workshop for
experienced physics
and astronomy faculty

MARCH 18-20, 2016

AMERICAN CENTER FOR PHYSICS
COLLEGE PARK, MD
Robert Hilborn, Workshop Chair
American Association of Physics Teachers
College Park, MD
rhilborn@aapt.org

Corinne Manogue
Oregon State University
Corvallis, OR
corinne@physics.oregonstate.edu

Eric Mazur
Harvard University
Cambridge, MA
mazur@physics.harvard.edu

Randy Peterson
Sewanee: The University of the South
Sewanee, TN
rpeterso@sewanee.edu

Edward Prather
University of Arizona

David Pritchard
Massachusetts Institute of Technology
Cambridge, MA
eprather@as.arizona.edu

Joe Redish
University of Maryland
College Park, MD
redish@physics.umd.edu

James Stith
American Institute of Physics (retired)
College Park, MD
jstith@aip.org

Steve Turley
Brigham Young University
Provo, UT
turley@byu.edu

aapt.org/Conferences/sm2016
# Workshop Schedule

## Friday, March 18

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Location</th>
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<tbody>
<tr>
<td>3:00–4:30 P.M.</td>
<td>Workshop Registration</td>
<td>Grand Ballroom Foyer</td>
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<tr>
<td></td>
<td>Holiday Inn – College Park, MD</td>
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<tr>
<td>4:30 P.M.</td>
<td>Opening Remarks</td>
<td>Grand Ballroom AB</td>
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<td></td>
<td><strong>Welcome and Introductions</strong></td>
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<tr>
<td></td>
<td>Robert Hilborn, Associate Executive Officer, AAPT,</td>
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<tr>
<td></td>
<td>Chair, Physics and Astronomy Experienced Faculty Workshop</td>
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<td></td>
<td>Beth Cunningham, Executive Officer, AAPT</td>
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<td>Kate Kirby, Chief Executive Officer, APS</td>
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<td>Kevin Marvel, Executive Officer, AAS</td>
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<td>Robert Brown, Chief Executive Officer, AIP</td>
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<tr>
<td>4:45–5:45 P.M.</td>
<td>Large Group Session</td>
<td>Grand Ballroom AB</td>
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<tr>
<td></td>
<td>Interactive Engagement in Large Introductory Courses</td>
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<tr>
<td></td>
<td>Ed Prather, University of Arizona</td>
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<tr>
<td>6:00–7:00 P.M.</td>
<td>Dinner</td>
<td>Grand Ballroom AB</td>
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<tr>
<td>7:00–8:00 P.M.</td>
<td>Large Group Session</td>
<td>Grand Ballroom AB</td>
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<td>Peer Instruction</td>
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<td></td>
<td>Eric Mazur, Harvard University</td>
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</tbody>
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## Saturday, March 19

