-Bolotin¹, R. Moll¹, A. Kotlicki¹, F. Bates¹, G. Rieger¹, S. Nashon¹
¹University of British Columbia, Canada.

234.06 GRIPs (Group Investigation Problems) for Introductory Physics
Thomas A. Moore¹
¹Pomona College.

234.07 New Insights into Student Understanding of Complete Circuits
MacKenzie R. Stetzer¹, P. van Kampen², P. S. Shaffer¹, L. C. McDermott¹
¹Univ. of Washington, ²Dublin City University, Ireland.

234.08 Andes: An Intelligent Homework System for Introductory Physics
Brett van de Sande¹, K. VanLehn¹, R. Hausmann¹, D. Treacy², R. Shelby²
¹University of Pittsburgh, ²US Naval Academy.

234.09 Helping Student Relate Work and Changes in Energy
Beth A. Lindsey¹, P. R. Heron¹, P. S. Shaffer¹, L. C. McDermott¹
¹Univ. of Washington.

Session 235 Teacher Learning
AAPT Oral, Wednesday, 10:00-11:30am, 310

Chair, Harold Stokes¹
¹Brigham Young Univ.

235.01 What Did We Learn from the Teachers’ Journals?
Kastro M. Hamed¹
¹University of Texas at El Paso.

235.02 Support for New Physics Teachers
Brian W. Adrian¹, D. Zollman¹, S. Stevens²
¹Kansas State Univ, ²Carnegie Mellon University.

235.03 Using Facet Clusters to Map Learner Modes of Reasoning
Stamatis Vokos¹, L. S. DeWater¹, L. Seeley¹, P. Kraus²
¹Seattle Pacific University, ²Facet Innovations, LLC.

235.04 Using Facet Clusters to Guide Teacher Professional Development
Lane Seeley¹, L. S. DeWater¹, S. Vokos¹, P. Kraus²
¹Seattle Pacific University, ²Facet Innovations, LLC.

235.05 Teaching about 21st Century Energy Sources to Pre-college Students and Teachers
Andrew P. Zwicker¹, J. Morgan¹, C. Ritter¹, J. DeLooper¹, N. Guilbert²
¹Princeton Plasma Physics Laboratory, ²The Peddie School.

235.06 Conceptual Dynamics: Comparing Inquiry and Direct Instructional Designs
Adriana Undreiu¹, B. Adams¹, D. Schuster¹
¹Western Michigan University.

235.07 Pre-Service Elementary Teachers’ Ideas about the Nature of Science
Rhett Allain¹
¹Southeastern Louisiana University.
235.08 Integrals for Pre-service Elementary Teachers: Approximating Seasonal Solar Radiation Differences
Paul G. Ashcraft
1Penn State Erie, The Behrend College.

Session 236 Cannon Award in Astronomy
Plenary, Wednesday, 11:40am-12:30pm, Ballroom 6

236.01 The Star Formation and Metallicity History of Star Forming Galaxies
Lisa J. Kewley
1University of Hawaii.

Revealing the Hidden Nature of Space and Time (EPP2010)
AAS Town Hall Meeting, Wednesday, 12:45-1:45pm, 609
The United States has been at the forefront of elementary particle physics for more than half a century. Physicists working in the United States developed many of the theoretical ideas that describe and explain how elementary particles interact and why they have the properties that they do. And the federal government has supported the experimental facilities -- including large particle accelerators -- that have produced profound scientific discoveries and a steady stream of new technologies. Yet as elementary particle physics is poised to address some of the most basic questions in science, our leadership position is now in jeopardy. Many of the major particle physics facilities in the United States are being closed or converted to other uses. Funding for particle physics in the United States has stagnated for more than a decade. Within a few years, the majority of U.S. experimental particle physicists will be working on experiments that are being conducted in other countries. The National Academies convened a committee with membership drawn both from inside and outside the field of elementary-particle physics that was charged to construct a plan for U.S. participation in this effort through an in-depth assessment to identify, articulate and prioritize the scientific questions and opportunities that define elementary-particle physics and provide a 15-year plan for the future of the field.

D.B. Lang, National Research Council, will introduce members of the National Academies committee that prepared the “Revealing the Hidden Nature of Space and Time” report. The speakers, Edward Witten (Institute for Advanced Study), Helen Quinn (Stanford Linear Accelerator Center), and Neal Lane (Rice University) will present prepared remarks for 30-40 minutes and then open the floor for discussion and questions.

Chair, David Lang
1The National Academies.

Session 237 Biology of Astrobiology II History of Earth’s Life
AAS Special, Wednesday, 2:00-3:30pm, 611-12

237.01 From the Earliest Evidence of Life to Complex Single-cell Organisms: The First 3 Gyr on Earth
Roger Buick
1UW Dept. of Earth & Space Sciences.

237.02 A New History of Animal Life on Earth
Peter Ward
1UW Dept. of Biology.

Session 238 Ground-Based Mid-IR Astronomy in the Spitzer Era
AAS Special, Wednesday, 2:00-3:30pm, 613-14

238.01 Synergy between Mid-IR Astronomy from 8-meter Class Ground Based Telescopes and Spitzer
Tom Soifer
1Caltech.

238.02 Mid-IR Capabilities of the Gemini Telescopes
Scott Fisher
1Gemini Observatory.

238.03 Mid-IR Observations of the Outer Planets
Heidi B. Hammel
1Space Science Institute.
238.04 Evaporating Disks, Outflows, and their Embedded Sources in Orion
Nathan Smith¹
¹University of California.

238.05 Protostars and Disks
Doug Johnstone¹
¹NRC Canada:HIA (and UVic), Canada.

238.06 High Resolution Mid-infrared Spectroscopy of Star Formation Regions
John Lacy¹
¹University of Texas.

238.07 Mid-IR Observations of Herbig Ae and Be Stars
Marshall D. Perrin¹, J. R. Graham¹
¹UC Berkeley.

238.08 MIR-Imaging brown dwarfs in binary systems with ESO/VLT and Gemini
Michael Sterzic¹
¹ESO/VLT, Chile.

238.09 High Spatial Resolution Observations of AGN at Mid-IR Wavelengths
Chris Packham¹, A. Alonso-Herrero², L. Colina², T. Diaz-Santos², J. Radomski³, R. Mason⁴, P. Roche⁵, E. Perlman⁶, N. Levenson⁷, M. Elitzur⁸, S. Young³, C. Telesco¹

Session 239 AGN Jets
AAS Oral, Wednesday, 2:00-3:30pm, 3B

239.01D New Multiwavelength Variability and Optical Microvariability Investigations of X-ray and RadioSelected Blazars
Margaret A. Osterman¹
¹Georgia State Univ..

239.02 Beaming and the Intrinsic Properties of Extragalactic Radio Jets
Marshall H. Cohen¹
¹CalTech.

239.03 Constraining Electron Spectra in the Hotspots of Cygnus A with Spitzer
D. E. Harris¹, L. Stawarz², C. C. Cheung³, M. Ostrowski⁴
¹HEA - Center for Astrophysics, ²Kipac, Stanford U., ³NRAO and Kipac, Stanford U., ⁴Astronomical Observatory UJ, Poland.

239.04 The Kiloparsec Scale Jet of the Quasar 1317+520
Svetlana G. Jorstad¹, A. P. Marscher¹, J. M. Gelbord², H. L. Marshall², D. A. Schwartz³, D. M. Worrall¹, M. Birkinshaw⁴, E. S. Perlman⁵
¹IAR BU, ²MIT, ³CfA, ⁴Univ. of Bristol, United Kingdom, ⁵UMBC.

239.05 Limit to the Positron Content of the Jet in 3C 120 from INTEGRAL and mm-Wave VLBI Observations
Alan P. Marscher¹, S. G. Jorstad¹, J. L. Gomez², I. M. McHardy³, T. P. Krichbaum¹, I. Agudo⁴
¹Boston Univ., ²IAA, Spain, ³Univ. Southampton, United Kingdom, ⁴MPIfR, Germany.

239.06 Multiple Circular Polarization Outbursts in the QSO 3C 279 at Centimeter Wavelengths
Hugh D. Aller¹, M. F. Aller¹, P. A. Hughes¹
¹Univ. of Michigan.

239.07 Relativistic Ejections Associated with High-energy Outbursts in the M87 Jet
Chi C. Cheung¹, D. E. Harris², L. Stawarz³
¹NRAO & Stanford, ²Harvard-Smithsonian Center for Astrophysics, ³KIPAC/Stanford.

239.08 Synthetic Maps of Relativistic Jets - The Origin of Bright Features
Carrie Swift¹, P. Hughes²
¹Univ. of Michigan, Dearborn, ²Univ. of Michigan.

Session 240 CMB-Experiments
AAS Oral, Wednesday, 2:00-3:30pm, 6A

240.01D Prospects for the ACBAR Experiment
Christian L. Reichardt¹
¹Caltech.
240.02 Preliminary Results from ARCADE II
Dale J. Fixsen1, A. Kogut1, M. Limon1, E. Wollack1, P. Mirel1, J. Singgald, P. Lubin2, S. Levin2, M. Seiffert3
1NASA's GSFC, 2UCSB, 3JPL.

240.03 The Atacama Cosmology Telescope
Joseph W. Fowler1, ACT Collaboration
1Princeton University.

240.04 Status of EBEX, a Balloon Borne CMB Polarization Experiment
Johannes Hubmayr1, EBEX collaboration
1University of Minnesota.

240.05 The Millimeter-Wave Bolometric Interferometer
Andrei Korotkov1, P. A. Ade2, S. Ali3, E. Bierman1, E. F. Bunn1, C. Calderon1, A. C. Gault2, P. O. Hyland3, B. G. Keating4, J. Kim5, S. S. Malu6, P. D. Mauskopf2, J. A. Murphy7, C. O'Sullivan4, L. Piccirillo1, P. T. Timbie4, G. S. Tucker1, B. D. Wandelt6
1Brown University, 2Cardiff University, UK, 3LLNL, 4University of California - San Diego, 5University of Richmond, 6University of Wisconsin - Madison, 7National University of Ireland, Ireland, 8University of Manchester, UK, 9University of Illinois - Urbana-Champaign.

240.06 Point Source Power in 3-year Wilkinson Microwave Anisotropy Probe Data
Kevin M. Huffenberger1, H. K. Eriksen2, F. K. Hansen2
1Caltech/Jet Propulsion Lab, 2University of Oslo, Norway.

Session 241 Extrasolar Planets IV
AAS Oral, Wednesday, 2:00-3:30pm, 605-07

241.01 Detecting Neptune-mass Planets Around 2,000 Nearby Stars with SIM
Nicholas M. Law1, A. Tanner2, S. Kulkarni1, M. Shao1, C. Gelino1
1Caltech, 2IPAC/JPL, 3JPL, 4IPAC.

241.02 Finding Terrestrial Planets in the HZ of Nearby Stars with SIM PlanetQuest
Angelle M. Tanner1, J. Catanzarite1, M. Shao2, S. Unwin2
1JPL/IPAC, 2JPL.

241.03 Spectral Evolution of an Earth-like Planet
Lisa Kaltenegger1, W. A. Traub2, K. W. Jucks1
1Harvard-Smithsonian, CfA, 2Harvard-Smithsonian CfA & JPL.

241.04 PHASES: A Search for Planets in Binary Systems
Benjamin Lane1, M. Muterpspaugh2, M. Konacki3, S. Kulkarni4, M. Shao5, M. Colavita6, B. Burke1
1MIT, 2Berkeley Space Science Lab, 3Nicolau Copernicus Astronomical Center, Poland, 4Caltech, 5JPL.

241.05 M Dwarf Planetary Systems
Peter Plavchan1, M. Jura2, R. Cutri1, J. D. Kirkpatrick1, S. C. Gallagher2, S. J. Lipscy3
1IPAC/Caltech, 2UCLA, 3Ball Aerospace.

241.06 Evidence From Spitzer for a Low-Mass Companion and a Circumbinary Disk Around a Pre-Cataclysmic Variable
Carolyn Brinkworth1, D. W. Hoard1, T. R. Marsh1
1Spitzer Science Center, 2University of Warwick, United Kingdom.

241.07 New Very Low Mass Binaries in the Taurus Star-Forming Region
Quinn M. Konopacky1, A. M. Ghez3, E. L. Rice1
1UCLA.

Session 242 Milky Way Topics
AAS Oral, Wednesday, 2:00-3:30pm, 3A

242.01D Probing the Milky Way at Mid-Infrared Wavelengths using GLIMPSE
Emily P. Mercer1
1Boston Univ.

242.02 The Frequency of Warm Carbon-Enhanced Metal-Poor Stars in SDSS-I DR-5
Brian E. Marsteller1, T. C. Beers1, T. Sivarani1, S. Rossi2, J. Knapp3, B. Plez4, J. Johnson2, T. Masseron5
1Michigan State Univ. & JINA, 2IAG, Univ. of Sao Paulo, Brazil, 3Princeton Univ., 4Univ. of Montpellier, France, 5Ohio State Univ.
242.03  A Search for Obscured Dwarf Novae in the Galactic Bulge
Silas Laycock¹, J. E. Grindlay¹, M. van den Berg¹, J. Hong¹, P. Zhao¹
¹Harvard-Smithsonian, CfA.

242.04  Observations of the Unidentified TeV Gamma-ray Source in the
Cygnus Region with the Whipple Observatory 10 m Telescope
Alexander Konopelko¹, VERITAS collaboration
¹Purdue University.

