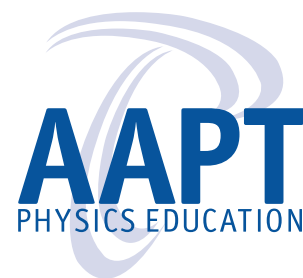




# American Association of Physics Teachers

2016 ANNUAL REPORT



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# President's Report

JANELLE M. BAILEY

It can be difficult to sum up the events of a year in a couple of pages of text. But reflection is an important part of being an effective educator, and by extension, an association of educators. My reflection will focus on some of the positives of the year 2016 for AAPT, but know that the challenges have also earned their share of reflection in other venues.

One of the biggest achievements of 2016 was the development, passing, and implementation of AAPT's Event Participation Code of Conduct. Although we would like to believe that everyone at an AAPT event behaves in an appropriate and professional manner, the reality is that this is not the case. Sometimes comments are made that are not intended to be harmful and yet are; others are not so innocuous. Helping people know what is unacceptable behavior is a critical first step in stemming it. Providing a mechanism for our members and attendees to report issues of harassment and inappropriate behavior—and having procedures by which such reports are investigated and, where warranted, actions taken—will help build trust and support for people who might be struggling with such issues as a result of the behaviors directed toward them. The process of creating, implementing, and even revising the Code of Conduct and AAPT's response procedures was one that involved many people who care deeply about their fellow physics educators, and I cannot thank them enough for their contributions.

AAPT also continues to be involved with projects large and small that are funded by external sponsors such as the National Science Foundation and NASA. In conjunction with many partners, AAPT had a hand in more than a dozen existing projects and submitted more than a half dozen new proposals. As just a couple of examples, these include, but are not limited to, our continuing work with the American Physical Society on PhysTEC to prepare more high school physics teachers; the eAlliances program for mutual mentoring of women physicists; and the development of curriculum materials related to the 2017 total solar eclipse.

"The process of creating, implementing, and even revising the Code of Conduct and AAPT's response procedures was one that involved many people who care deeply about their fellow physics educators. . ."

We awarded our first four Section grants this year. These are designed to help Sections pursue an activity to help boost their membership or support their members, ideally while also making stronger connections with the national organization. As just one example, the Alabama section held two workshops, one for 9-12 teachers on engineering design and another for K-8 teachers about electric circuits. Both workshops were supported by PTRA. The opportunity for Sections to apply for grants of up to \$1000 will continue in a trial period through 2018 and, if successful, beyond.

The most important role the Board of Directors has is to oversee the fiscal aspects of the association. The past few years have seen strong fiscal responsibility, thanks in part to the careful efforts of the Executive Office staff. This allowed the Board to approve modestly increased funds in the 2017 budget for things like childcare grants and grants to support physics teachers from underrepresented groups to attend AAPT's national meetings, both of which were recommended by the recent report from the Committee on Diversity in Physics.

AAPT's national meetings, held in New Orleans in January and Sacramento in July, continue to provide numerous opportunities to learn about new techniques, technologies, and research; to share



one's own efforts in research and teaching; and to (re)connect with like-minded physics teachers across the spectrum. Award winners and nationally-recognized plenary speakers provide unique insights into a wide range of topics. One of the things I love about AAPT compared to some of the other professional societies with which I am affiliated is the cross-pollination of K-12 teachers, two-year college faculty, and faculty from teaching colleges and research universities alike, and this is never more evident than at our conferences. How many other organizations can boast such a broad mix? With this in mind, I continue to encourage my colleagues and my students (future physics teachers) to become involved in AAPT and to attend the conferences whenever possible.

The achievements of AAPT are those of a large group of people—a small number of paid staff and many volunteers. Working closely with AAPT's leadership and staff this past year has been a gratifying learning experience. The dedication and passion of AAPT member volunteers is strong, and it is a pleasure to work amongst people who care so very deeply about the teaching and learning of physics. Thank you for the opportunity to serve as your president.

Sincerely yours,

A handwritten signature in cursive script that reads "Janelle M. Bailey". The signature is written in black ink and is positioned above the printed name.

Janelle M. Bailey  
AAPT President

# Executive Officer's 2016 Annual Report

BETH A. CUNNINGHAM



We have finished another very exciting year. I have a number of accomplishments to bring to your attention.

**Code of Conduct:** The AAPT Event Participation Code of Conduct (CoC) was created out of a need to make AAPT's events and activities inclusive and supportive for everyone. We have had a growing awareness that some participants experience an unwelcoming environment and, in a few cases, have encountered conduct that was intimidating, offensive, or hostile. In developing the CoC we researched CoC's at other professional societies, had many conversations with the Board of Directors, solicited stakeholder feedback, and received advice from legal counsel. The CoC was launched at the 2016 Summer Meeting in Sacramento, CA. At SM16, we broadly advertised the new CoC to participants via posters distributed throughout the convention center, information on the meetings app, and a note in the program book. The new CoC was well received. You can review the full document at [http://aapt.org/aboutaapt/organization/code\\_of\\_conduct.cfm](http://aapt.org/aboutaapt/organization/code_of_conduct.cfm).

*"The National Science Foundation funded a substantial project to expand ComPADRE to have a site for the submission and use of materials for introductory physics for the life sciences (IPLS) courses."*

**K-12 Activities:** We have also been busy finding ways to better support the K-12 physics educator community. A new K-12 portal on [www.aapt.org](http://www.aapt.org) was created that allows for better navigation through information, resources such as lesson plans, news, funding opportunities, and activities for K-12 physics teachers. In the fall the Physics Master Teacher Leaders Task Force began their work. This group of 17 master physics teachers recognized the need for networked physics teacher leadership to improve the quality and quantity of K-12 physics education. The Task Force will produce a report with recommendations on how to develop and implement programs to address key issues in K-12 education that should be carried out by teachers, for teachers.

**Supporting Women in Physics:** A new National Science Foundation funded project was launched in 2016. The purpose of this new project is to enable women faculty members in physics and astronomy departments to create their own eAlliance, a peer-mentoring group of other women physicists or astronomers, with whom they share important characteristics. The homogeneity of the physics community can make it difficult for women to find women mentors. This can lead to stress and feelings of not belonging that may drive women away. The goal of this project is to interrupt this cycle, by offering women in physics and astronomy a chance to mentor each other. If you know a women faculty member in a physics or astronomy department, please encourage her to join an eAlliance. For more information see <http://ealliances.aapt.org>.