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Location</th>
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<tbody>
<tr>
<td>6:30–7:45 A.M.</td>
<td>Breakfast – Holiday Inn – College Park</td>
<td>Moose Creek Steak House</td>
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<tr>
<td>8:00 A.M.</td>
<td>Shuttle Bus Leaves (On Time) For American Center For Physics</td>
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<tr>
<td>8:20 A.M.</td>
<td>Introductions and Marching Orders</td>
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<td></td>
<td>Robert Hilborn, AAPT</td>
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<tr>
<td>8:30–9:30 A.M.</td>
<td>Large Group Session</td>
<td>Conference Room A</td>
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<tr>
<td></td>
<td>Responsive Course Design: Introductory Physics for the Life Sciences – A case study</td>
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<td></td>
<td>Joe Redish, University of Maryland</td>
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<tr>
<td>9:35–10:30 A.M.</td>
<td>Small Group Sessions</td>
<td>Conference Rooms A, B, C</td>
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<tr>
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<td><strong>Topics Chosen from Pre-workshop Survey</strong></td>
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<tr>
<td>10:30–11:00 A.M.</td>
<td>Break</td>
<td>ACP Rotunda</td>
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<tr>
<td>11:00 A.M.–Noon</td>
<td>Large Group Session</td>
<td>Conference Room A</td>
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<tr>
<td></td>
<td>What Should We Teach? How Can Flipping Help?</td>
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<td></td>
<td>What Is the Evidence About What Students Have Learned?</td>
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<td>David Pritchard, MIT</td>
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<tr>
<td>12:00–1:00 P.M.</td>
<td>Group Photo and Lunch</td>
<td>ACP Cafeteria</td>
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<tr>
<td>Time</td>
<td>Session</td>
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<tr>
<td>1:00–1:45 p.m.</td>
<td><strong>BREAKOUT SESSIONS</strong>&lt;br&gt;Best Ideas About Teaching and Learning from the Experienced Faculty Members (I) &lt;br&gt;ALPhA and Beyond First Year Labs – Randy Peterson, Sewanee (II) &lt;br&gt;Mentoring Junior Faculty in Teaching and Learning (III)</td>
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<td></td>
<td><strong>CONFERENCE ROOM A</strong>&lt;br&gt;<strong>CONFERENCE ROOM B</strong>&lt;br&gt;<strong>CONFERENCE ROOM C</strong></td>
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<tr>
<td>1:45–2:30 p.m.</td>
<td><strong>BREAKOUT SESSIONS</strong>&lt;br&gt;Best Ideas About Teaching and Learning from the Experienced Faculty Members (II) &lt;br&gt;ALPhA and Beyond First Year Labs – Randy Peterson, Sewanee (III) &lt;br&gt;Mentoring Junior Faculty in Teaching and Learning (I)</td>
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<tr>
<td>2:30–3:00 p.m.</td>
<td><strong>BREAK</strong>&lt;br&gt;<strong>ACP ROTUNDA</strong></td>
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<tr>
<td>3:00–3:45 p.m.</td>
<td><strong>BREAKOUT SESSIONS</strong>&lt;br&gt;Best Ideas About Teaching and Learning from the Experienced Faculty Members (III) &lt;br&gt;ALPhA and Beyond First Year Labs – Randy Peterson, Sewanee (I) &lt;br&gt;Mentoring Junior Faculty in Teaching and Learning (II)</td>
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<tr>
<td>3:45–5:00 p.m.</td>
<td><strong>LARGE GROUP SESSION</strong>&lt;br&gt;Interactive Engagement in Upper-Level Courses&lt;br&gt;Corinne Manogue, Oregon State University</td>
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<tr>
<td>5:00–5:45 p.m.</td>
<td><strong>LARGE GROUP SESSION</strong>&lt;br&gt;1. Summary of “Best Ideas” from Breakout Sessions &lt;br&gt;2. Resources for Interactive Engagement Teaching Methods – Where to find More Information</td>
<td></td>
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<tr>
<td>5:45 p.m.</td>
<td><strong>SHUTTLE BUS LEAVES FOR HOLIDAY INN – COLLEGE PARK</strong></td>
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<tr>
<td>6:30–7:30 p.m.</td>
<td><strong>DINNER</strong>&lt;br&gt;Holiday Inn – College Park&lt;br&gt;<strong>GRAND BALLROOM AB</strong></td>
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<td><strong>SUNDAY, MARCH 20</strong></td>
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<tr>
<td>6:30–7:45 a.m.</td>
<td><strong>BREAKFAST</strong>&lt;br&gt;Holiday Inn – (checkout by noon)&lt;br&gt;Moose Creek Steak House</td>
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<tr>
<td>8:00–9:30 a.m.</td>
<td><strong>LARGE GROUP SESSION</strong>&lt;br&gt;Teaching for Retention and Diversity&lt;br&gt;Jim Stith, AIP (retired)</td>
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<tr>
<td>9:30–10:15 a.m.</td>
<td><strong>SMALL GROUP DISCUSSIONS</strong>&lt;br&gt;Leadership in Undergraduate and Graduate Physics Programs – How to Shape Your Department’s Teaching Program</td>
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<tr>
<td>10:15–10:30 a.m.</td>
<td><strong>BREAK</strong>&lt;br&gt;<strong>GRAND BALLROOM FOYER</strong></td>
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<tr>
<td>10:30–11:15 a.m.</td>
<td><strong>LARGE GROUP SESSION</strong>&lt;br&gt;Reports from Breakout Sessions and Discussion</td>
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<tr>
<td>11:15–11:30 a.m.</td>
<td><strong>LARGE GROUP SESSION</strong>&lt;br&gt;Final Words, Evaluation Procedures, and Adjourn&lt;br&gt;Bob Hilborn, AAPT</td>
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Wathig Abdul-Razzaq  
West Virginia University 