242.05  The Sagittarius Spiral Arm of the Galaxy: Now You See It, Now You
Don't
Robert A. Benjamin¹, E. Churchwell², M. Haffner³, GLIMPSE team
¹Univ. of Wisconsin, Whitewater, ²Univ. of Wisconsin-Madison.

Session 243 SNR, Cosmic Rays and Neutron Stars
AAS Oral, Wednesday, 2:00-3:30pm, 201

243.01  A Plausible X-ray Counterpart of the Unidentified TeV Gamma-ray
Source HESS J1804-216
Wei Cui¹, A. Konopelko¹
¹Purdue Univ.

243.02  Thermal and Non-thermal Emission from Cosmic Ray Modified Shocks
Daniel Patnaude¹, D. Ellison¹, P. Slane¹
¹Harvard-Smithsonian, CfA, ²North Carolina State Univ.

243.03  SUBARU HDS Observation of Balmer-Dominated Shock in Tycho
Jae-Joon Lee¹, B. Koo¹, J. Raymond², P. Ghavamian¹, T. Pyo¹, A.
Tajitsu¹, M. Hayashi⁴
¹Seoul National Univ., Republic of Korea, ²Harvard-Smithsonian Center
for Astrophysics, ³Johns Hopkins University, ⁴Subaru Telescope, NAOJ.

243.05  Suzaku Observations of Supernova Remnant G93.3+6.9 (DA 530)
Michael Stage¹, D. Q. Wang¹
¹Univ. of Massachusetts.

243.06  Probing Ejecta Properties in Supernova and GRB Remnants: The
example of W49B
Laura A. Lopez¹, E. Ramirez-Ruiz¹, D. Pooley², S. K. Patel³, D. Che-
louche⁴
¹UC, Santa Cruz, ²UC, Berkeley, ³NASA MSFC, ⁴Inst. for Advanced Study.

Session 244 Star Clusters II
AAS Oral, Wednesday, 2:00-3:30pm, 204

244.01D  High Resolution Analysis of Globular Clusters in M87
Christopher Z. Waters¹
¹Michigan State Univ.

244.02  Probing the M87 Globular Cluster System with Deep NICMOS
Imaging
Arunav Kundu¹, S. E. Zepf¹, M. Hempel²
¹Michigan State Univ., ²Univ. of Florida.

244.03  Extragalactic Star Clusters: the Resolved Star Approach
Anne Pellerin¹, M. J. Meyer¹, H. Jason², D. Calzetti¹
¹STScI, ²Steward Observatory.

244.04D  Tidal Tales of Minor Mergers II: Star Formation in the Tidal Debris
of Minor Mergers
Karen A. Knierman¹, P. Knezek², E. Wehner¹
¹Univ. of Arizona, ²WIYN, ³McMaster University, Canada.
WEDNESDAY Events, Sessions and Paper Titles

244.05  Restarting Galaxy Formation in Arp 82: An UV, Optical and Mid-IR Study of Star Formation in NGC 2535/6
Mark Hancock1, B. J. Smith2, C. Struck2, M. L. Giroux1, P. N. Appleton1, V. Charmandaris2, W. T. Reach3
1East Tennessee State University, 2Iowa State University, 3Spitzer Science Center, 4University of Crete, Greece.

Session 245 Instructional Technology in Physics and Astronomy Courses
AAPT Oral, Wednesday, 2:00-3:30pm, 303
Chair, Jeffrey Williams1
1Bridgewater State College.

245.02  Web-based Classroom Interaction System and Impact on Student Learning
Joseph Beuckman1, N. Rebello2
1Southern Illinois University-Edwardsville, 2Kansas State University.

245.03  Grid-based e-Labs for Pre-College Research in Physics and Astronomy
Thomas J. Loughran1
1Univ. of Notre Dame Dept. of Physics/Fermi National Accelerator Lab.

245.04  Preparation Strategies for Video-based Introductory Physics
David M. DeMuth, Jr.1, M. Schwalm2
1Un. of Minnesota, Crookston, 2Un. of North Dakota.

245.05  PowerPoint Nuggets for Pre-lab Content Review
Michael R. Meyer1
1Michigan Tech University.

245.06  Optical Analogies for Teaching Physics of X-rays and CAT Scans*
Spartak Kalita1, D. A. Zollman2
1Kansas State University, 2Texas A&M University.

245.07  How Converging Lens Simulation Designs Affect Understanding of Image Formation
Joel A. Bryan1
1Texas A&M University.

Session 246 Physics and Society Education
AAPT Oral, Wednesday, 2:00-3:30pm, 617
Chair, Gordon McIntosh1
1University of Minnesota, Morris.

246.01  The Fusion Energy Problem Has Been Solved
John W. White1
1LLNL & Modesto JC.

246.02  Energy Storage Systems as a Compliment to Wind Power
Jared D. Sieling1, C. F. Niederriter1, D. A. Berg1
1Gustavus Adolphus College.

246.03  Quantoons: Physics, Art, and Literature
Larry D. Kirkpatrick1, A. Eisenkraft2
1Montana State University, 2University of Massachusetts Boston.

246.05  Michael Faraday vs. the Spiritualists
Alan Hirshfeld1
1UMass Dartmouth.

246.06  Maupertuis, Leibniz, Least Action and Design
James K. Simmons1
1Waynesburg College.

246.07  Spotting Junk Science - A Classroom Exercise
Brian Houser1
1Eastern Washington University.

246.08  Service Learning in Physics Courses in the United States
Lynn Aldrich1
1College Misericordia.

246.09  Never Before Seen Mnemonic Technique
Shannon Schunicht1
1Texas A&M University.
Session 247 Teacher Professional Development Programs and Assessments
AAPT Oral, Wednesday, 2:00-3:30pm, 310

Chair, Todd Leif1
1Cloud County Comm. College.

247.02 Expanding Science Teacher Preparation: the Role of External Funding
John M. Lindberg1, S. Vokos1, L. Seeley1, E. Close1
1Seattle Pacific University.

247.03 Courses and Programs to Motivate and Train Future Science Teachers
Suzanne Amador Kane1, A. Lesnick2, J. Cantley3
1Haverford College, 2Haverford College & Bryn Mawr College, 3Ohio State University.

247.04 Instruments for Assessment of Instructional Practices in Standards-Based Teaching
Camille L. Wainwright1
1Pacific University.

247.05 Future Elementary Teachers’ Epistemological Beliefs & Views of Science
N. Sanjay Rebello1
1Kansas State University.

247.06 Exploring Relationships: Teacher Characteristics and Student Learning in Physical Science
Eleanor Close1, S. Vokos1, L. Seeley1
1Seattle Pacific University.

Session 248 Theoretical and Diagnostic Issues
AAPT Oral, Wednesday, 2:00-3:30pm, 307-08

Chair, Mary Mogge1
1California State Polytechnic Univ.

248.01 Diagnostic Tests for Entering and Departing Undergraduate Students
Chris Waltham1, A. Kotlicki1
1Department of Physics & Astronomy, University of BC, Canada.

248.02 Student Preparation, Aptitude, and Performance in a First-Semester Algebra-Based Physics Course
Robert L. Hill1, D. Grosnick1, D. Ober1
1Ball State University.

248.03 Comparing Item Responses on the FMCE and FCI
Karen Cummings1, J. Marx2, R. Thornton3, D. Kuhl4
1Southern Connecticut State Univ, 2McDaniel College, 3Tufts Univ, 4Marietta College.

248.04 Exploration of Epistemological Beliefs in a Summer Science Program for High Achieving Students(1)
Sebastien Cormier1, F. Raia1, R. Steinberg1
1City College New York.

248.05 Rate of Learning Models, Mental Models, and Item Response Theory
David E. Pritchard1, Y. Lee1, L. Bao2
1Massachusetts Institute of Technology, 2Ohio State University.

248.06 Transfer of Learning: From Physical Models to Understanding Complex Phenomena
Bijaya Aryal1, D. A. Zollman1
1Kansas State University.

248.07 A Transformed Introductory Mechanics Lab Focused on Developing Reasoning
Vincent P. Coletta1, J. Evans1, J. Phillips1
1Loyola Marymount University.

248.08 Content-Independent Problem Categorization to Cultivate Real Problem Solving Skills
Kathleen A. Harper1, R. J. Freuler1, J. T. Demel1
1The Ohio State University.

248.09 Discussion of the Correlation Coefficient and R2-Value Survey
Jeffrey Marx1
1McDaniel College.
Session 249 Oersted Medal Lecture
Plenary, Wednesday, 3:40-4:30pm, Ballroom 6

Chair, Richard Peterson¹
¹Bethel Univ.

249.01 Interactive Simulations for Teaching Physics; What Works, What Doesn’t, and Why
Carl E. Wieman¹
¹Univ. of British Columbia and Univ. of Colorado, Canada.