**Introductory Physics for the Life Sciences:** We are thrilled that the National Science Foundation funded a substantial project to expand ComPADRE to have a site for the submission and use of materials for introductory physics for the life sciences (IPLS) courses. The site will be an open-source, peer-reviewed, and innovatively structured environment for IPLS content. The site will serve as both an archive and a dissemination tool, including a course-building interface for faculty. Instructors will be supported in creating innovative and individualized courses, mixing and matching from multiple sources tuned to their needs, offering a flexible and low-cost alternative to traditional textbooks. This is a four-year project with eight institutions of higher education. We will keep the AAPT community apprised as this project develops.

AJP Editor: We initiated a search for a new editor for the *American Journal of Physics* since the current editor, David Jackson, gave notice in 2015 that he was stepping down as *AJP* editor as of September 2017. The search was successful! Richard Price will assume the position of Editor for the *American Journal of Physics (AJP)* in September 2017. Richard's education includes graduate work in Engineering Physics at Cornell University and a Ph.D. from California Institute of Technology. Since receiving his Ph.D., he has held a number of faculty positions including positions at University of Utah, University of Texas at Brownsville, and University of Massachusetts Dartmouth. His research interests include gravitational theory and relativistic astrophysics, black holes, and applied mathematics. Richard is currently Adjunct Professor and Research Affiliate at MIT.

*"AAPT continues to be healthy financially. Fiscal year 2016 ended with a surplus in operations and the reserves continue to grow."*

Changes in AAPT Staff: In October, Marilyn Gardner, Director of Membership retired after a long and successful tenure at AAPT. The new Director of Membership, Michael Hall, joined AAPT in October. Mike comes to us from the Society of Naval Architects and Marine Engineers where he was the Director of Membership for six years. Mike has a Bachelors of Art in History and Education from University of Maryland College Park and an M.B.A from the University of Maryland University College. We look forward to Mike bringing in new ideas to recruit and retain AAPT members.


Despite having a busy and productive year, AAPT faces a number of challenges. AAPT continues to experience a decline of membership. Older members are committed to AAPT but it is hard to get new members to join. Early career physics educators do not see the same value to belonging to a professional society as our more senior members. This is a phenomenon being experienced by many other professional societies. We rely on current members to articulate the value of an AAPT membership. We hope you will assist AAPT in bringing in new members.

Our journals bring in nearly half of AAPT's revenue thus allowing us to support many of the programs that we run. Demand for open access and constraints on library budgets pose challenges for the future. More libraries are joining consortia to have the bargaining power of a larger group. AAPT decided to join AIP Complete (AIP's version of the "big deal") and All Titles Upsell (a package that individual institutions can receive all of AIP's journals including those of the AIP member societies for one low price). If your school library does not subscribe to the *American Journal of Physics* or *The Physics Teacher*, encourage your librarian to consider subscribing to both journals. Both *AJP* and *TPT* provide great value compared to many other physics research journals. Also, remember that your membership includes online subscriptions to *AJP*, *TPT*, and *Physics Today (PT)*. *PT* is provided to you through AAPT's membership in the American Institute of Physics.

We do have good news to share. AAPT continues to be healthy financially. Fiscal year 2016 ended with a surplus in operations and the reserves continue to grow. We hope you continue to see value in membership and continue to renew. We also ask that you consider making a contribution to the annual fund or to a program that resonates with you (see website for complete list). Finally, spread the word about the value of an AAPT membership to your colleagues (especially those entering the profession), friends, and students. AAPT is stronger with a robust group of members.

Beth A. Cunningham, Executive Officer

Sincerely yours,



Beth A. Cunningham

# AAPT Code of Conduct

*The AAPT Board of Directors adopted a Code of Conduct on July 10, 2016 governing Event Participation. The new Code of Conduct is online at governing [http://www.aapt.org/aboutaapt/organization/code\\_of\\_conduct.cfm](http://www.aapt.org/aboutaapt/organization/code_of_conduct.cfm)*

The American Association of Physics Teachers (“AAPT”) is dedicated to providing a safe and productive experience at all AAPT sponsored events for all event participants, regardless of sex, race, color, personal appearance, national origin, religion, age, physical disability, mental disability, perceived disability, medical condition, ancestry, marital status, sexual orientation, or any other basis protected by federal or applicable state laws or local ordinances. (See also AAPT’s Statement on Diversity in Physics Education.) AAPT does not tolerate discrimination, or any form of unlawful harassment, and is committed to enforcing this Event Participation Code of Conduct (the “Code”) at all AAPT events. As a professional society, the AAPT is committed to providing an atmosphere that encourages the free expression and exchange of scientific and educational ideas. Furthermore, AAPT upholds the philosophy of equal opportunity for and treatment of all event participants and staff in any event venue, whether in person or online. The issues addressed and actions taken based on member approval changes are:

## Scope of Code

AAPT requires compliance with the Code by all event participants, staff, guests, and vendors at all official AAPT conferences, meetings, meeting breakout sessions, tours, and social events as well as at all AAPT meeting-related events that are expressly sponsored or promoted by AAPT, whether held in public or private facilities (each may be referred to herein as an “Event” or collectively, as the “Events”).

## Harassment Defined

Unlawful harassment includes verbal, physical, and visual conduct that creates an intimidating, offensive, or hostile environment. Harassing conduct can take many forms and includes, but is not limited to, the following: slurs, epithets, derogatory comments, insults, degrading or obscene words, jokes, demeaning statements, offensive gestures, or displaying derogatory or demeaning pictures, drawings, or cartoons based upon an individual’s sex, race, color, personal appearance, national origin, religion, age, physical disability, mental disability, perceived disability, medical condition, ancestry, marital status, sexual orientation, or any other basis protected by federal or applicable state laws or local ordinances.

Sexually harassing conduct in particular includes all of these prohibited actions, as well as other unwelcome conduct, such as unwanted sexual advances, whether or not the Event participant submits to the invitation; lewd propositions or innuendos; leering; making sexual gestures; making sexually suggestive or graphic comments or engaging in sexually-oriented conversation; sexually suggestive objects, graphics, pictures, or posters, whether physically displayed in the Event location or accessed over the Internet; making or using derogatory comments, epithets, slurs or jokes; the touching or display of one’s own body; or physical touching or assault, as well as impeding or blocking movements.