Margaret Benoit  
The College of New Jersey 

Clarisa Bercovich Guelman  
California State San Marcos 

Dan Boye  
Davidson College 

William Brown  
Colorado State University Pueblo 

Juan Cabanela  
Minnesota State University Moorhead 

Randall Carlson  
United States Air Force Academy 

Yong Chen  
Purdue University 

John Cummings  
Siena College 

Linda Dake  
Utica College 

Tracy Davis  
Rochester Institute of Technology 

Alan Denton  
North Dakota State University 

Michael Famiano  
Western Michigan University 

Rose Finn  
Siena College 

Wilhelmus Geerts  
Texas State University San Marcos 

Steven Gollmer  
Cedarville University 

Scot Gould  
Claremont McKenna, Pitzer, Scripps 

Joshua Hamblen  
University of Tennessee Chattanooga 

Sally Hicks  
University of Dallas 

Dawn Hollenbeck  
Rochester Institute of Technology 

Amir Huda  
California State University 

Narendra Jaggi  
Illinois Wesleyan University 

Karen Johnson  
St. Lawrence University 

Byung Kim  
Boise State University 

Olga Korotkova  
University of Miami 

Ira Kroll  
University of Pennsylvania 

Stamatios Kyrkos  
Le Moyne College 

Susan Lehman  
The College of Wooster 

Nina Markovic  
Goucher College 

Theresa Moreau  
Providence College 

Jian Peng  
Southeast Missouri State University 

James Rafert  
North Dakota State University 

Natarajan Ravi  
Spelman College 

Adam Rengstorff  
Purdue University Calumet 

Michael Richmond  
Rochester Institute of Technology 

Bernd Surrow  
Temple University 

Mohammed Tahar  
The College at Brockport State University of New York 

George Thurston  
Rochester Institute of Technology 

Uwe Trittmann  
Otterbein University 

Graziano Vernizzi  
Siena College 

Gianfranco Vidali  
Syracuse University 

Heidi Wainscott  
United States Air Force Academy 

Christer Watson  
Manchester University 

Gary Westfall  
Michigan State University 

Terrance Worchesky  
University of Maryland Baltimore County 

Daqing Zhang  
California State University Fresno
AMERICAN ASSOCIATION OF PHYSICS TEACHERS

Founded in 1930, AAPT is the premier professional society established to advance the greater good through physics education. With the support of our members worldwide, AAPT is an action oriented organization designed to develop, improve, and promote best practices for physics education as part of the global need for qualified Science, Technology, Engineering, and Mathematics teachers who will inspire tomorrow’s leaders and decision makers.

We serve our members through networking, publications, and programs, but also reach out to the larger community of physics and science teachers—current and future—and we look after issues of significance in science education. Our national office works closely with our dedicated volunteers around the world to promote a better understanding of physics at all levels.

AAPT provides networking opportunities through online discussion lists, social media, the Workshops for New Physics and Astronomy Faculty (with APS and AAS); Physics Department Chairs Conference (with APS), and our two national annual meetings. The association supports physics educators through our publications, the American Journal of Physics and The Physics Teacher; Physical Review Special topics – Physics Education Research (with APS and the APS Forum on Education) and the eNNOUNCER; NSF-funded programs including the PER User’s Guide, the Physics Teacher Education Coalition, PhysTEC (with APS); Physics Teaching Resource Agents institutes; the digital physics library, ComPADRE (with APS and AIP); Physics Program Reviews, and the student programs and scholarships that we administer, including the Lotze Scholarship for Future Teachers.

AMERICAN ASTRONOMICAL SOCIETY

The American Astronomical Society promotes the advancement of astronomy and closely related branches of science. It was founded in 1899. AAS members include professional researchers in the astronomical sciences, and also educators, students, and others interested in the advancement of astronomical research. The Society operates in five major areas: Publications, Meetings, Education, Public Policy and Employment in order to ensure that astronomy remains healthy and vital for the benefit of our profession and society at large. AAS publishes The Astrophysical Journal and The Astronomical Journal, which are among the most important scholarly journals in the field. The Bulletin of the American Astronomical Society reports the latest institutional developments and documents the content of AAS and its divisions’ annual meetings. More information about the Society’s activities and membership are available on the AAS website, www.aas.org.
AMERICAN PHYSICAL SOCIETY

With 50,000 members worldwide, the American Physical Society works to advance and disseminate the knowledge of physics. Since its formation in 1899, it has been dedicated to providing its members and the international physics community with the latest research results through meetings and the most highly respected international journals in physics. These journals include Physical Review Letters, the Physical Review (with a Special Topics series including a journal on Physics Education Research), Reviews of Modern Physics, and its two newest journals, Physical Review Applied and PRX. The APS conducts more than 20 meetings per year, to connect physicists and disseminate physics knowledge and information relevant to the community. In addition, APS vigorously lobbies for funding for physics research and education, provides the physics community with timely information about government affairs, carries out studies of physics-based topics of importance to the country, and promotes the interests of the physics community through extensive public information efforts such as www.PhysicsCentral.com, a website for the public.

APS is actively involved in programs to improve undergraduate and graduate education and to improve the preparation of future physics and physical science teachers through its leadership in the Physics Teacher Education Coalition (www.PhysTEC.org). APS partners with AAPT in PhysTEC and on numerous other education programs, including the New Faculty Workshop, and conferences and workshops on education at various levels. For many years APS has worked to increase diversity in the physics community, and in 2012 launched the APS Bridge Program (www.apsbridgeprogram.org), a national effort to increase the number of underrepresented minorities that receive a PhD in Physics. In addition, APS recently began sponsorship of the Conferences for Undergraduate Women in Physics – regional conferences to encourage participation of women in the discipline.

AMERICAN INSTITUTE OF PHYSICS

AIP’s mission is to advance, promote and serve the physical sciences for the benefit of humanity.

AIP offers authoritative information, services, and expertise in physics education and student programs, science communication, government relations, career services for science and engineering professionals, statistical research in physics employment and education, industrial outreach, and the history of physics and allied fields.

AIP Member Societies cover a broad range of fields in the physical sciences and collectively represent more than 120,000 scientists, engineers, educators and students in the global physical sciences community.
This project is supported in part by the National Science Foundation.
Grant No. DUE-1431638