Session 250 New Planets
Plenary, Wednesday, 4:40-5:30pm, Ballroom 6

250.01 The Dwarf Planets of the Outer Solar System
Michael E. Brown¹
¹Caltech.
AUTHOR INDEX

A'Hearn, M. F. 025.12, 025.14
Abbas, U. 171.06
Abbott, T. 022.05, 154.12
Abel, N. 017.10
Abel, T. 036.06
Abraham, P. 133.04
Abraham, R. G. 132.05
Abrahams, P. 033.01
Abt, H. A. 108.03
Accomazzi, A. 173.02, 218.08, 218.09
Acero, F. 055.03
Ackermann, M. R. 022.11, 022.12
ACS Science Team, 021.03, 037.03, 132.07
ACS ScienceTeam, 211.13
ACT Collaboration, 240.03
Acton, S. 210.03
Adams, A. J. 209.06
Adams, B. 003.22
Adams, B. 098.03
Adams, B. 235.06
Adams, E. A. K. 167.04
Adams, F. C. 129.02
Adams, W. K. 066.01, 071.18
Adelberger, E. G. 154.02
Adelson, E. 148.14
Adhikari, A. 027.03
Adkins, J. 008.06
Adolfo, J. 017.05
Adrian, B. W. 235.02
Adzievski, K. 075.06
Ade, P. 083.08
Ade, P. A. R. 049.04
Ade, P. A. R. 083.01
Ade, P. A. R. 125.01, 125.03, 125.05, 240.05
Ade, P. 168.10
Apcar, A. 100.09
Apcar, A. 100.11, 100.13, 100.14, 178.06
Appleton, P. 083.07
Appleton, P. N. 038.07
Allen, M. B. 003.24
Allen, M. G. 078.07
Allen, R. 024.05
Allen, R. J. 015.02
Allen, R. J. 017.14
Allen, S. L. 003.07, 067.05
Allende Prieto, C. 168.08, 168.09, 168.10, 168.15
Aller, H. D. 008.04
Aller, H. D. 008.05, 239.06
Aller, M. F. 008.02
Aller, M. F. 008.04
Aller, M. F. 008.05
Allor, J. E. 075.06
Allsman, R. 086.07
Allsopp, J. 083.10
Alonso-Herrero, A. 161.07
ALFALFA Consortium, 095.01, 095.02
Allende Prieto, C. 168.08, 168.09, 168.10, 168.15
Aller, H. D. 008.04
Aller, H. D. 008.05, 239.06
Aller, M. F. 008.02
Aller, M. F. 008.04
Aller, M. F. 008.05
Allor, J. E. 100.04
Allsman, R. 086.07
Allsopp, J. 083.10
Alonso-Herrero, A. 161.07
ALFALFA Consortium, 095.01, 095.02
Ali, B. 088.01, 088.06
Ali, S. 240.05
Allain, R. 235.07
Allam, S. 022.06
Allam, S. 098.19, 215.07
Allam, S. S. 021.05
Anthong, M. 180.06
Arnold, J. 211.09
Arnouts, S. 097.05
Aryal, B. 248.06
Ashby, M. 018.04, 161.01
Ashby, M. L. N. 019.05
Ashby, M. L. N. 149.07, 161.07
Ashcraft, P. G. 235.08
Ashley, M. 212.02
Ashley, M. C. B. 212.01
Aretxaga, I. 083.04
<table>
<thead>
<tr>
<th>Author Name</th>
<th>Page Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belloni, M.</td>
<td>120.01, 121.03</td>
</tr>
<tr>
<td>Belokurov, V.</td>
<td>178.05</td>
</tr>
<tr>
<td>Benitez, N.</td>
<td>211.13</td>
</tr>
<tr>
<td>Bender, P. L.</td>
<td>074.05</td>
</tr>
<tr>
<td>Benedict, G. F.</td>
<td>022.11, 024.03</td>
</tr>
<tr>
<td>Benedict, G. F.</td>
<td>102.01</td>
</tr>
<tr>
<td>Benegas, J.</td>
<td>136.04</td>
</tr>
<tr>
<td>Benford, D.</td>
<td>085.03, 130.04</td>
</tr>
<tr>
<td>Benford, D. J.</td>
<td>085.11</td>
</tr>
<tr>
<td>Benitez, N.</td>
<td>021.03, 132.07</td>
</tr>
<tr>
<td>Benjamin, R.</td>
<td>015.09, 015.08, 017.23, 172.26</td>
</tr>
<tr>
<td>Benjamin, R. A.</td>
<td>015.08, 017.23, 172.26</td>
</tr>
<tr>
<td>Binetruy, P.</td>
<td>074.01</td>
</tr>
<tr>
<td>Bierman, E.</td>
<td>240.05</td>
</tr>
<tr>
<td>Bierman, E. M.</td>
<td>049.04</td>
</tr>
<tr>
<td>Bieryla, A.</td>
<td>025.02, 025.09</td>
</tr>
<tr>
<td>Biesiadzinski, T. P.</td>
<td>029.01</td>
</tr>
<tr>
<td>Bigelow, B.</td>
<td>098.14, 154.12</td>
</tr>
<tr>
<td>Biller, B. A.</td>
<td>179.05D</td>
</tr>
<tr>
<td>Binhuy, P.</td>
<td>074.01</td>
</tr>
<tr>
<td>Bing, T.</td>
<td>188.09, 209.13</td>
</tr>
<tr>
<td>Bing, T. J.</td>
<td>135.03</td>
</tr>
<tr>
<td>Biretta, J.</td>
<td>008.13</td>
</tr>
<tr>
<td>Berta, S.</td>
<td>195.01</td>
</tr>
<tr>
<td>Bernard, J.</td>
<td>160.11, 160.15</td>
</tr>
<tr>
<td>Bernard, J.</td>
<td>192.01</td>
</tr>
<tr>
<td>Bernard, J.</td>
<td>192.02, 192.04</td>
</tr>
<tr>
<td>Bernard-Salas, J.</td>
<td>101.02, 127.05</td>
</tr>
<tr>
<td>Bernardi, M.</td>
<td>004.12</td>
</tr>
<tr>
<td>Berendson, M.</td>
<td>157.01</td>
</tr>
<tr>
<td>Beresnyak, A.</td>
<td>077.14</td>
</tr>
<tr>
<td>Berger, D.</td>
<td>246.02</td>
</tr>
<tr>
<td>Bergman, M.</td>
<td>150.08</td>
</tr>
<tr>
<td>Bergmann, M. P.</td>
<td>211.07</td>
</tr>
<tr>
<td>Berlin, A.</td>
<td>038.06, 183.01</td>
</tr>
<tr>
<td>Berlind, A. A.</td>
<td>129.01</td>
</tr>
<tr>
<td>Berlind, P.</td>
<td>090.05</td>
</tr>
<tr>
<td>Berriman, B.</td>
<td>088.06</td>
</tr>
<tr>
<td>Berriman, G. B.</td>
<td>088.01</td>
</tr>
<tr>
<td>Berrington, R. C.</td>
<td>090.05</td>
</tr>
<tr>
<td>Bessinet, A.</td>
<td>098.01</td>
</tr>
<tr>
<td>Bessinet, A.</td>
<td>150.05, 150.07</td>
</tr>
<tr>
<td>Beswick, D.</td>
<td>102.07</td>
</tr>
<tr>
<td>Bertoldi, F.</td>
<td>195.01</td>
</tr>
<tr>
<td>Best, P. N.</td>
<td>183.05</td>
</tr>
<tr>
<td>Beuckman, J.</td>
<td>245.02</td>
</tr>
<tr>
<td>Beuther, H.</td>
<td>030.05, 057.02</td>
</tr>
<tr>
<td>Beverley, N.</td>
<td>148.27</td>
</tr>
<tr>
<td>Bhardwaj, V.</td>
<td>097.07</td>
</tr>
<tr>
<td>Bhat, R.</td>
<td>159.08</td>
</tr>
<tr>
<td>Bhattacharya, B.</td>
<td>225.01</td>
</tr>
<tr>
<td>Bianchi, L.</td>
<td>087.01, 087.02</td>
</tr>
<tr>
<td>Bianchi, S.</td>
<td>018.05</td>
</tr>
<tr>
<td>BICEP/SPUD collaboration</td>
<td>011.05</td>
</tr>
<tr>
<td>Bida, T. A.</td>
<td>022.14</td>
</tr>
<tr>
<td>Bienayme, O.</td>
<td>078.07</td>
</tr>
<tr>
<td>Bierman, E.</td>
<td>240.05</td>
</tr>
<tr>
<td>Bierman, E. M.</td>
<td>049.04</td>
</tr>
<tr>
<td>Bieryla, A.</td>
<td>025.02, 025.09</td>
</tr>
<tr>
<td>Blandford, R. D.</td>
<td>021.02</td>
</tr>
<tr>
<td>Blandford, R. D.</td>
<td>086.12, 176.01</td>
</tr>
<tr>
<td>Blanton, E.</td>
<td>077.19</td>
</tr>
<tr>
<td>Blanton, M.</td>
<td>097.07, 178.01, 183.01</td>
</tr>
<tr>
<td>Blanton, M. R.</td>
<td>019.06, 038.06</td>
</tr>
<tr>
<td>Blanton, M. R.</td>
<td>097.01</td>
</tr>
<tr>
<td>Blanton, M. R.</td>
<td>199.03</td>
</tr>
<tr>
<td>Blauvelt, S. R.</td>
<td>003.04</td>
</tr>
<tr>
<td>BLISS and SPICA teams</td>
<td>164.04</td>
</tr>
<tr>
<td>Bliven, W.</td>
<td>071.21</td>
</tr>
<tr>
<td>Block, M.</td>
<td>160.01</td>
</tr>
<tr>
<td>Block, M.</td>
<td>160.02</td>
</tr>
<tr>
<td>Block, M.</td>
<td>160.03, 160.05</td>
</tr>
<tr>
<td>Block, M.</td>
<td>160.06</td>
</tr>
<tr>
<td>Block, M.</td>
<td>160.07, 160.08, 160.09</td>
</tr>
<tr>
<td>Block, M.</td>
<td>160.10</td>
</tr>
<tr>
<td>Block, M.</td>
<td>160.11, 160.13, 160.14, 160.15</td>
</tr>
<tr>
<td>Block, M.</td>
<td>192.01</td>
</tr>
<tr>
<td>Block, M.</td>
<td>192.02, 192.03, 192.05</td>
</tr>
<tr>
<td>Blodgett, E. D.</td>
<td>058.06</td>
</tr>
<tr>
<td>Blodgett, M. E.</td>
<td>058.06</td>
</tr>
<tr>
<td>Blommaert, J.</td>
<td>093.09</td>
</tr>
<tr>
<td>Blondin, J. M.</td>
<td>150.06, 156.17, 202.01</td>
</tr>
<tr>
<td>Blondin, S.</td>
<td>090.05, 150.05, 150.07</td>
</tr>
<tr>
<td>Bloom, J.</td>
<td>078.04, 227.03</td>
</tr>
<tr>
<td>Bloom, J. S.</td>
<td>086.13</td>
</tr>
<tr>
<td>Bloom, J. S.</td>
<td>090.06</td>
</tr>
<tr>
<td>Bloom, P. C.</td>
<td>148.01</td>
</tr>
<tr>
<td>Blosner, P.</td>
<td>164.05</td>
</tr>
<tr>
<td>Blue, J.</td>
<td>148.15</td>
</tr>
<tr>
<td>Blum, B.</td>
<td>026.13</td>
</tr>
<tr>
<td>Blum, R.</td>
<td>160.03</td>
</tr>
<tr>
<td>Blum, R.</td>
<td>192.01</td>
</tr>
<tr>
<td>Blum, R.</td>
<td>192.02</td>
</tr>
<tr>
<td>Blum, R. D.</td>
<td>160.05</td>
</tr>
<tr>
<td>Blum, R. D.</td>
<td>160.07, 160.08</td>
</tr>
<tr>
<td>Blum, R. D.</td>
<td>192.05</td>
</tr>
<tr>
<td>Boboltz, D. A.</td>
<td>101.12</td>
</tr>
<tr>
<td>Bobra, M.</td>
<td>016.04</td>
</tr>
<tr>
<td>Bobrowsky, M.</td>
<td>157.03, 174.01</td>
</tr>
<tr>
<td>Boccas, M.</td>
<td>130.03</td>
</tr>
<tr>
<td>Bock, T.</td>
<td>078.07</td>
</tr>
<tr>
<td>Bockhanski, J.</td>
<td>097.12</td>
</tr>
<tr>
<td>Bockhanski, J.</td>
<td>027.08</td>
</tr>
<tr>
<td>Bockhanski, J.</td>
<td>089.04</td>
</tr>
<tr>
<td>Bockhanski, J.</td>
<td>089.06, 172.14</td>
</tr>
<tr>
<td>Bock, J.</td>
<td>049.07</td>
</tr>
<tr>
<td>Bock, J.</td>
<td>083.06</td>
</tr>
<tr>
<td>Bock, J.</td>
<td>083.08</td>
</tr>
<tr>
<td>Bock, J.</td>
<td>083.09</td>
</tr>
<tr>
<td>Bock, J.</td>
<td>095.01</td>
</tr>
<tr>
<td>Bock, J.</td>
<td>049.04</td>
</tr>
<tr>
<td>Bock, J.</td>
<td>083.01</td>
</tr>
<tr>
<td>Bock, J.</td>
<td>125.01, 125.03, 125.05</td>
</tr>
<tr>
<td>Bode, M. F.</td>
<td>009.17</td>
</tr>
<tr>
<td>Bond, H. E.</td>
<td>099.02</td>
</tr>
<tr>
<td>Bondi, M.</td>
<td>080.01</td>
</tr>
<tr>
<td>Bongard, S.</td>
<td>078.09, 150.16</td>
</tr>
<tr>
<td>Bond, H. E.</td>
<td>009.21, 101.10, 151.11</td>
</tr>
<tr>
<td>Bond, H. E.</td>
<td>182.02</td>
</tr>
<tr>
<td>Bono, G.</td>
<td>026.12</td>
</tr>
<tr>
<td>Bonogard, S.</td>
<td>200.01, 229.07</td>
</tr>
<tr>
<td>Boniomi, S.</td>
<td>085.14</td>
</tr>
<tr>
<td>Bonham, S. W.</td>
<td>071.14, 071.15</td>
</tr>
<tr>
<td>Bonissent, A.</td>
<td>098.20</td>
</tr>
<tr>
<td>Bonnar, M.</td>
<td>162.22</td>
</tr>
<tr>
<td>Bonnarel, F.</td>
<td>078.07</td>
</tr>
<tr>
<td>Bonnell, J.</td>
<td>153.15</td>
</tr>
<tr>
<td>Bonning, E. W.</td>
<td>034.05</td>
</tr>
<tr>
<td>Bon, G.</td>
<td>026.12</td>
</tr>
<tr>
<td>Boogert, A.</td>
<td>084.19, 105.22</td>
</tr>
<tr>
<td>Author</td>
<td>Page Numbers</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Boogert, A. C.A.</td>
<td>030.09, 219.07</td>
</tr>
<tr>
<td>Boone, R.</td>
<td>219.02</td>
</tr>
<tr>
<td>Boone, R. H.</td>
<td>168.07</td>
</tr>
<tr>
<td>Booth, C. M.</td>
<td>019.07</td>
</tr>
<tr>
<td>Borgani, S.</td>
<td>077.25, 180.06</td>
</tr>
<tr>
<td>Borgland, A.</td>
<td>153.09</td>
</tr>
<tr>
<td>Borkin, M. A.</td>
<td>057.06</td>
</tr>
<tr>
<td>Borkowski, K. J.</td>
<td>156.17, 156.19</td>
</tr>
<tr>
<td>Borne, K.</td>
<td>106.02, 126.01</td>
</tr>
<tr>
<td>Boroson, B. S.</td>
<td>007.06</td>
</tr>
<tr>
<td>Borucki, W.</td>
<td>210.08, 210.11</td>
</tr>
<tr>
<td>Borucki, W. J.</td>
<td>124.06</td>
</tr>
<tr>
<td>Borucki, W. J.</td>
<td>210.09</td>
</tr>
<tr>
<td>Borucki, W. J.</td>
<td>210.10</td>
</tr>
<tr>
<td>Bros, A. P.</td>
<td>110.05, 226.05</td>
</tr>
<tr>
<td>Bossi, A.</td>
<td>026.11</td>
</tr>
<tr>
<td>Bot, C.</td>