Sexually harassing conduct can be by a person of either the same or opposite sex. It is unlawful for males to sexually harass females or other males, and for females to sexually harass males or other females. Conduct that begins as consensual in nature may become harassment if one party withdraws his or her consent. Sexual or other harassment prohibited by law is unacceptable and will not be tolerated.

The above is not a complete list of what may be deemed sexual or other unlawful harassment prohibited by law. It is impossible to define every action or word that could be interpreted as harassment. However, AAPT has a “zero tolerance” policy toward discrimination and all forms of unlawful harassment. AAPT reserves the right to discipline Event participants who engage in any inappropriate conduct, even if it is not specifically referred to in this Code or is not actionable as sexual or any other form of harassment.

## Prohibited Conduct

Prohibited conduct at AAPT Events includes, but is not limited to:

1. harassment based on sex, race, color, personal appearance, national origin, religion, age, physical disability, mental disability, perceived disability, medical condition, ancestry, marital status, sexual orientation, or any other basis protected by federal or applicable state laws or local ordinances;
2. demeaning comments or harassment about a person’s professional status or qualifications;
3. sexual harassment, as defined in Section 3;
4. abusive conduct that has the purpose or effect of unreasonably interfering with another person’s ability to benefit from and enjoy or participate in the Event, including social events related to the Event and sponsored by AAPT;
5. undue interruption of any Event, speaker, or session; and
6. violence or threats of violence.

The document includes reporting processes, investigation policy, disciplinary action, and a retaliation policy. The full guidelines and reporting form are available on AAPT’s website.

*Having a strong publications program enables AAPT members to obtain greater insight into physics and learn about new teaching methods.*

## AMERICAN JOURNAL OF PHYSICS (AJP.AAPT.ORG)

*David P. Jackson*, Editor, Dickinson College

*Thomas J. Bensky*, Assistant Editor

*Richard Price*, Assistant Editor

*AJP* continued to inform physics education globally with member subscriptions, institutional subscriptions, such as libraries and physics departments, and consortia agreements.

David P. Jackson announced his interest in stepping down from his position and AAPT organized a Search Committee to identify the next editor of the *American Journal of Physics*. Richard Price of Massachusetts Institute of Technology was appointed to the position. He will work with the editor until Jackson's term of service ends in 2017.

### AMERICAN JOURNAL OF PHYSICS STATISTICS

- 12 issues—January–December 2016 (Volume 84)
- 976 pages, 767 reviewers, 116 papers published—13% acceptance rate
- 5 open access articles
- Theme Issue: Relativity and Gravitation — Contemporary Research and Teaching of Einstein's Physics
- 8,730 individual and institutional subscriptions
- Approximately 56% of subscribers teach at the college and university level and 24% teach at the high school level. The remaining 20% are scientists at research facilities, students, and other interested members of the physics community.

### Resource Letters - 4 letters

Resource Letters Editorial Board: Ruth W. Chabay, Elizabeth George, Shane L. Larson, Heather J. Lewandowski, Gordon P. Ramsey, Jan Tobochnik

### Research in Physics Education - 5 articles

### Computational Physics - 4 articles

### Apparatus and Demonstration Notes - 9 articles

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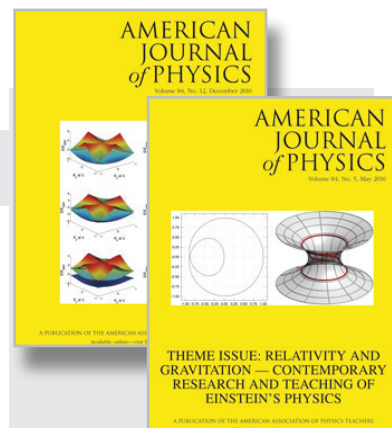
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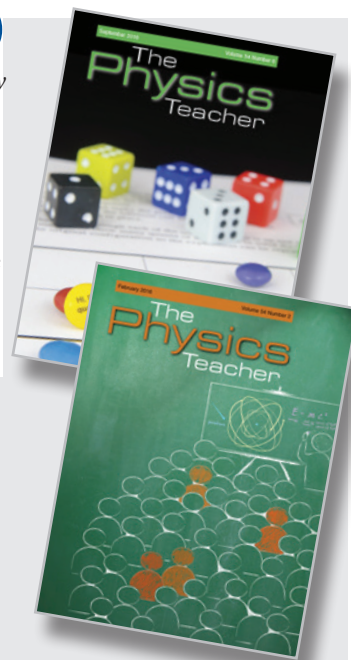
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# THE PHYSICS TEACHER (TPT.AAPT.ORG)

Gary D. White, Editor, *The George Washington University*

*The Physics Teacher (TPT)* continues the mandate of supporting, inspiring, and challenging our target audience—high school and college teachers of introductory physics—as well as our many other readers. In the February issue a Call for Papers was issued on the topic of race and physics education, an invitation to write and submit manuscripts to *TPT* covering as many facets of the issue as can be imagined. Articles submitted in response to the call that successfully make it through the *TPT* double-blind peer-review process are to be featured in the fall of 2017. See the editorial in the February 2016 issue of *TPT* for more details.



## COLUMN EDITORS

### And the Survey Says...

Susan C. White, AIP, College Park, MD

### AstroNotes

Joe Heafner, Catawba Valley Community College, Hickory, NC

### Fermi Questions

Larry Weinstein, Old Dominion University, Norfolk, VA

### Figuring Physics

Paul G. Hewitt, City College of San Francisco, San Francisco, CA

### For the New Teacher

Diane Riendeau, Deerfield High School, Deerfield, IL

### iPhysicsLabs

Jochen Kuhn, University of Kaiserslautern, and Patrick Vogt, University of Education Freiburg, Germany

### Little Gems

Chris Chiaverina, New Trier High School, Winnetka, IL

### Physics Challenge for Teachers and Students

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## THE PHYSICS TEACHER STATISTICS

- 9 issues—January–May, September–December 2016 (Volume 54)
- 576 pages, 597 reviewers, 119 papers, and 90 contributions to monthly columns (103 international authors/co-authors)—34% acceptance rate
- 8,352 individual and institutional subscriptions
- Approximately 40% of subscribers teach at the college and university level and 33% teach at the high school level. The remaining 27% are scientists at research facilities, students, and other interested members of the physics community.