<td>198.08</td>
</tr>
<tr>
<td>Bouas, J. D.</td>
<td>121.07</td>
</tr>
<tr>
<td>Bouas, J. D.</td>
<td>173.01</td>
</tr>
<tr>
<td>Boudreaux, A.</td>
<td>188.07</td>
</tr>
<tr>
<td>Boulanger, F.</td>
<td>088.01</td>
</tr>
<tr>
<td>Boulanger, F.</td>
<td>088.06</td>
</tr>
<tr>
<td>Boulanger, F.</td>
<td>160.12</td>
</tr>
<tr>
<td>Bouret, J.</td>
<td>009.14</td>
</tr>
<tr>
<td>Bourke, T.</td>
<td>010.10</td>
</tr>
<tr>
<td>Bouton, E.</td>
<td>051.02</td>
</tr>
<tr>
<td>Bouwens, R.</td>
<td>132.01, 132.02</td>
</tr>
<tr>
<td>Bowen, D.</td>
<td>132.07</td>
</tr>
<tr>
<td>Bower, C. R.</td>
<td>098.11, 098.16</td>
</tr>
<tr>
<td>Bower, G.</td>
<td>112.06</td>
</tr>
<tr>
<td>Bower, G. C.</td>
<td>112.07</td>
</tr>
<tr>
<td>Bowers, C.</td>
<td>056.04, 210.01</td>
</tr>
<tr>
<td>Bowers, C. W.</td>
<td>210.03</td>
</tr>
<tr>
<td>Bowler, B. P.</td>
<td>030.12</td>
</tr>
<tr>
<td>Bowman, J. D.</td>
<td>224.020D</td>
</tr>
<tr>
<td>Boyajian, T. S.</td>
<td>081.04</td>
</tr>
<tr>
<td>Boyce, P. B.</td>
<td>154.14</td>
</tr>
<tr>
<td>Boyd, E. S.</td>
<td>105.02</td>
</tr>
<tr>
<td>Boyer, M. L.</td>
<td>026.12</td>
</tr>
<tr>
<td>Boyle, R. P.</td>
<td>078.11</td>
</tr>
<tr>
<td>Boyles, J. G.</td>
<td>084.13</td>
</tr>
<tr>
<td>Braatz, J.</td>
<td>149.18</td>
</tr>
<tr>
<td>Bradac, M.</td>
<td>037.07, 086.12</td>
</tr>
<tr>
<td>Bradford, C.</td>
<td>164.04</td>
</tr>
<tr>
<td>Bradford, C. M.</td>
<td>056.02</td>
</tr>
<tr>
<td>Bradford, C. M.</td>
<td>164.02</td>
</tr>
<tr>
<td>Brahmia, S.</td>
<td>145.02</td>
</tr>
<tr>
<td>Bramich, D. M.</td>
<td>162.08</td>
</tr>
<tr>
<td>Bramlett, J.</td>
<td>029.12</td>
</tr>
<tr>
<td>Branch, D.</td>
<td>150.03, 200.01</td>
</tr>
<tr>
<td>Brand, K.</td>
<td>161.01</td>
</tr>
<tr>
<td>Brand, K.</td>
<td>161.04</td>
</tr>
<tr>
<td>Brandenburg, K. A.</td>
<td>121.04</td>
</tr>
<tr>
<td>Brandl, B.</td>
<td>217.04</td>
</tr>
<tr>
<td>Brandner, W.</td>
<td>179.05</td>
</tr>
<tr>
<td>Brandt, N.</td>
<td>086.14, 149.16</td>
</tr>
<tr>
<td>Brandt, W.</td>
<td>052.08</td>
</tr>
<tr>
<td>Brandt, W. N.</td>
<td>034.04, 052.04</td>
</tr>
<tr>
<td>Brotherton, M.</td>
<td>072.02</td>
</tr>
<tr>
<td>Brozer, K. R.</td>
<td>209.05</td>
</tr>
<tr>
<td>Brown, A.</td>
<td>089.05, 219.02</td>
</tr>
<tr>
<td>Brown, E. F.</td>
<td>150.21</td>
</tr>
<tr>
<td>Brown, J. M.</td>
<td>030.09</td>
</tr>
<tr>
<td>Brown, M. E.</td>
<td>250.01</td>
</tr>
<tr>
<td>Brown, M. J. I.</td>
<td>161.01</td>
</tr>
<tr>
<td>Brown, M. J. I.</td>
<td>161.05</td>
</tr>
<tr>
<td>Brown, R.</td>
<td>210.02</td>
</tr>
<tr>
<td>Brown, T.</td>
<td>124.06</td>
</tr>
<tr>
<td>Brown, T.</td>
<td>177.05</td>
</tr>
<tr>
<td>Brown, T. M.</td>
<td>138.01</td>
</tr>
<tr>
<td>Brownlee, D. E.</td>
<td>035.06</td>
</tr>
<tr>
<td>Bruch, S.</td>
<td>077.01</td>
</tr>
<tr>
<td>Bruch, S. S.</td>
<td>077.04</td>
</tr>
<tr>
<td>Bruhweiler, F.</td>
<td>072.16</td>
</tr>
<tr>
<td>Bruhweiler, F. C.</td>
<td>029.13</td>
</tr>
<tr>
<td>Brum, R.</td>
<td>164.12</td>
</tr>
<tr>
<td>Bruning, D. H.</td>
<td>014.02, 213.02</td>
</tr>
<tr>
<td>Brunner, G.</td>
<td>004.05</td>
</tr>
<tr>
<td>Brunner, R.</td>
<td>149.04</td>
</tr>
<tr>
<td>Brunner, R. J.</td>
<td>072.08</td>
</tr>
<tr>
<td>Brunsig, W.</td>
<td>130.04</td>
</tr>
<tr>
<td>Brusa, M.</td>
<td>149.14</td>
</tr>
<tr>
<td>Bryan, C. B.</td>
<td>154.15</td>
</tr>
<tr>
<td>Bryan, G.</td>
<td>211.14</td>
</tr>
<tr>
<td>Bryan, J. A.</td>
<td>071.24, 245.07</td>
</tr>
<tr>
<td>Bryden, G.</td>
<td>013.05, 081.06, 110.04</td>
</tr>
<tr>
<td>Bryson, S. T.</td>
<td>210.09</td>
</tr>
<tr>
<td>Buta, R.</td>
<td>017.17</td>
</tr>
<tr>
<td>Butler, A. R.</td>
<td>018.01</td>
</tr>
<tr>
<td>Butler, A. R.</td>
<td>077.04</td>
</tr>
<tr>
<td>Butler, J.</td>
<td>209.02</td>
</tr>
<tr>
<td>Butler, J. J.</td>
<td>148.29</td>
</tr>
<tr>
<td>Buta, R. L.</td>
<td>074.07</td>
</tr>
<tr>
<td>Butc, M. T.</td>
<td>004.08, 017.17</td>
</tr>
<tr>
<td>Byer, R. L.</td>
<td>074.07</td>
</tr>
<tr>
<td>Cady, E.</td>
<td>164.09</td>
</tr>
<tr>
<td>Cai, D.</td>
<td>022.06</td>
</tr>
<tr>
<td>Calder, C.</td>
<td>240.05</td>
</tr>
<tr>
<td>Caldwell, D.</td>
<td>124.06</td>
</tr>
<tr>
<td>Caldwell, D.</td>
<td>210.12</td>
</tr>
<tr>
<td>Caldwell, D. A.</td>
<td>210.08, 210.09, 210.13</td>
</tr>
<tr>
<td>Calisse, P. G.</td>
<td>055.02</td>
</tr>
<tr>
<td>Calkins, M.</td>
<td>090.05</td>
</tr>
<tr>
<td>Calvet, N.</td>
<td>076.02, 081.01</td>
</tr>
<tr>
<td>Buckley-Geer, L.</td>
<td>022.05</td>
</tr>
<tr>
<td>Buckley-Geer, E. J.</td>
<td>021.05</td>
</tr>
<tr>
<td>Bucy, B. R.</td>
<td>209.20</td>
</tr>
<tr>
<td>Budavari, T.</td>
<td>097.05</td>
</tr>
<tr>
<td>Buick, R.</td>
<td>237.01</td>
</tr>
<tr>
<td>Bullock, J.</td>
<td>086.15</td>
</tr>
<tr>
<td>Bullock, J. S.</td>
<td>038.04</td>
</tr>
<tr>
<td>Bunker, A. J.</td>
<td>171.08</td>
</tr>
<tr>
<td>Bunn, E. F.</td>
<td>224.04</td>
</tr>
<tr>
<td>Bunn, E. F.</td>
<td>240.05</td>
</tr>
<tr>
<td>Bursciagia, J. R.</td>
<td>184.04</td>
</tr>
<tr>
<td>Bureau, M.</td>
<td>004.09</td>
</tr>
<tr>
<td>Burgasser, A. J.</td>
<td>079.05</td>
</tr>
<tr>
<td>Burgay, M.</td>
<td>115.02</td>
</tr>
<tr>
<td>Burge, J.</td>
<td>056.04</td>
</tr>
<tr>
<td>Burge, J. 086.18</td>
<td>164.11</td>
</tr>
<tr>
<td>Burge, A.</td>
<td>025.06</td>
</tr>
<tr>
<td>Burge, A. 101.04</td>
<td></td>
</tr>
<tr>
<td>Burge, B.</td>
<td>241.04</td>
</tr>
<tr>
<td>Burge, D.</td>
<td>086.05</td>
</tr>
<tr>
<td>Burge, D. J.</td>
<td>180.06</td>
</tr>
<tr>
<td>Burkert, A.</td>
<td>017.15</td>
</tr>
<tr>
<td>Bursciagia, J. R.</td>
<td>153.02</td>
</tr>
<tr>
<td>Burns, C. R.</td>
<td>090.04</td>
</tr>
<tr>
<td>Burns, J.</td>
<td>180.04</td>
</tr>
<tr>
<td>Burns, J. O.</td>
<td>077.17, 107.01</td>
</tr>
<tr>
<td>Burns, L. R.</td>
<td>006.01, 121.07, 173.01</td>
</tr>
<tr>
<td>Author</td>
<td>Page Numbers</td>
</tr>
<tr>
<td>------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Cowan, N. B.</td>
<td>163.02</td>
</tr>
<tr>
<td>Cowin, B. J.</td>
<td>172.02</td>
</tr>
<tr>
<td>Corbally, C. J.</td>
<td>089.02</td>
</tr>
<tr>
<td>Cordero, M. J.</td>
<td>030.03</td>
</tr>
<tr>
<td>Cordero, M. J.</td>
<td>149.02</td>
</tr>
<tr>
<td>Cordes, J.</td>
<td>159.08</td>
</tr>
<tr>
<td>Cordes, J.</td>
<td>159.10</td>
</tr>
<tr>
<td>Cordova, F. A.</td>
<td>243.08</td>
</tr>
<tr>
<td>Cormier, S.</td>
<td>248.04</td>
</tr>
<tr>
<td>Cornell, D. A.</td>
<td>065.04</td>
</tr>
<tr>
<td>Cornish, N. J.</td>
<td>074.15</td>
</tr>
<tr>
<td>Corradi, R.</td>
<td>009.21</td>
</tr>
<tr>
<td>Correll, R. W.</td>
<td>085.06</td>
</tr>
<tr>
<td>COSMOS Collaboration</td>
<td>080.02, 225.03</td>
</tr>
<tr>
<td>COSMOS Team</td>
<td>080.03, 223.01, 225.04</td>
</tr>
<tr>
<td>Cote, P.</td>
<td>112.05</td>
</tr>
<tr>
<td>Cotera, A. S.</td>
<td>105.04</td>
</tr>
<tr>
<td>Cotton, W. D.</td>
<td>211.03</td>
</tr>
<tr>
<td>Coughlin, J. L.</td>
<td>151.13</td>
</tr>
<tr>
<td>Cook, D. M.</td>
<td>041.02</td>
</tr>
<tr>
<td>Cook, K.</td>
<td>102.05</td>
</tr>
<tr>
<td>Cotton, W. D.</td>
<td>085.06</td>
</tr>
<tr>
<td>Cotton, W. D.</td>
<td>112.07</td>
</tr>
<tr>
<td>Couch, W. J.</td>
<td>211.07</td>
</tr>
<tr>
<td>Cook-Gumperz, J.</td>
<td>189.01</td>
</tr>
<tr>
<td>Cooper, M. C.</td>
<td>181.01D</td>
</tr>
<tr>
<td>Cooper, M. C.</td>
<td>193.06</td>
</tr>
<tr>
<td>Cooper, M. C.</td>
<td>181.01D</td>
</tr>
<tr>
<td>Conkin, Y.</td>
<td>074.07</td>
</tr>
<tr>
<td>Conly, M. H.</td>
<td>239.02</td>
</tr>
<tr>
<td>Conly, R.</td>
<td>152.03</td>
</tr>
<tr>
<td>Conly, R.</td>
<td>226.06</td>
</tr>
<tr>
<td>Connolly, A. J.</td>
<td>086.06</td>
</tr>
<tr>
<td>Connolly, A. J.</td>
<td>159.08</td>
</tr>
<tr>
<td>Connolly, B.</td>
<td>090.02</td>
</tr>
<tr>
<td>Conselice, C.</td>
<td>052.08</td>
</tr>
<tr>
<td>Conselice, C.</td>
<td>077.01</td>
</tr>
<tr>
<td>Conselice, C.</td>
<td>181.02</td>
</tr>
<tr>
<td>Contalva, M.</td>
<td>241.04</td>
</tr>
<tr>
<td>Colbert, J. W.</td>
<td>132.03</td>
</tr>
<tr>
<td>Cole, A. A.</td>
<td>178.06</td>
</tr>
<tr>
<td>Cole, G.</td>
<td>210.02</td>
</tr>
<tr>
<td>Coleman, P. H. I.</td>
<td>171.10</td>
</tr>
<tr>
<td>Colletta, V. P.</td>
<td>209.08, 248.07</td>
</tr>
<tr>
<td>Colgan, S. W. J.</td>
<td>105.04</td>
</tr>
<tr>
<td>Colina, L.</td>
<td>238.09</td>
</tr>
<tr>
<td>Colley, S.</td>
<td>169.15</td>
</tr>
<tr>
<td>Collier, J. L.</td>
<td>003.26</td>
</tr>
<tr>
<td>Collins, C.</td>
<td>180.06</td>
</tr>
<tr>
<td>Collins, K.</td>
<td>219.08</td>
</tr>
<tr>
<td>Colon, A. M.</td>
<td>164.12</td>
</tr>
<tr>
<td>Colon, K.</td>
<td>084.10</td>
</tr>
<tr>
<td>Combis, F.</td>
<td>111.04</td>
</tr>
<tr>
<td>Combi, M. R.</td>
<td>252.15</td>
</tr>
<tr>
<td>Combs, M.</td>
<td>085.01</td>
</tr>
<tr>
<td>Cominsky, L.</td>
<td>094.06</td>
</tr>
<tr>
<td>Cominsky, L. R.</td>
<td>094.06</td>
</tr>
<tr>
<td>Conklin, J. W.</td>
<td>074.07</td>
</tr>
<tr>
<td>Conley, A. J.</td>
<td>090.03, 150.14</td>
</tr>
<tr>
<td>Connelly, M. S.</td>
<td>057.03D</td>
</tr>
<tr>
<td>Connolly, J. L.</td>
<td>026.08</td>
</tr>
<tr>
<td>Cotters, E. A.</td>
<td>009.20</td>
</tr>
<tr>
<td>Crepp, J.</td>
<td>169.06, 169.07</td>
</tr>
<tr>
<td>Crepp, J.</td>
<td>226.06</td>
</tr>
<tr>
<td>Cristiani, S.</td>
<td>052.08</td>
</tr>
<tr>
<td>Croft, S.</td>
<td>161.02</td>
</tr>
<tr>
<td>Croft, S. K.</td>
<td>046.07</td>
</tr>
<tr>
<td>Croll, B.</td>
<td>014.01, 230.02</td>
</tr>
<tr>
<td>Crosby, K.</td>
<td>121.09</td>
</tr>
<tr>
<td>Croton, D.</td>
<td>215.08</td>
</tr>
<tr>
<td>Crots, A. P. S.</td>
<td>099.05</td>
</tr>
<tr>
<td>Crouch, D.</td>
<td>074.15</td>
</tr>
<tr>
<td>Crow, M.</td>
<td>083.05, 125.04</td>
</tr>
<tr>
<td>Crows, E. A.</td>
<td>009.20</td>
</tr>
<tr>
<td>Crowther, J.</td>
<td>074.15</td>
</tr>
<tr>
<td>Croxall, K. V.</td>
<td>165.08</td>
</tr>
<tr>
<td>Crummett, B.</td>
<td>068.03</td>
</tr>
<tr>
<td>Cruz, K. L.</td>
<td>079.02</td>
</tr>
<tr>
<td>Cruz, K. L.</td>
<td>152.02</td>
</tr>
</tbody>
</table>
Author Index