# Electronic Communications



The libraries, collections, and services supported by the AAPT/ComPADRE infrastructure impacted a wide range of users and communities during 2016. The AAPT Physics Library resource collections hosted over 750,000 visitors during the year, averaging a little more than 2,000 visitors, 100 visitor hours, and 6,000 pages delivered each day. The AAPT, PhysPort, and ComPADRE teams have all updated and expanded services to the physics education community through both internal projects and collaborations with others.

**TPT Lessons and Digi-Kits:** <http://www.aapt.org/K12/all-lessons.cfm>

The AAPT staff have designed K-12 lesson plans based on articles from *The Physics Teacher*, many involving new or multi-disciplinary science content such as biophysics and astrophysics. In support of these lessons, “Digi-Kits” containing a wide range of digital content have been assembled and hosted in the AAPT Digital Library. These online resource collections provide additional learning resources, simulations, topical background, and connections to the Next Generation Science Standards. These kits are assembled to support teachers interested in expanding on the topics covered in the TPT Lessons.

**Partnership for Integration of Computation into Undergraduate Physics (PICUP):** <http://www.compadre.org/picup>

A group of physics faculty dedicated to the inclusion of computational activities into the physics curriculum are collaborating with the ComPADRE staff on an online computational physics portal. Central to the web site is a collection of example exercises that use computational models to study physics problems. These exercises include background information, code samples, and problems that help develop computational reasoning. New resources are being created through workshops held by the PICUP team.

**PhysPort:** <https://www.physport.org>

The usage of PhysPort doubled in 2016, with new tools added to support physics educators around the world. All verified instructors can now upload student answers from physics assessments, such as the FCI, to the Data Explorer and receive back detailed reports analyzing the assessment outcomes. Access to the assessment database and Data Explorer are two of the most popular sections of PhysPort, with more than 2700 physics instructors registered on PhysPort to get access to these tools. The PhysPort team launched the Expert Recommendations section of the web site in 2016. This is a set of short articles to help instructors understand and use the results and resources from physics education research. Although just started, PhysPort visitors made this one of the most popular parts of the site.

**Continuing Partnerships:**

AAPT/ComPADRE remains dedicated to our partnerships with physics education communities and projects. The Open Source Physics community, <http://www.compadre.org/osp>, remains one of the most-used collections hosted on ComPADRE. The switch in physics educational simulations from java to javascript models has stimulated a great deal of activity on OSP. The Interactive Video Vignettes project, <http://www.compadre.org/ivv>, expanded their content during 2016. We continue to partner with the Society of Physics Students on an annual Adopt-a-Physicist event to help high school students meet and better understand scientists and what they do. Finally, the AAPT/ComPADRE staff continue to support the annual Physics Education Research Conference and host the online proceedings of this important gathering of the PER Community.

# Electronic Communications

## AAPT.ORG

Having strong online publications offers AAPT members convenient access to physics education resources, news, and other member benefits. AAPT.org continues to emphasize ease-of-access and user-friendliness, and aims to be more inviting to new visitors. The home page includes a “Features” area with photos and information pertaining to upcoming or ongoing programs, projects, events, and resources; and a box with buttons to donate, nominate, and send suggestions. Further down the page is a “navigation by audience” that guides visitors based on their role in the physics education community. The bottom half of the home page is split into a news section, and sections that encourage visitors to get involved with the association and provide information about what AAPT does.

### Features

AAPT.org organizes the association’s many assets into appropriate categories allowing the user (both members and non-members) to easily access information regarding topical news, governance, member benefits and profiles, conferences and workshops, awards, publications, local sections, teaching and student resources, partners, giving, and marketing opportunities.

Added features include.

- The Member Spotlight highlighting the work of AAPT members
- With the addition of a K-12 Program Manager on AAPT’s staff a new K-12 Portal was organized providing easier access to resources available to members who teach elementary and high school science and physics.
- Journal table of contents archives.

### What’s next?

Efforts to enhance AAPT.org are ongoing and numerous. Some areas of activity are the area committee reports, awards nominations, online advertising, and member recruitment.

For 2016 aapt.org had:

- 497,864 visits • 1,470,633 pageviews • 2.95 pages per visit
- 297,572 new visitors All from 211 countries/territories  
#1 U.S., #2 Philippines, #3 India #4 Pakistan, #5 Canada



### SOCIAL NETWORKING

AAPT continues to open the channels of communication and community using online social networking platforms. Below is a list of online social networks AAPT uses:

- facebook.com/AAPTHQ
- twitter.com/AAPTHQ
- flickr.com/physicsteachers
- youtube.com/physicsteachers
- pinterest.com/AAPTHQ/aboutaapt/socialnetworks.cfm

### AREA COMMITTEE WEBSITES

AAPT created a new membership website (RiSE) - launch (2017)

### MEETING PRESENTATIONS

AAPT continues to preserve content from the national meetings. In addition to meeting abstracts, other content including posters, talks, plenaries, photos, and videos will be archived for future reference. The archive will be searchable. This will be a very useful source of information for members as well as area committees as they plan sessions for future meetings.

# eNNOUNCER

The *eNNOUNCER*, AAPT's electronic newsletter publication, is distributed to members by e-mail. The *eNNOUNCER* issues are published at the beginning of each month and archived on AAPT.org. The *eNNOUNCER* contains dates and deadlines for upcoming conferences, meetings, symposiums and events, member news and information, and recent news from the worlds of physics and teaching. Topics covered include organization specific items, action items and notable dates, news from the AAPT Executive Office, member news, section news, recommended reading, and science and education news.

## eNNOUNCER TOPICS

*eNNOUNCER* publishes monthly news for members including:

- Recent AAPT related events and programs
- Members in the news
- Section news
- Workshops and topical conferences
- Scholarship and fellowship announcements
- Awards announcements
- Science related festivals
- Video and photo contests
- Career and teaching opportunities



eNNOUNCER August 2016

## AAPT News

### 2016 AAPT Board of Directors Election

The election of officers for the AAPT Board of Directors will begin in September. Watch for the exact dates in next month's eNNOUNCER. Members will receive instructions through email or, if no email is on file, through the mail to help you vote electronically. Be sure your email address and membership are current so you can participate. [Learn more](#) about the candidates.

### 2017 AAPT Winter Meeting

The 2017 AAPT Winter Meeting will be held in Atlanta, Georgia from February 18-21 at the Atlanta Marriott Marquis. Abstracts submission for the winter meeting will open on August 4. Please [click here](#) between August 4th and September 15 to submit your contributed talk or poster abstract. This is a great opportunity to present your research or share your ideas with your colleagues.

### AAPT Code of Conduct

You may have read recently in the June 2016 Physics Today (pp. 30-32) and in the news about harassment issues at professional society meetings. In light of these discussions, the AAPT Board of Directors and Executive Office affirms that the Association expects the highest level of professional behavior of everyone at its meetings and events. We all want AAPT meetings and workshops to be productive and welcoming for all and that means we all need to treat each other with respect and dignity. If you experience any unethical behavior or see such behavior directed towards someone else at the meeting, you may report that behavior to one of the AAPT staff so that appropriate action can be taken. AAPT will soon release a formal Code of Conduct and lay out the

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## 2016 TOP AAPT NEWS STORIES

Listed below are highlighted news stories for 2016 from the *eNNOUNCER*. To read the full story go to <http://www.aapt.org/aboutaapt/ennouncer/index.cfm>.

<b>JANUARY</b>	Robert A. Millikan Medal - Stephen M. Pompea	Teacher Leader Taskforce	<b>NOVEMBER</b>
• Winter Meeting Service Awards	Klopsteg Memorial Award - Margaret Wertheim	• U.S. Physics Team Scores 2 Gold and 3 Silver Medals at 47th International Physics Olympiad	• Email list established for Department Chairs at Primarily Teaching Colleges and Universities
• Search for New AJP Editor	Homer L. Dodge Citation for Distinguished Service Award: Stephen Kanim, Kevin Lee, Dan MacIsaac, Mel Sebella, Kathleen Falconer	<b>SEPTEMBER</b>	• Neutrino Resource in Celebration of the 2015 Nobel Prize in Physics
<b>FEBRUARY</b>		• Election Candidates Announced	<b>DECEMBER</b>
• 30th Anniversary of the U.S. Physics Team		• 2016 AAPT Fellows Awards Announced	• AAPT Announces the Results of the 2016 Board of Directors Election
<b>MARCH</b>		<b>OCTOBER</b>	• 2017 Homer L. Dodge Citation for Distinguished Service to AAPT recipients are Ernest R. Behringer, Ann M. Robinson, Kenneth S. Krane, Sharon Kirby, and Richard Gelderman.
• 2016 Child Care Grants		• Notice of Potential Change to By-Laws: Membership Category Title Change	
<b>APRIL</b>		• Jan Tobochnik to Receive AAPT 2017 Oersted Medal	
• Travel Grants and Awards for SM16		• Jay M. Pasachoff Recognized as 2017 Recipient of the Richtmyer Memorial Lecture Award	
<b>MAY</b>			
• Award Winners			
Paul W. Zitzewitz Award for Excellence in K-12 Physics Teaching - Tom Erikson			
David Halliday and Robert Resnick Award for Excellence in Undergraduate Physics Teaching - Andrew Gavrin			



# National Meetings



## WINTER MEETING

January 9–12, 2016, New Orleans, LA

### Statistics:

There were 855 attendees, 20 exhibitors, 50 sessions, 37 workshops, 3 Tutorials, 4 Topical Discussions, and 127 posters.

### Program Committee Chair

George A. Amann

### Paper Sorters:

Sean Bently, Society of Physics Students  
Andrew Gavrin, Indiana University–Purdue University Indianapolis

Jan Mader, Great Falls High School, Great Falls, MT

Daryl McPadden, Florida International University, Miami, FL

Eleanor Sayre, Kansas State University, Manhattan, KS

### Local organizer:

Greg Severn, University of San Diego

## Plenaries

The meeting included a number of inspiring plenary and award talks. Sunday featured a plenary presented by Benjamin D. Santer (left) from Lawrence Livermore National Laboratory. His talk was entitled Evidence for Human Effects on Global Climate.

On Monday, the Richtmyer Memorial Lecture Award was given to Derek Muller from Veritasium, the education science channel on YouTube. His talk, Exoplanets: The Pace of Discovery and the Potential Impact on Humanity, showcased his longstanding interest in the impact of science on human society, combined with his excellent popular science writing.

Tuesday featured the presentation of the 2016 teaching awards and the Homer L. Dodge Citations for Distinguished Service to AAPT. The Winter 2016 recipients of the Homer L. Dodge Citations for Distinguished Service to AAPT were Marina Milner-Bolotin, The University of British Columbia; Gay Stewart, West Virginia University; David Weaver, Chandler-Gilbert Community College; Karl Mamola, Appalachian State University, and Michael Faleski, Delta College.

The 2016 Hans Christian Oersted Medal was presented to John W. Belcher from Massachusetts Institute of Technology. His talk was The Challenges of Pedagogical Change at a Research 1 University. The AAPT Symposium on Physics Education and Public Policy was presented by Ramon Barthelemy, APS-AIP STEM Education Department Fellow; and Meredith Drosback, Assistant Director, Education and Physical Sciences, Science Division, Office of Science and Technology Policy, U.S. White House.

An additional plenary was presented on Monday by Kimberly Ennico, NASA's Ames Research Center, entitled Pluto Revealed: First Results From The Historic First Fly-By Space Mission

## Highlights

With 855 attendees, the 2016 Winter Meeting had the highest number of participants at an AAPT Winter meeting in the last five years. The Big Easy, well known for its cross-cultural and multilingual heritage, provided a lively and entertaining backdrop for physicists and physics educators as they met to share information and ideas spanning a potpourri of themes, including, The Planetarium Classroom, Weather or Knot, It's Still Physics, Apparatus Gumbo, and Recovery of New Orleans Physics Post-Katrina.

Attendees were able to participate in some great pre- and post-meeting events. Activities started with a pre-meeting French Quarter History and Pub Crawl Tour. All workshops were held at Southern University at New Orleans. All tutorials were held at the Hyatt Regency Hotel.