Dodge, C. 177.04
Doel, P. 154.12
Doelman, S. S. 085.10
Doelman, S. S. 219.04
Doering, R. L. 127.02
Dogoda, P. 164.01
Doherty, M. 171.08
Doherty, P. 118.03
Doi, M. 090.01
Dokter, E. F. C. 157.06
Dolch, T. 020.02
Dole, H. 195.01
Dolphin, A. 114.03
Dolphin, A. E. 178.06
Domingue, D. 005.05, 005.06
Donahue, M. 077.01, 077.11, 077.25
Donahue, M. E. 077.04
Donalek, C. 020.01, 078.05
Donalek, C. 078.07
Donehew, B. 127.05
Dong, P. 209.13
Donnelly, D. 119.01
Donnelly, R. J. 120.01
Donzelli, C. J. 072.11
Done, M. 099.21
Doppmann, G. 030.03, 105.05, 105.11, 219.16
Dorame, B. 071.10
Dostal, J. 188.05
Dotter, A. 100.09
Dotter, A. 100.10, 100.14
Dotter, A. L. 040.03D
Dougados, C. 030.16
Douglass, E. 077.19
Dove, J. B. 232.02
Dowell, C. D. 049.04, 112.07
Dowell, C. 130.02
Doyon, R. 099.13, 210.04
Dragovan, M. 056.02, 164.02
Drake, A. 078.05
Drake, A. 099.01
Drake, A. J. 078.04
Dressler, A. 210.04
Driebe, T. 101.12
Drissen, L. 009.13
Drory, N. 004.13
Douret d’Aubigny, C. Y. 130.01
Dryden, N. 189.02
Duband, L. 049.04
Dubois, P. 078.07
Dubois, R. 153.06
Duchêne, G. 110.01
Duda, P. 022.06
Dudik, R. 039.04, 034.03D
Dudish, D. 071.04
Dudley, S. C. 209.04
Dufour, P. 103.05
Dukes, R. J. 029.10, 029.11, 029.12
Duley, W. W. 127.05
Dumont, C. 210.11
Dumora, D. 153.04
Duncan, D. K. 031.01
Dunham, E. W. 022.14
Dunham, M. M. 105.06
Dunlop, J. 083.07, 125.02, 125.05
Dupke, R. 077.15
Dupuis, J. 103.10
Durisen, R. H. 030.10
Durisen, R. H. 076.06
Durisen, R. H. 076.07
Durisen, R. H. 105.08
Durrell, P. 015.06, 211.10
Durrell, P. R. 114.05
Durrell, P. R. 211.08
Dursi, L. J. 150.18
Dwarkadas, V. 017.25
Dwek, E. 130.04, 34.03
Dwelly, T. 225.06
Eagan, J. 060.01
Ealet, A. 098.20
Earle, M. J. 148.25
Ebbets, D. 025.01
Ebets, D. 094.11
Elbaz, D. 052.08
Elbaz, D. 132.03
Elby, A. 188.09, 205.04, 205.05, 209.13, 209.16
Elitzur, M. 149.06, 149.08, 238.09
Ellingsen, S. 099.03
Ellington, E. 215.08
Elliot, G. 025.10
Ellis, R. 053.04
Ellis, R. G. 160.08
Ellis, R. S. 021.06, 183.03
Elliott, D. 015.01
Ellman, N. 020.01
Ellman, N. 078.05
Elmegreen, B. G. 167.05
Elmegreen, D. M. 114.05
Elston, R. 193.02
Edmonds, R. M. 172.07
Edgar, R. J. 087.01, 087.04
EDisCS Collaboration, 019.02
Edmonds, P. 094.03
Edmound, M. 005.02, 080.06, 149.09, 149.14
Ems, J. 087.10
Emmet, W. 098.14
Endorf, R. J. 003.18
Engel, L. 085.14
Engelbracht, C. 160.01
Engelbracht, C. 160.02
Engelbracht, C. 160.03, 160.05
Engelbracht, C. 160.06
Engelbracht, C. 160.07, 160.08
Engelbracht, C. 160.09
Engelbracht, C. 160.10
Engelbracht, C. 160.11, 160.12
Engelbracht, C. 160.13, 160.14
Engelbracht, C. 160.15
Engelbracht, C. 192.01
Engelbracht, C. 192.02
Engelbracht, C. 192.03, 192.05
Engelhardt, D. 085.09
Engle, S. G. 006.04, 029.08
English, D. 149.14
English, D. John. 005.02
English, J. 114.05, 211.08, 211.10
English, T. R. 023.04
Ennico, K. 084.19
Enoch, M. 133.03D
Enocho, M. L. 172.01
Entwistle, T. 003.25, 136.05
Erb, D. 019.08
Erickcek, A. L. 166.02
Erickson, E. F. 105.04
Erickson, T. 146.04
Eriksen, H. K. 240.06
Eriksson, M. 029.13
Espaillat, C. 076.02
Espinoza, P. 196.06
Esquerdo, G. 090.05
Esselman, A. Richard. 100.07
ESSENCE Collaboration, 150.01
ESSENCE team, 090.11
Estrada, J. 215.06, 215.07
Etters, E. B. 209.01
Evans, A. 009.06
Evans, A. 182.02
Evans, J. 077.13
Evans, J. 248.07
Evans, J. L. 077.09
Evans, N. 030.16
Evans, N. J. 055.04
Evans, N. J. 172.01
Evans, N. J. 219.11
Evans, N. R. 029.08, 151.08, 158.01
Evans, N. W. 178.05
Evans II, N. J. 105.21
Everett, M. 162.15, 162.16
Evonuk, M. 200.03
Evvard, A. 197.02
Evvard, A. E. 129.02