High School Physics Teachers' Day provided an opportunity to learn how to improve student learning of physics using: AAPT journals (*The Physics Teacher* and the *American Journal of Physics*), the AAPT/ComPADRE digital library of free online resources, PTRA resources, eMentoring, Adopt-a-Physicist, contests, and grants. Sessions specifically related to high school physics included: Best Practices in Educational Technologies, Meeting the Breadth of NGSS, Discovery Physics in the Classroom, and Professional Concerns in High School. For the first time, the AAPT conference featured a High School Teacher Lounge. Prior to the meeting, attendees populated the schedule with last-minute opportunities for topical discussions. At various hours, the lounge was hosted by AAPT



members to share ideas and get to know others, and served a place for overflow discussions from committee meetings about topics including educational technology, the Next Generation Science Standards, and High School Teachers Camp. One of the most popular events for high school teachers was the “30 Demos in 60 Minutes” presentation, with the room overflowing with attendees. Other interactive sessions included the “High School Share-a-Thon,” which went late into the night and featured some new ideas from San Francisco’s Exploratorium.

This was the first Meeting of the Members to occur following the 2015 AAPT governance structure approval that abolished the AAPT Council. Another first for this meeting was a popular new special event called the Winter Meeting Dance Party.

The AAPT Fun Run/Walk continued to be a popular event providing a break from the intense learning format of the meeting and the Speed Networking event, providing an opportunity for new physics educators to interact “one on one” with seasoned professionals continued to grow.

Monday was the High School Teachers’ Day and the schedule was packed with events and sessions of particular interest to high school teachers. Also on Monday were the First Timers Gathering and the Early Career Professionals Speed Networking event, the AAPT French Quarter Jogging/Walking Tour, the Great Book Give-Away, the Multi-Cultural Luncheon, and SPS Undergraduate Awards Reception occurred. The Outstanding SPS Chapter Award, that recognizes annually an outstanding SPS chapter advisor, was presented to Kiril Strelitzky of Cleveland State University.



## PHYSICS EDUCATION RESEARCH (PER)

## PER Conference 2016—Sacramento, California

### PER LEADERSHIP ORGANIZING COUNCIL

Stephen Kanim, Chair

Natasha Holmes, Vice Chair

Natasha Holmes, Treasurer

Vashti Sawtelle, ex officio

(chair of AAPT Research in Physics  
Education Committee)

### PERC ORGANIZING COMMITTEE

Paul Irving, Michigan State University

Rebecca Lindell, Purdue University

Cedric Linder, Uppsala University

July 20 - 21, 2016

A Methodological Approach to PER  
(322 attendees)

### Plenary Sessions:

*Methodology and theorizing in PER: The role of humble theories*, Saalih Allie, University of Cape Town, South Africa

*Theoretical Frameworks for Qualitative Research from Chemical Education Research*, George M. Bodner, Department of Chemistry, Purdue University

*Networks as a research methodology in PER*, Jesper Bruun, University of Copenhagen

*Appropriate Use of Assessments through Applications of Validity Theoretical Framework*, Kerrie A. Douglas, Purdue University

*On the Interaction of Physics with Physics Education Research*, Peter W. Hewson, University of Wisconsin-Madison Professor Emeritus

The PERC 2016 conference was an invitation for the PER community to engage in debate and discussion about research methodology and its role in how we will approach a research study. This year’s conference included 197 contributed posters over four sessions, and five symposium sessions with 27 talks.

# National Meetings



## SUMMER MEETING

July 16–20, Sacramento, CA

### Statistics:

There were 1,184 attendees, 30 exhibitors, 82 sessions, 46 workshops, 11 commercial workshops, 8 topical discussions, 5 tutorials, and 225 posters.

### Program Committee Chair

George A. Amann

### Paper Sorters:

Terry Christensen  
Steve Henning  
Paul Irving  
Mary Ann Klassen  
Gordon Ramsey  
Ellie Sayre  
Shawn Reeves  
Sam Sampere  
Trevor Smith

### Local organizers:

William DeGraffenreid, CSU  
Sacramento Physics Department  
Chair  
Tom Scarry, CSU Sacramento

## Plenaries

The Klopsteg Memorial Lecture Award was given to Margaret Wertheim from the Institute for Figuring Los Angeles, CA. Her talk, *Of Corals and the Cosmos: A Story of Hyperbolic Space*. Throughout her career, Wertheim has been a pioneer in communicating math and science to women. Her “Crochet Coral Reef” project – spearheaded with her twin sister Christine – is now the world’s largest participatory science-and-art endeavor, and has been shown at the Andy Warhol Museum (Pittsburgh), Chicago Cultural Center, New York University Abu Dhabi (UAE), and elsewhere. More than 8000 women in a dozen countries have participated in the project, and its exhibitions have been seen by two million visitors.

Neil Gershenfeld, Massachusetts Institute of Technology whose talk was entitled. *From Bits to Atoms*, noted that physicists use computers, and computers use physics.

The APS Plenary, co-sponsored by the American Physical Society Forum on Education, featured David Reitze, LIGO Laboratory, California Institute of Technology delivered a memorable plenary, *Colliding Black Holes & Convulsions in Space-time: The First Observation of Gravitational Waves by LIGO*.

Stephen M. Pompea of the National Optical Astronomy Observatory in Tucson, AZ, received the Millikan Medal for his notable and creative contributions to the teaching of physics. His talk, *Knowledge and Wonder: Reflections on Ill-Structured Problem Solving*, was delivered to a theater full of enthusiastic physics participants.

The Halliday and Resnick award for Excellence in Pre-College Teaching was presented to Andy Gavrin, IUPUI, Indianapolis, IN. His talk was *Our Students Are Learning!*.

The 2016 Paul W. Zitzewitz Award for Excellence in Pre-College Physics Teaching was presented to Tom Erikson, Lone Peak High School, Highland, UT. His talk was *Physics is for Everyone!*

## Highlights

The 2016 Summer Meeting was held at the Sacramento Convention Center with workshops at California State University, Sacramento.

Attendees were able to participate in some great pre- and post-meeting events. PTRA held their pre-conference Summer Leadership Institute in Roseville, CA hosted by PASCO. The PTRA Master Teachers focused on topics and pedagogy related to providing effective professional development in physical science for the K-12 education community.

The Two-Year College Leadership hosted a breakfast and a resource room that focused on the issues and needs of the two-year college physics teaching community.