381

Author Index
Geha, M. 177.07
Geha, M. C. 178.01
Gehrels, N. 195.07
Gehrels, N. 212.01
Gehrels, N. 212.02, 227.07
Gehrz, R. D. 009.06
Gehrz, R. D. 084.20
Gehrz, R. D. 101.09, 156.13, 167.09
Geibink, W. 218.03
Geis, D. 007.06
Geisler, D. 040.01
Gelbord, J. M. 239.04
Gelderman, R. F. 149.20, 170.06
Gelfand, J. 222.03
Gelino, C. 241.01
Geller, M. J. 097.13
Gemini GLAO Feasibility Study Team, 154.11
GENA collaboration, 158.01
Genova, F. 078.07
Georgiev, I. 100.02
Gerakines, P. 084.03
Gerakines, P. A. 035.01
Geramita, M. 071.01
Gerke, B. 181.03D, 222.03
Gerke, J. 009.13
Gerstle, W. H. 022.11
Gettler, S. 162.20
Gezari, S. 149.14
Ghavamian, P. 114.07
Ghavamian, P. 125.04
Gibb, E. 010.03, 010.09
Gibbons, H. 213.06
Gibbons, R. A. 217.06
Gibbs, M. 157.01
Gibiansky, M. 131.06
Giersz, L. 085.15
Gies, D. 036.08
Gies, D. R. 081.04
Gill de Paz, A. 093.07
Gilbert, A. M. 100.01
Gilbert, A. M. 100.05
Gilbert, K. 087.06, 177.01, 177.02, 177.07
Gilbert, K. 177.08
Gill, A. 165.08, 165.09
Gill, C. A. 160.13
Gill, D. 074.07
Gilles, S. 078.09, 150.16
Gilles, S. 229.07
Gilliland, R. 124.06
Gilliland, R. L. 151.11, 210.09
Gilliland, R. L. 210.13
Gilmore, G. 172.15
Gilmore, G. 178.05
Gilmore, K. 086.05, 086.20
Gilmozzi, R. 160.02
Gimme, G. 154.04
Gimre, K. H. 148.23
Gimre, K. T. 148.23
Ginsburg, A. 100.03
Giordano, N. 118.01
Giovanelli, R. 097.06
Girard, T. M. 151.11
Gire, E. 209.17
Girerd, A. R. 164.02
Girish, V. 182.06
Giroux, M. L. 244.05
Give’on, A. 164.09, 164.15
Gizis, J. E. 010.04
Gladders, M. 154.12, 222.01
Gladman, B. 025.09
Glass, I. 093.09
Glassman, T. M. 169.10
GLAST Collaboration, 153.03
GLAST LAT Collaboration, 153.03
GLAST LAT Collab. Pulsars, SNR and Plerions group, 153.08
GLAST LAT Collaboration, 037.01, 153.04
GLAST LAT GRB science working group, 153.07
GLAST LAT ISOC, 153.10
GLAST LAT Team, 153.02
GLAST Mission Team, 153.01
GLAST Science Support Center, 153.11, 153.12, 153.13
Glatzmaier, G. 200.03
Glazebrook, K. 097.04
Glenn, J. 005.01, 083.01, 085.12, 172.01
Glickman, E. 020.01
Glikman, E. 072.26, 078.04
Author Index

Hunt, G. L.  148.05
Hunt, L.  178.02
Hunten, M.  022.08
Hunter, D.  167.07
Hunter, D. A.  167.05
Hurford, A.  156.21
Hurlburt, N. E.  096.01
Hurley, J.  228.03
Hurley, K.  164.05
Hurley, K. C.  212.09
Hurst, A.  157.01
Hurt, R. L.  218.10
Hurteau, T.  098.14
Huziak, R.  029.20
Hwang, U.  156.17
Hyatt, L. D.  049.03
Hyland, P. O.  240.05
Hynes, S.  085.04
Ianna, P. A.  024.04
Ida, S.  076.01, 076.03, 076.05
Ignace, R.  101.04, 230.05
Ignarra, C.  097.01
Ignatova, O.  071.19
Ihara, Y.  090.01
Ilbert, O.  005.07, 225.01
Illiningworth, G.  127.01, 132.02, 132.07
Illiningworth, G. D.  037.03, 132.01
Illiningworth, G. D.  211.13
Im, M.  072.06
Imamura, J. N.  030.10
Imbriale, W.  056.02
Immler, S.  004.04, 200.06
Impey, C.  149.14
Impey, C. D.  149.13
Indebetouw, R.  088.01
Indebetouw, R.  088.06
Indebetouw, R.  160.01, 160.02, 160.03, 160.05
Indebetouw, R.  160.06
Indebetouw, R.  160.07, 160.08, 160.09
Indebetouw, R.  160.10
Indebetouw, R.  160.11, 160.12, 160.13, 160.14, 160.15
Indebetouw, R.  192.01
Indebetouw, R.  192.02, 192.03, 192.05, 219.21
Ingalls, J.  088.04, 088.06
Ingalls, J. G.  088.01
International MWA partnership, 085.08
International Space VLBI Collaboration, 056.03
International Spaceflight Museum, 094.08
Iono, D.  015.12
Iping, R.  092.03, 151.07
IRAC, 113.02
IRAC Shallow Survey, 161.03
IRAC Shallow Survey Collaboration, 161.07
IRAC Shallow Survey Team, 161.02, 161.06
Ireland, M. J.  226.04
Ireland, M. J.  230.08
Irwin, J.  004.14
Irwin, J. S.  162.13
Irwin, K.  011.03
Irwin, K.  085.03
Isbell, D.  003.20, 071.09, 071.10
Ishak, M.  077.27
Ishibashi, K.  133.05
Isidro, G.  094.12
Isler, J.  177.02
Isler, J. C.  177.07
Ivans, I.  168.01, 168.08, 168.10
Ivezic, Z.  025.07, 025.08, 028.05, 029.01, 084.13, 086.02, 086.04, 086.05
Ivezic, Z.  086.15
Ivezic, Z.  086.17, 097.09, 149.08, 162.08
Ivie, R.  117.02
Ivison, R.  083.07, 125.05
Iye, M.  056.04, 132.06, 177.08
Jackman, C. H.  006.03
Jackson, D. C.  167.09
Jackson, J. M.  105.01, 133.02
Jacobs, B.  005.07
Jacoby, B. A.  091.01
Jacoby, G.  022.08
Jacoby, G. H.  027.01, 027.02
Jacoby, S.  106.05
Jacoby, S. H.  106.09
Jaeger, T.  085.07, 218.01
Jaeggli, S. A.  016.01
Jaffe, D. T.  010.08, 154.08, 219.07
Jagatheesan, A.  086.07
Jaggi, N.  162.09
Jahnke, K.  080.05
Jain, B.  086.10
Jalovec, S.  209.21
James, R.  162.22
Jameson, K.  172.23
Janes, K. A.  156.10
Janeski, J.  137.01, 146.02
Jang-Condell, H.  110.05
Jannuzi, B.  161.04
Jannuzi, B.  193.01
Jannuzi, B. T.  161.01
Jannuzi, B. T.  161.05
Jansen, R. A.  171.02, 171.03
Jansen, R. A.  210.07
Janusz, R.  078.11
Jao, W. C.  024.04
Jarrett, T.  217.04
Jarvis, M.  086.10
Jasniewicz, G.  078.07
Jason, H.  244.03
Jauncey, D.  099.03
Jauncey, D.  137.01
Jauncey, D.  149.02
Jauncey, D. L.  149.01
Jedrich, N.  074.04
Jedrich, N. M.  074.02
Jee, M. J.  037.03
Jee, M. J.  197.05
Jeffery, D.  150.03
Jelinsky, P.  098.01
Jelinsky, P.  098.09
Jenet, F.  075.02, 131.07, 159.11, 166.03
Jenet, F. A.  091.01
Jenkins, E. B.  017.21
Jenkins, E. B.  084.04
Jenkins, J.  124.06, 210.08, 210.11, 210.12
Jenkins, J. M.  210.09
Johns-Krull, C. M.  114.01
Johnston, K.  099.03
Johnston-Hollitt, M.  113.03
Johnstone, D.  105.03
Johnstone, D.  210.04
Johnstone, D.  238.05
Joiner, D. A.  218.11
Joner, M. D.  030.15, 165.14
Jones, B.  209.17
Jones, C.  037.07, 161.01, 161.03, 161.08
Jones, C. E.  127.03
Jones, D. L.  085.05
Jones, H. R. A.  085.14
Jones, M.  168.03
Jones, R. L.  025.09
Jones, T.  129.05
Jones, T. J.  101.08
Jones, T. J.  101.09
Jones, T. M.  072.10
Jones, T. W.  072.14
Jones, W. C.  011.04
Jonker, P. G.  115.04
Jordan, A.  112.05
Jordan, D.  144.01
Jorgensen, A. M.  173.03
Jorgensen, J.  010.10
Jorgensen, J. K.  105.03
Jorstad, S. G.  008.02, 008.11, 239.04, 239.05
Joy, M.  049.02
Jucks, K. W.  241.03
Juett, A. M.  017.12
Jura, M.  115.07
Jura, M.  127.05
Jura, M.  241.05
Juric, M.  025.07, 025.08, 028.05
392
<table>
<thead>
<tr>
<th>Author</th>
<th>Page Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowenthal</td>
<td>083.06</td>
</tr>
<tr>
<td>Lowenthal</td>
<td>083.07,</td>
</tr>
<tr>
<td>Lowenthal</td>
<td>083.08</td>
</tr>
<tr>
<td>Lowenthal</td>
<td>083.09</td>
</tr>
<tr>
<td>Lowenthal</td>
<td>125.01,</td>
</tr>
<tr>
<td>Lowenthal</td>
<td>125.03,</td>
</tr>
<tr>
<td>Lowenthal</td>
<td>125.04,</td>
</tr>
<tr>
<td>Lowenthal</td>
<td>125.05</td>
</tr>
<tr>
<td>Lowenthal</td>
<td>083.05</td>
</tr>
<tr>
<td>Lowrance</td>
<td>079.01</td>
</tr>
<tr>
<td>Lozier, J. L.</td>
<td>030.10</td>
</tr>
<tr>
<td>LSST AGN Science Collaboration</td>
<td>086.14</td>
</tr>
<tr>
<td>LSST Collaboration, 086.01, 086.02, 086.03, 086.04, 086.06, 086.07, 086.08, 086.09, 086.12, 086.18, 086.19</td>
<td></td>
</tr>
<tr>
<td>LSST Milky Way Science Collaboration, 086.15</td>
<td></td>
</tr>
<tr>
<td>LSST Solar System Science Collaboration, 086.17</td>
<td></td>
</tr>
<tr>
<td>LSST Stellar Populations Collaboration, 086.16</td>
<td></td>
</tr>
<tr>
<td>LSST Supernova Science Collaboration, 086.11</td>
<td></td>
</tr>
<tr>
<td>LSST Transient Object Collaboration, 086.13</td>
<td></td>
</tr>
<tr>
<td>LSST Weak Lensing Science Collaboration, 086.10</td>
<td></td>
</tr>
<tr>
<td>Lu, F.</td>
<td>159.14</td>
</tr>
<tr>
<td>Lu, J.</td>
<td>112.06,</td>
</tr>
<tr>
<td>Lu, J.</td>
<td>172.25</td>
</tr>
<tr>
<td>Lu, N.</td>
<td>005.05,</td>
</tr>
<tr>
<td>Lu, P.</td>
<td>074.07</td>
</tr>
<tr>
<td>Lu, W.</td>
<td>151.05</td>
</tr>
<tr>
<td>Lubbs, S.</td>
<td>096.01</td>
</tr>
<tr>
<td>Lubin, P.</td>
<td>240.02</td>
</tr>
<tr>
<td>Lubin, P. M.</td>
<td>189.01</td>
</tr>
<tr>
<td>Lubow, S. H.</td>
<td>127.02</td>
</tr>
<tr>
<td>Lucatello, S.</td>
<td>093.02,</td>
</tr>
<tr>
<td>Ludka, B. C.</td>
<td>167.07</td>
</tr>
<tr>
<td>Lugger, P. M.</td>
<td>026.17</td>
</tr>
<tr>
<td>Lujan, M.</td>
<td>009.15</td>
</tr>
<tr>
<td>Lundgren, B.</td>
<td>072.24</td>
</tr>
<tr>
<td>Lundqvist, M.</td>
<td>093.04</td>
</tr>
<tr>
<td>Lupton, R.</td>
<td>025.08,</td>
</tr>
<tr>
<td>Lupton, R. H.</td>
<td>028.05</td>
</tr>
<tr>
<td>Lupu, R. E.</td>
<td>084.12,</td>
</tr>
<tr>
<td>Luszcz, S.</td>
<td>196.01</td>
</tr>
<tr>
<td>Luttrell-Montes, S.</td>
<td>204.02</td>
</tr>
<tr>
<td>Lutz, D.</td>
<td>195.01</td>
</tr>
<tr>
<td>Lutz, J.</td>
<td>213.05</td>
</tr>
<tr>
<td>Lyke, J. E.</td>
<td>009.06</td>
</tr>
<tr>
<td>Lynch, D. K.</td>
<td>009.05</td>
</tr>
<tr>
<td>Lynch, D. K.</td>
<td>009.06</td>
</tr>
<tr>
<td>Lynch, D. K.</td>
<td>025.17</td>
</tr>
<tr>
<td>Lynch, R. S.</td>
<td>072.10</td>
</tr>
<tr>
<td>Lye, A. G.</td>
<td>115.02</td>
</tr>
<tr>
<td>Lyon, R. G.</td>
<td>164.01</td>
</tr>
<tr>
<td>Ma, C.</td>
<td>083.06</td>
</tr>
<tr>
<td>Ma, H.</td>
<td>084.17</td>
</tr>
<tr>
<td>Ma, H.</td>
<td>200.03</td>
</tr>
<tr>
<td>Mac Low, M.</td>
<td>179.03,</td>
</tr>
<tr>
<td>Mac Low, M.</td>
<td>220.02</td>
</tr>
<tr>
<td>Macchetto, D.</td>
<td>008.13,</td>
</tr>
<tr>
<td>Maccherini, V.</td>
<td>052.08</td>
</tr>
<tr>
<td>Macchi, C. J.</td>
<td>154.13</td>
</tr>
<tr>
<td>MacConnell, D.</td>
<td>219.18</td>
</tr>
<tr>
<td>MacDermott, M.</td>
<td>165.05</td>
</tr>
<tr>
<td>MacDonald, M.</td>
<td>220.12</td>
</tr>
<tr>
<td>MacFarlane, M.</td>
<td>085.11</td>
</tr>
<tr>
<td>MacKenty, J. W.</td>
<td>127.02</td>
</tr>
</tbody>
</table>
Menard, F. 219.08
Mendes de Oliveira, C. 113.05, 114.05, 211.08
Mendez, B. J. 075.07
Mendez, R. H. 156.02
Mendygral, P. J. 158.01
Menou, K. 169.08, 179.03, 196.01
Menyuk, C. 209.02
Menzies, J. W. 102.01
Meral, D. 159.01
Merkowitz, S. M. 136.03
Merkovitch, E. J. 025.13, 025.19
Miknaitis, G. 150.07, 150.08
Miknaitis, G. A. 234.05
Mimbal, A. B. 148.28
Mofat, A. F. J. 009.13
Moffat, A. F. J. 163.05, 230.02
Moll, R. 234.06
Molina, S. 088.01
Montgomery, M. 177.03
Montgomery, S. L. 084.05
Moon, D. 131.05
Moore, P. 022.03
Moore, P. 022.08
Moor, T. 038.10
Moro, T. A. 234.06
Moos, H. W. 092.07
Morales, F. 081.06
Moran, E. C. 072.01
Moran, J. M. 112.06
Moran, S. 183.03D
More, M. B. 148.28
More, T. A. 126.13
Morelli, L. 007.01
Morelli, L. 017.16, 084.18, 150.07
Minneci, D. 017.16, 150.07
Minneci, D. 150.08
Minneci, D. 150.09, 150.10, 196.06
Minneci, D. A. 150.11
Minneci, E. 196.05
Mino, K. 017.04
Mino, P. 017.05
Mino, R. 017.06
Minch, R. 095.04
Minch, R. F. 095.03
Minniti, D. 017.16, 084.18, 150.07
Minniti, D. 150.08
Minniti, D. 150.09, 150.10, 196.06
Minniti, D. A. 150.11
Minniti, E. 196.05
Minniti, E. 009.15, 009.20
Mitchell, S. 073.01, 218.14
Miville-Deschenes, M. 088.01
Miville-Deschenes, M. 088.06
Miyazaki, S. 086.06
Mizuno, A. 160.10
Mizuno, A. 160.11, 160.15
Mizuno, D. 088.03, 088.04
Mizuno, D. 088.06
Mizuno, D. 088.08
Mizuno, D. R. 088.01
Mizuno, D. R. 088.02
Mizuno, N. 160.11, 160.15, 178.07
Mizuno, Y. 160.11, 160.15
Mobasher, B. 020.02, 080.02, 211.12, 225.04
Mock LISA Data Challenge Taskforce, 074.14
Mocz, P. 077.21
Modjazz, E. 090.05, 090.06, 200.04D
Modolo, R. 035.05
Moffat, A. 014.01
Moffat, A. F. J. 009.13
Moffat, A. F. J. 009.14
Moffat, A. F. J. 163.05, 230.02
Moffett, D. 218.16
Mohan, S. 164.01
Mohlke, B. 025.03
Mohr, J. J. 022.06, 215.02
Molak, A. 230.04
Molak, A. 230.07
Molinari, S. 088.01
Molinari, S. 088.06
<table>
<thead>
<tr>
<th>Author</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primini, F.</td>
<td>027.04</td>
</tr>
<tr>
<td>Prince, T. A.</td>
<td>074.01</td>
</tr>
<tr>
<td>Pritchard, D. E.</td>
<td>066.05, 248.05</td>
</tr>
<tr>
<td>Pritchard, J. R.</td>
<td>224.01D</td>
</tr>
<tr>
<td>Pritchard, T.</td>
<td>090.07</td>
</tr>
<tr>
<td>Pritchett, C. J.</td>
<td>229.01</td>
</tr>
<tr>
<td>Pritzl, B. J.</td>
<td>029.02</td>
</tr>
<tr>
<td>Probst, R.</td>
<td>071.10</td>
</tr>
<tr>
<td>Proctor, M.</td>
<td>162.15, 162.16</td>
</tr>
<tr>
<td>Produit, N.</td>
<td>195.07</td>
</tr>
<tr>
<td>Provencal, J. L.</td>
<td>103.11</td>
</tr>
<tr>
<td>Pryce, C.</td>
<td>049.02</td>
</tr>
<tr>
<td>Puckett, A.</td>
<td>094.04</td>
</tr>
<tr>
<td>Rabinowitz, D.</td>
<td>020.01, 078.04</td>
</tr>
<tr>
<td>Rabinowitz, D.</td>
<td>078.05</td>
</tr>
<tr>
<td>Rabinowitz, D.</td>
<td>078.09</td>
</tr>
<tr>
<td>Rabinowitz, D.</td>
<td>098.14</td>
</tr>
<tr>
<td>Rabinowitz, D.</td>
<td>150.16</td>
</tr>
<tr>
<td>Racusin, J. L.</td>
<td>212.08</td>
</tr>
<tr>
<td>Radburn-Smith, D. J.</td>
<td>113.06D</td>
</tr>
<tr>
<td>Radlick, M. J.</td>
<td>106.06</td>
</tr>
<tr>
<td>Radzick, V.</td>
<td>086.20, 086.21</td>
</tr>
<tr>
<td>Radomski, J.</td>
<td>238.09</td>
</tr>
<tr>
<td>Radomski, J. T.</td>
<td>149.11</td>
</tr>
<tr>
<td>Rafferty, D. A.</td>
<td>180.03D</td>
</tr>
<tr>
<td>Rahman, M. N.</td>
<td>015.01</td>
</tr>
<tr>
<td>Raia, F.</td>
<td>248.04</td>
</tr>
<tr>
<td>Raley, J. D.</td>
<td>189.01</td>
</tr>
<tr>
<td>Ramirez-Ruiz, E.</td>
<td>243.06</td>
</tr>
<tr>
<td>Ramsey, B.</td>
<td>054.02</td>
</tr>
<tr>
<td>Ramsey, L.</td>
<td>085.13</td>
</tr>
<tr>
<td>Ramsey, L. W.</td>
<td>085.14</td>
</tr>
<tr>
<td>Ramseyer, E. A.</td>
<td>187.04</td>
</tr>
<tr>
<td>Rana, V.</td>
<td>182.06</td>
</tr>
<tr>
<td>Rand, R. J.</td>
<td>015.08</td>
</tr>
<tr>
<td>Rand, R. J.</td>
<td>199.01</td>
</tr>
<tr>
<td>Rebull, L.</td>
<td>088.06</td>
</tr>
<tr>
<td>Rebull, L. M.</td>
<td>088.01, 105.13, 105.19</td>
</tr>
<tr>
<td>RECONS, 024.04, 103.05</td>
<td></td>
</tr>
<tr>
<td>Reddall, B.</td>
<td>049.02</td>
</tr>
<tr>
<td>Redfield, S.</td>
<td>084.09, 104.15, 157.07, 219.07</td>
</tr>
<tr>
<td>Redman, R.</td>
<td>110.02</td>
</tr>
<tr>
<td>Redman, S.</td>
<td>085.14</td>
</tr>
<tr>
<td>Reed, D. S.</td>
<td>197.04</td>
</tr>
<tr>
<td>Reed, J.</td>
<td>096.04</td>
</tr>
<tr>
<td>Reid, J. K.</td>
<td>009.15, 009.22</td>
</tr>
<tr>
<td>Regan, M.</td>
<td>018.05</td>
</tr>
<tr>
<td>Regan, M. W.</td>
<td>004.06</td>
</tr>
<tr>
<td>Regan, T. J.</td>
<td>003.08, 003.29</td>
</tr>
<tr>
<td>Regnault, N.</td>
<td>090.09</td>
</tr>
<tr>
<td>Reichardt, C. L.</td>
<td>240.01D</td>
</tr>
<tr>
<td>Reid, B. A.</td>
<td>077.16</td>
</tr>
<tr>
<td>Reid, I.</td>
<td>027.08, 100.11</td>
</tr>
<tr>
<td>Reid, I. N.</td>
<td>006.05</td>
</tr>
<tr>
<td>Reid, I. N.</td>
<td>100.09</td>
</tr>
<tr>
<td>Reid, I. N.</td>
<td>100.14</td>
</tr>
<tr>
<td>Reid, M.</td>
<td>102.07</td>
</tr>
<tr>
<td>Reid, M. J.</td>
<td>105.18</td>
</tr>
<tr>
<td>Reid, S.</td>
<td>071.18</td>
</tr>
<tr>
<td>Reig, P.</td>
<td>091.04</td>
</tr>
<tr>
<td>Reiland, R.</td>
<td>046.06, 071.06</td>
</tr>
<tr>
<td>Reiner, R.</td>
<td>025.01</td>
</tr>
<tr>
<td>Reipurth, B.</td>
<td>57.03</td>
</tr>
<tr>
<td>Reith, C. N.</td>
<td>156.16</td>
</tr>
<tr>
<td>Reitzel, D.</td>
<td>177.01, 177.02</td>
</tr>
<tr>
<td>Reitzel, D.</td>
<td>177.07</td>
</tr>
<tr>
<td>Reitzel, D.</td>
<td>228.03</td>
</tr>
<tr>
<td>Reitzel, D. B.</td>
<td>172.06</td>
</tr>
<tr>
<td>Reischl, D. B.</td>
<td>172.17</td>
</tr>
<tr>
<td>Rice, L. E.</td>
<td>079.05, 241.07</td>
</tr>
<tr>
<td>Rich, J.</td>
<td>168.06</td>
</tr>
<tr>
<td>Rich, M.</td>
<td>177.05</td>
</tr>
<tr>
<td>Rich, M.</td>
<td>225.04</td>
</tr>
<tr>
<td>Rich, M.</td>
<td>228.01</td>
</tr>
<tr>
<td>Rich, M. R.</td>
<td>228.03</td>
</tr>
<tr>
<td>Rich, R.</td>
<td>004.17, 177.01</td>
</tr>
<tr>
<td>Rich, R.</td>
<td>177.07</td>
</tr>
<tr>
<td>Rich, R.</td>
<td>177.08</td>
</tr>
<tr>
<td>Rice, J.</td>
<td>080.02</td>
</tr>
<tr>
<td>Rice, J. M.</td>
<td>172.06, 172.17</td>
</tr>
<tr>
<td>Rice, J. M.</td>
<td>177.08, 228.03</td>
</tr>
<tr>
<td>Richards, G.</td>
<td>052.02</td>
</tr>
<tr>
<td>Richards, G. T.</td>
<td>149.04</td>
</tr>
<tr>
<td>Richards, J.</td>
<td>156.08</td>
</tr>
<tr>
<td>Richardson, D. Leon.</td>
<td>150.13</td>
</tr>
<tr>
<td>Richardson, J.</td>
<td>196.01</td>
</tr>
<tr>
<td>Richardson, L. J.</td>
<td>196.02</td>
</tr>
<tr>
<td>Richardson, L. J.</td>
<td>196.03</td>
</tr>
<tr>
<td>Richer, H.</td>
<td>228.02</td>
</tr>
<tr>
<td>Richer, H. B.</td>
<td>228.01</td>
</tr>
<tr>
<td>Richer, H. B.</td>
<td>228.03</td>
</tr>
<tr>
<td>Riechmann, W.</td>
<td>228.04</td>
</tr>
<tr>
<td>Richards, C. R.</td>
<td>035.01</td>
</tr>
<tr>
<td>Richmond, M.</td>
<td>098.11, 098.16, 098.19</td>
</tr>
<tr>
<td>Richmond, M. W.</td>
<td>098.18</td>
</tr>
<tr>
<td>Richter, M.</td>
<td>219.07</td>
</tr>
<tr>
<td>Richter, M. J.</td>
<td>010.08, 154.08</td>
</tr>
<tr>
<td>Ricker, G. R.</td>
<td>112.06</td>
</tr>
<tr>
<td>Riddle, N. A.</td>
<td>198.02</td>
</tr>
<tr>
<td>Ridgway, S.</td>
<td>169.15</td>
</tr>
<tr>
<td>Riechers, D. A.</td>
<td>195.06D</td>
</tr>
<tr>
<td>Rieger, R.</td>
<td>197.04</td>
</tr>
<tr>
<td>Rieger, G.</td>
<td>071.13, 234.04, 234.05</td>
</tr>
</tbody>
</table>