Some attendees took advantage of the location and enjoyed a tour of the California wine country. In addition, attendees were invited to a picnic and the Demo Show hosted by PASCO.

Nearly 325 Physics Education Researchers participated in the post-meeting PER Conference, that focused on research methodology and PER’s role in how to approach a research study. The meeting included the introduction of the AAPT Code of Conduct, which states that the association expects the highest level of professional behavior of everyone at its meetings and events.

The AAPT Fun Run/Walk continues to be a popular event providing a break from the intense learning format of the meeting and the Speed Networking event, providing an opportunity for new physics educators to interact “one on one” with seasoned professionals continued to grow. The High School Physics Photo Contest and the Apparatus Competition are always highlights of the Summer Meeting and this year they enjoyed extra attention due to their convenient location.

The Summer 2015 recipients of the Homer L. Dodge Citations for Distinguished Service to AAPT were Kathleen Falconer, Buffalo State College, Buffalo, NY; Steve Kanim, New Mexico State University, Las Cruces, NM; Kevin Lee, University of Nebraska-Lincoln Center for Science, Mathematics, and Computer Education and the Department of Physics and Astronomy, Lincoln, NE; Dan MacIsaac, Buffalo State College, Buffalo, NY; and Mel Sabella, Chicago State University, Chicago, IL.

# Workshops and Programs

## WORKSHOP FOR NEW PHYSICS AND ASTRONOMY FACULTY

*June 23-26, 2016 and  
November 17-20, 2016*

AAPT, in conjunction with the American Astronomical Society (AAS) and the American Physical Society (APS), held two workshops for new physics and astronomy faculty members at the American Center for Physics. These workshops helped 221 new faculty understand how students learn physics and astronomy, and suggested how this information can impact a new professor's teaching methods. The workshop is intended for faculty in the first few years of their initial tenure-track appointment at a four-year college or university.

Department chairs at research and four-year institutions are asked to nominate tenure-track faculty. The ideal candidate would have a year or two of teaching experience and be aware of the challenges of teaching.

The New Physics and Astronomy Workshop program was funded by grants # DUE-0813481, DUE-0121384, and DUE-9554738 from the National Science Foundation. Read more online at: [www.aapt.org/Conferences/newfaculty/](http://www.aapt.org/Conferences/newfaculty/)



## PHYSICS TEACHER RESOURCE AGENTS (AAPT/PTRA) PROGRAM

*Read more online at: [www.aapt.org/PTRA](http://www.aapt.org/PTRA)*



Workshops were held during the AAPT 2016 Summer Institute in conjunction with the AAPT Summer Meeting in Sacramento, CA.

AAPT maintains a nationwide cadre of more than 150 accomplished high school teacher-leaders who are trained and continually involved in professional development. These teacher-leaders are certified as PTRAs by AAPT to lead workshops throughout the country.



### 2016 PTRA COMMITTEE

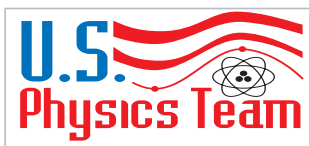
Karen Jo Matsler, Program Director

### OVERSIGHT COMMITTEE

Pat Callahan, Earl D. Blodgett, Larry Cook, Robert Morse, Tom O'Kuma, Kelly O'Shea, Ed Price, Beth A. Cunningham, Ex Officio, Rebecca Vieyra, Ex Officio



## 2016 UNITED STATES PHYSICS TEAM



Read more at: [www.aapt.org/physicsteam/2016](http://www.aapt.org/physicsteam/2016)

The 30th Anniversary of the U.S. Physics Team was celebrated in Washington, D.C. on May 27-28, 2016. Fun activities are planned for attendees, including U.S. Physics Team alumni, coaches, academic directors, parents and friends of AAPT.

The United States Physics Team ranked fifth place in the point count and seventh place in the medal count at the 47th International Physics Olympiad that was held in Zürich, Switzerland and Liechtenstein, July 10-18, 2016.

The participants representing the 2016 U.S. Physics Team were:

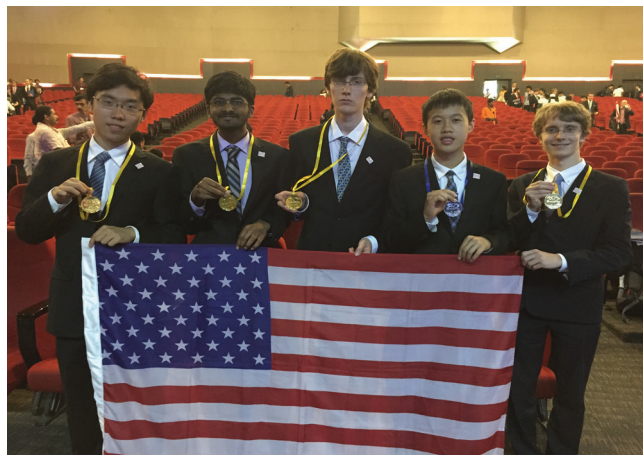
- Abijith Krishnan, BASIS Scottsdale, Scottsdale, AZ, Gold
- Jason Lu, Adlai Stevenson High School, Lincolnshire IL, Gold
- Vincent Liu, State College Area High School, State College, PA, Silver
- Jimmy Qin, Seminole High School, Sanford, FL, Silver
- Srijon Mukherjee, Amity International School, Noida, Noida UP, Silver

### DIRECTOR

Paul Stanley, Beloit College

### ACADEMIC COACHES

David Fallest, Senior Coach, Chrisy Xiyu Du, Junior Coach, Mark Eichenlaub, Junior Coach, Eugen Hruska, Coach, Mikhail Kagan, Coach, Kevin Zhou, Junior Coach



The traveling team, from left to right, Kevin Li, Saranesh Prembabu, Zachary Bogorad, Jason Lu, Adam Busis