413
Author Index

Stroeer, A. 074.16
Strohmayer, T. E. 208.02
Strolger, L. 012.01
Strolger, L. 090.10
Strom, S. 030.16
Strong, S. B. 027.01
Strovink, M. 090.03
Struck, C. 217.04, 244.05
Struganov, I. 003.27
Stubbs, C. 017.16, 084.18, 086.02, 086.05, 086.20
Stubbs, C. 150.08
Stubbs, C. 150.09, 150.10
Stubbs, C. W. 150.07
Stubbs, C. W. 154.02
Stuermer, W. 022.03
Sturch, L. K. 131.06
Stute, M. 093.09
Stutz, A. M. 105.21
Su, K. 081.06
Su, K. Y. 013.05
Subasavage, J. P. 024.04, 103.05
Subbaramaiah, M. 008.10
Sueoka, S. R. 209.02
Sugerman, B. 009.21
Sugiyama, S. 223.05
Sullivan, J. F. 003.23
Sullivan, M. 150.14, 229.02
Sullivan, W. T. 033.03
Summers, F. 218.12
Sun, K. 074.07
Sun, M. 077.11
Sun, W. 005.05, 005.06
Sunderland, J. L. 148.25

Suntzeff, N. B. 017.16
Suntzeff, N. B. 084.18
Suntzeff, N. B. 150.07
Suntzeff, N. B. 150.08
Suntzeff, N. B. 150.09
Suntzeff, N. B. 150.10
Supernova Cosmology Project, 090.03, 090.07
Supernova Legacy Survey, 150.14, 229.01, 229.02, 229.03, 229.04
Surace, J. 005.05, 005.06, 149.07, 195.01, 225.01
Sukavat, M. 003.19
Suyu, S. H. 021.02
Suzuki, N. 090.01, 090.03, 090.07
Swan, H. 212.01
Swan, H. 212.02
Swan, H. F. 212.04
Swank, A. 074.07
Swank, J. H. 159.01
Swanson, H. E. 154.02
Swanson, L. K. 121.09
Sweeringen, J. R. 121.05
Sweeney, B. 003.29
Sweeney, D. 086.01
Sweet, A. 030.03, 105.05
Sweigart, A. 004.17
Sweigart, A. 177.05
Sweigart, A. 177.08
Swesty, F. D. 150.11, 150.17
Swift, C. 239.08
Swift, C. M. 003.13
Swift Science Team, 227.01
Swift Survey Team, 052.05
Swift Team, 227.07
Swift UVOT Team, 212.07
Swift XRT team, 212.08
Swift/BAT team, 009.12
Sykes, T. 151.06
Szabo, R. 102.04
Szalay, A. 086.07, 097.05, 187.01
Szapudi, R. 168.13
Szentesgyurgyi, A. H. 090.06
Szentesgyurgyi, A. H. 191.03
Szkoied, P. 009.19, 182.07
Szymkowiak, A. 098.14
Taam, R. E. 115.04
Taconi, L. 195.01
Tai, R. H. 064.01
Tai, R. H. 064.02
Tajitsu, A. 243.03
Takacs, P. 086.05
Takada, M. 086.10
Takahashi, Y. D. 049.04
Takami, M. 057.05
Takamiya, M. 112.05
Takasaki, R. 098.15
Tam, P. 071.21
Tams, J. 142.02
Tanaka, M. 177.08
Tanaka, S. 164.08, 169.15
Tandokoro, R. 076.03, 076.05
Taniguchi, Y. 005.07, 077.20
Tanner, A. 024.02, 241.01
Tanner, A. M. 241.02
Tanner, A. M. 241.02
Tanner, K. L. 131.06
Tanaka, M. 177.08
Tanaka, S. 030.16, 096.06, 105.09
Terzian, Y. 094.02
Teske, J. K. 092.01
Testa, P. 133.05
Testi, L. 030.05, 088.01, 088.06
Telfey, O. 209.01
Thakar, A. 086.07
Thaller, J. 022.05
Thaller, M. 065.03, 157.05, 157.06
The, L. 093.03
Thirien, A. 060.01
Thilker, D. 087.01
Thirupathi, S. 168.15
Toennnessen, M. 063.01
Tholen, D. J. 025.10
Thom, C. 219.17
Thomas, B. 006.03
Thomas, K. L. 030.07
Thomas, R. 078.09
Thomas, R. 229.07
Thomas, R. C. 150.16
Thomas, R. D. 231.02
Thomas, S. 030.03, 105.05, 105.11, 219.16
Thompson, A. S. 145.03, 145.04
Thompson, D. 072.26, 109.01
Thompson, D. 173.02, 218.09
Thompson, D. J. 153.03
Thompson, D. John. 153.04
Thompson, D. M. 218.08
Thompson, J. R. 135.02, 209.20
Thompson, M. A. 030.07
Thompson, S. 148.08
Thompson, S. E. 103.09
Thompson, T. 219.03
Thomson, L. 127.03
Thornley, M. D. 015.03
Thornton, C. E. 149.17
Thornton, K. C. 002.01
Thornton, R. 248.03
Thornton, S. T. 067.07
Thorsett, S. E. 115.05
Thorsett, S. E. 153.04
Thorstensen, J. R. 009.07
Thrall, H. 149.19
Thronson, H. A. 056.07
Tiede, G. P. 040.01
Tielens, A. 084.19
Tielens, A. 192.01
Tielens, A. G. G. M. 192.02
Tielens, X. 160.12
Timberlake, T. K. 071.27
Timbie, P. 085.09
Timbie, P. T. 049.07
Timbie, P. T. 240.05
Timmes, F. 101.07
Timmes, F. X. 150.21
Tinker, R. F. 141.04
Titzarchuk, L. 036.01
Tobin, W. 033.02
Tobolewski, J. 211.08
Tohline, J. E. 074.11
Tohline, J. E. 216.04
Tokunaga, A. 57.03
Tolea, A. 087.02
Toledo, I. 196.06
Tolstoy, E. 178.06
Tonry, J. L. 150.05
<table>
<thead>
<tr>
<th>Author Name</th>
<th>Page Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>van Dishoeck, E.</td>
<td>010.10</td>
</tr>
<tr>
<td>van Dokkum, P. G.</td>
<td>225.07</td>
</tr>
<tr>
<td>van Duyne, J.</td>
<td>052.07</td>
</tr>
<tr>
<td>van Dyk, S. D.</td>
<td>158.02</td>
</tr>
<tr>
<td>van Dyk, S. D.</td>
<td>168.13</td>
</tr>
<tr>
<td>Van Eykken, J.</td>
<td>169.04, 169.05, 169.07</td>
</tr>
<tr>
<td>Van Eyrken, J. C.</td>
<td>169.06</td>
</tr>
<tr>
<td>van Flandern, T.</td>
<td>166.04</td>
</tr>
<tr>
<td>van Hamme, W.</td>
<td>151.09</td>
</tr>
<tr>
<td>van Hoof, P.</td>
<td>092.02</td>
</tr>
<tr>
<td>van Kampen, P.</td>
<td>234.07</td>
</tr>
<tr>
<td>van Kerkwijk, M. H.</td>
<td>091.02</td>
</tr>
<tr>
<td>van Leeuwen, J.</td>
<td>115.06</td>
</tr>
<tr>
<td>van Leeuwen, J.</td>
<td>115.06</td>
</tr>
<tr>
<td>van Loo, L.</td>
<td>159.04</td>
</tr>
<tr>
<td>van Loo, Z.</td>
<td>159.04</td>
</tr>
<tr>
<td>van der Bliek, N.</td>
<td>159.04</td>
</tr>
<tr>
<td>van der Bliek, N. S.</td>
<td>150.04</td>
</tr>
<tr>
<td>van der Veen, J.</td>
<td>155.04</td>
</tr>
<tr>
<td>van der Veen, W.</td>
<td>037.03</td>
</tr>
<tr>
<td>van Dishoeck, E.</td>
<td>010.10</td>
</tr>
<tr>
<td>van Dokkum, P. G.</td>
<td>225.07</td>
</tr>
<tr>
<td>Van Duyne, J.</td>
<td>052.07</td>
</tr>
<tr>
<td>van Dyk, S. D.</td>
<td>158.02</td>
</tr>
<tr>
<td>Van Dyk, S. D.</td>
<td>168.13</td>
</tr>
<tr>
<td>van Eykken, J.</td>
<td>169.04, 169.05, 169.07</td>
</tr>
<tr>
<td>Van Eyrken, J. C.</td>
<td>169.06</td>
</tr>
<tr>
<td>van Flandern, T.</td>
<td>166.04</td>
</tr>
<tr>
<td>van Hamme, W.</td>
<td>151.09</td>
</tr>
<tr>
<td>van Hoof, P.</td>
<td>092.02</td>
</tr>
<tr>
<td>van Kampen, P.</td>
<td>234.07</td>
</tr>
<tr>
<td>van Kerkwijk, M. H.</td>
<td>091.02</td>
</tr>
<tr>
<td>van Leeuwen, J.</td>
<td>115.06</td>
</tr>
<tr>
<td>van Straten, W.</td>
<td>159.04</td>
</tr>
<tr>
<td>van Zee, L.</td>
<td>167.04</td>
</tr>
<tr>
<td>Vanderbei, R.</td>
<td>056.04, 164.15</td>
</tr>
<tr>
<td>vanGorkom, J. H.</td>
<td>211.01</td>
</tr>
<tr>
<td>VanLehn, K.</td>
<td>071.01</td>
</tr>
<tr>
<td>van Leeuwen, J.</td>
<td>115.06</td>
</tr>
<tr>
<td>van Straten, W.</td>
<td>159.04</td>
</tr>
<tr>
<td>van Zee, L.</td>
<td>167.04</td>
</tr>
<tr>
<td>Vanderbei, R.</td>
<td>056.04, 164.15</td>
</tr>
<tr>
<td>vanGorkom, J. H.</td>
<td>211.01</td>
</tr>
<tr>
<td>VanLehn, K.</td>
<td>071.01</td>
</tr>
<tr>
<td>van Leeuwen, J.</td>
<td>115.06</td>
</tr>
<tr>
<td>van Straten, W.</td>
<td>159.04</td>
</tr>
<tr>
<td>van Zee, L.</td>
<td>167.04</td>
</tr>
<tr>
<td>Vanderbei, R.</td>
<td>056.04, 164.15</td>
</tr>
<tr>
<td>vanGorkom, J. H.</td>
<td>211.01</td>
</tr>
<tr>
<td>VanLehn, K.</td>
<td>071.01</td>
</tr>
<tr>
<td>van Leeuwen, J.</td>
<td>115.06</td>
</tr>
<tr>
<td>van Straten, W.</td>
<td>159.04</td>
</tr>
<tr>
<td>van Zee, L.</td>
<td>167.04</td>
</tr>
<tr>
<td>Author</td>
<td>Page Numbers</td>
</tr>
<tr>
<td>--------</td>
<td>--------------</td>
</tr>
<tr>
<td>York, D. G.</td>
<td>017.21, 172.20</td>
</tr>
<tr>
<td>Yorke, H.</td>
<td>056.02</td>
</tr>
<tr>
<td>Yorke, H. W.</td>
<td><strong>164.02</strong></td>
</tr>
<tr>
<td>Yost, S.</td>
<td><strong>212.02</strong></td>
</tr>
<tr>
<td>Yost, S. A.</td>
<td>212.01</td>
</tr>
<tr>
<td>Youn, S.</td>
<td>083.09</td>
</tr>
<tr>
<td>Young, E.</td>
<td>210.04</td>
</tr>
<tr>
<td>Young, J.</td>
<td><strong>075.01</strong></td>
</tr>
<tr>
<td>Young, J. E.</td>
<td>161.10</td>
</tr>
<tr>
<td>Young, M.</td>
<td><strong>149.09</strong></td>
</tr>
<tr>
<td>Young, P. A.</td>
<td><strong>094.01, 150.04</strong></td>
</tr>
<tr>
<td>Young, S.</td>
<td>238.09</td>
</tr>
<tr>
<td>Young, T.</td>
<td><strong>128.07</strong></td>
</tr>
<tr>
<td>Young, T. R.</td>
<td>169.01</td>
</tr>
<tr>
<td>Yu, J.</td>
<td>024.02</td>
</tr>
<tr>
<td>Yu, Y.</td>
<td><strong>156.06</strong></td>
</tr>
<tr>
<td>Yuan, C.</td>
<td><strong>004.07, 004.08, 211.01</strong></td>
</tr>
<tr>
<td>Yuan, F.</td>
<td>212.01</td>
</tr>
<tr>
<td>Yuan, F.</td>
<td>212.02</td>
</tr>
<tr>
<td>Yun, M.</td>
<td>005.07</td>
</tr>
<tr>
<td>Yun, M.</td>
<td><strong>083.06</strong></td>
</tr>
<tr>
<td>Yun, M.</td>
<td><strong>083.07, 083.08</strong></td>
</tr>
<tr>
<td>Yun, M.</td>
<td>083.09</td>
</tr>
<tr>
<td>Yun, M.</td>
<td>125.01</td>
</tr>
<tr>
<td>Yun, M.</td>
<td><strong>125.03</strong></td>
</tr>
<tr>
<td>Yun, M.</td>
<td>125.04, 125.05</td>
</tr>
<tr>
<td>Yun, M. S.</td>
<td>083.02</td>
</tr>
<tr>
<td>Yun, M. S.</td>
<td>083.05</td>
</tr>
<tr>
<td>Yurimoto, H.</td>
<td>076.05</td>
</tr>
<tr>
<td>Yusef-Zadeh, F.</td>
<td><strong>112.07</strong></td>
</tr>
<tr>
<td>Zabludoff, A. I.</td>
<td>114.05</td>
</tr>
<tr>
<td>Zamojski, M. A.</td>
<td><strong>225.04</strong></td>
</tr>
<tr>
<td>Zamorani, G.</td>
<td>080.05</td>
</tr>
<tr>
<td>Zangari, A.</td>
<td>072.12</td>
</tr>
<tr>
<td>Zaritsky, D.</td>
<td>037.07</td>
</tr>
<tr>
<td>Zaubrecher, K. N.</td>
<td><strong>121.01</strong></td>
</tr>
<tr>
<td>Zavala, G.</td>
<td>136.04, <strong>145.05</strong>, 209.18</td>
</tr>
<tr>
<td>Zellem, R. T.</td>
<td>006.04</td>
</tr>
<tr>
<td>Zenteno, A.</td>
<td>017.16, 084.18</td>
</tr>
<tr>
<td>Zenteno, A.</td>
<td>150.08</td>
</tr>
<tr>
<td>Zenteno, A.</td>
<td>150.09, <strong>156.04</strong></td>
</tr>
<tr>
<td>Zentner, A.</td>
<td>053.05</td>
</tr>
<tr>
<td>Zentner, A. R.</td>
<td>038.04</td>
</tr>
<tr>
<td>Zepf, S.</td>
<td>155.03</td>
</tr>
<tr>
<td>Zepf, S. E.</td>
<td>100.07</td>
</tr>
<tr>
<td>Zepf, S. E.</td>
<td>155.04</td>
</tr>
<tr>
<td>Zepf, S. F.</td>
<td>155.01</td>
</tr>
<tr>
<td>Zevin, D.</td>
<td>094.07</td>
</tr>
<tr>
<td>Zezas, A.</td>
<td><strong>004.01</strong>, 019.05, 155.01, 155.03</td>
</tr>
<tr>
<td>Zezas, A.</td>
<td>155.04</td>
</tr>
<tr>
<td>Zhan, H.</td>
<td>086.08, <strong>086.09</strong>, 086.10, 086.11</td>
</tr>
<tr>
<td>Zhang, Q.</td>
<td>010.05, 030.05, 133.02</td>
</tr>
<tr>
<td>Zhao, B.</td>
<td>169.06</td>
</tr>
<tr>
<td>Zhao, B.</td>
<td>226.06</td>
</tr>
<tr>
<td>Zhao, H.</td>
<td>172.17</td>
</tr>
<tr>
<td>Zhao, J.</td>
<td>112.06</td>
</tr>
<tr>
<td>Zhao, P.</td>
<td>242.03</td>
</tr>
<tr>
<td>Zhao, W.</td>
<td>205.08</td>
</tr>
<tr>
<td>Zhdanovich, S.</td>
<td>234.04</td>
</tr>
<tr>
<td>Zheng, C.</td>
<td><strong>028.03</strong></td>
</tr>
<tr>
<td>Zijlstra, A.</td>
<td>092.02</td>
</tr>
<tr>
<td>Zimmer, P.</td>
<td>099.04</td>
</tr>
<tr>
<td>Zimmer, P. C.</td>
<td>022.11, <strong>154.04</strong></td>
</tr>
<tr>
<td>Zimmerman, T.</td>
<td>094.01</td>
</tr>
<tr>
<td>Zingale, M.</td>
<td>150.18</td>
</tr>
<tr>
<td>Zirbel, E.</td>
<td><strong>003.15, 234.03</strong></td>
</tr>
<tr>
<td>Zita, E. J.</td>
<td><strong>014.04</strong></td>
</tr>
<tr>
<td>Zitzewitz, P. W.</td>
<td><strong>003.13</strong></td>
</tr>
<tr>
<td>Zmuidzinis, J.</td>
<td>056.02, 085.12, 164.02</td>
</tr>
<tr>
<td>Zollman, D.</td>
<td>220.02, 235.02</td>
</tr>
<tr>
<td>Zollman, D. A.</td>
<td>245.06, 248.06</td>
</tr>
<tr>
<td>Zonak, S. G.</td>
<td>114.05</td>
</tr>
<tr>
<td>Zou, X.</td>
<td><strong>148.18</strong></td>
</tr>
<tr>
<td>Zschaechner, L. K.</td>
<td><strong>101.11</strong></td>
</tr>
<tr>
<td>Zucker, D. B.</td>
<td>162.08</td>
</tr>
<tr>
<td>Zucker, D. B.</td>
<td><strong>178.05</strong></td>
</tr>
<tr>
<td>Zucker, B.</td>
<td>115.07</td>
</tr>
<tr>
<td>Zurek, D. R.</td>
<td>009.13, 026.08</td>
</tr>
<tr>
<td>Zweibel, E.</td>
<td>167.01</td>
</tr>
<tr>
<td>Zwicker, A. P.</td>
<td><strong>235.05</strong></td>
</tr>
<tr>
<td>Zylnka, R.</td>
<td>195.01</td>
</tr>
</tbody>
</table>