### 2016 US PHYSICS TEAM

Shreyas Balaji, John Foster Dulles High School, Sugar Land, TX; Mike Bao, Troy High School, Fullerton, CA; Jonathan Huang, University HS - Irvine, Irvine, CA; Tiffany Huang, Saratoga High School, Saratoga, CA; Parker Huntington, Centerville HS, Centerville, OH; Abijith Krishnan, BASIS Scottsdale, Scottsdale, AZ; Cynthia Liu, Montgomery Blair High School, Silver Spring, MD; Vincent Liu, State College Area High School, State College, PA; Daniel Longenecker, Homeschool/Kuwait, Rising Sun, MD; Jason Lu, Adlai Stevenson High School, Lincolnshire, IL; Jawahar Madan, Interlake High School, Bellevue, WA; Srijon Mukherjee, Amity International School, Noida, Noida, UP; Jimmy Qin, Seminole High School, Sanford, FL; Milan Roberson, Bayard Rustin High School, West Chester, PA; Alec Sun, Phillips Exeter Academy, Exeter, NH; Brian Tseng, Mission San Jose High School, Fremont, CA; Yogeshwar Velingker, Parkland School District, Allentown, PA; Charles Wang, Thomas Jefferson HS for Sci-Tech, Alexandria, VA; Sarah Wu, North Carolina School of Science and Mathematics, Durham, NC; Jason Ye, University HS - Irvine, Irvine, CA; Jennifer Yu, Mission San Jose High School, Fremont, CA; Leo Zhao, Princeton High School, Princeton, NJ; Daniel Zhu, Montgomery Blair High School, Silver Spring, MD.

### PHYSICS BOWL SPONSORS

AAPT  
Arbor Scientific  
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PASCO Scientific  
CPO Science  
Vernier Software & Technology  
Texas Instruments  
Princeton University Press  
John Wiley & Sons  
Educational Innovations, Inc  
WebAssugn

### PHYSICSBOWL ADVISORY BOARD

Michael Bush, Beverly Trina Cannon, Michael C. Faleski, Sean Flaherty, Warren Hein, Thomas Herring, Joel Klammer, Andrzej Sokolowski, and Courtney Willis

# PHYSICSBOWL

## AAPT PHYSICS BOWL

Read more at: [www.aapt.org/Programs/contests/physicsbowl.cfm](http://www.aapt.org/Programs/contests/physicsbowl.cfm)

This year there were almost 4500 students participating from more than 280 schools across the United States and Canada, China, and Spain. Michael C. Faleski served as the PhysicsBowl Academic Coordinator. China participated for the third year.

### 2016 TOP 10 OVERALL WINNERS

#	SCORE	STUDENT, SCHOOL, CITY, STATE
1	37	YANWEI LIU, Wuhan Foreign Language School, Hubei
2	36	YANG YAN, Nanjing Foreign Language School, Jiangsu
3	36	PHIL H. CHEN, University High School - Irvine, Irvine, CA
4	36	YUHENG XU, Olympiads School, ON
5	35	ANDREW J. ARRIETA, Palos Verdes Peninsula High School, CA
6	35	AADITH S. VITTALA, Thomas Jefferson High School for Science and Tech, VA
7	35	ZHAOQIU ZENGXU, High School Affiliated To Nanjing Normal University Jiangning Campus, Jiangsu
8	35	OMAR B. MANSOUR, Mentor HS, OH
9	34	SOPHIE E. MERCHANT, Hutchison School, TN
10	34	YUXIAO HANG, Shandong Experimental High School, Shandong

# 2016 High School Physics Photo Contest

*The High School Physics Photo Contest is open to high school students in grades 9-12 (or equivalent international grade level). Photos may be entered in one of the categories described below, and are judged on the quality of the photo and the accuracy of the physics in the explanation that accompanies the photograph. Out of over 700 submissions, the 100 finalist photos were selected, displayed, and judged during the 2016 Summer Meeting. See [www.aapt.org/Programs/contests/winners.cfm?theyear=2016](http://www.aapt.org/Programs/contests/winners.cfm?theyear=2016) for information on the following overall winners of 2016.*



**Contrived photos** are those that are set up to show a particular physics concept or related set of concepts. Contrived photos represent non-spontaneous events.

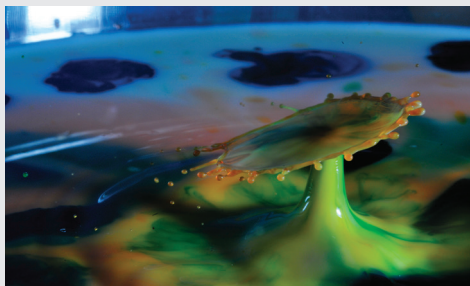


FIRST



SECOND

THIRD



**Natural photos** are those that involve everyday situations that may demonstrate a variety of physics concepts. Any spontaneous event is considered natural.



FIRST



SECOND

THIRD



# Collaborative Projects

## TEAM AMERICA ROCKETRY CHALLENGE

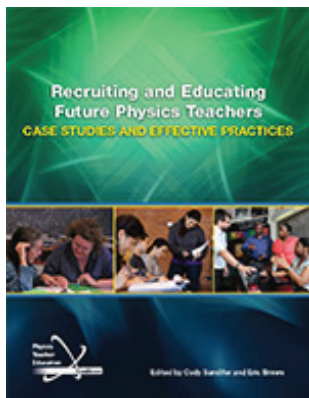
AAPT continued its support as the sole educational partner for the world's largest rocket contest, the Team America Rocketry Challenge (TARC). TARC is also sponsored by the Aerospace Industries Association (AIA), the National Association of Rocketry (NAR), NASA, the Defense Department, and AIA member companies. TARC is an opportunity for science enthusiasts to work together as teams to build and launch rockets, with a chance to win more than \$60,000 in scholarships and prizes. Winners: <http://www.rocketcontest.org/scores11.cfm>.

## DEPARTMENT CHAIRS CONFERENCE

June 2-4, 2016  
American Center for Physics  
College Park, Maryland

The American Physical Society and the American Association of Physics Teachers were pleased to jointly organize the 2016 Physics Department Chairs Conference. The conference website is [https://www.aapt.org/Conferences/2016\\_PDCC.cfm](https://www.aapt.org/Conferences/2016_PDCC.cfm). The conference was held in conjunction with a Congressional Visit Day (CVD). The APS Office of Public Affairs (OPA) facilitates communication between physicists and Congress through CVDs.

The chairs conference was designed by chairs for chairs. The program addressed topics of significant concern to chairs, including strategies for increasing physics majors, managing faculty effectively, tying the curriculum to physics careers, and promoting diversity and inclusion, among others.



## PHYSTEC ANNOUNCED PUBLICATION OF RECRUITING AND EDUCATING FUTURE PHYSICS TEACHERS: CASE STUDIES AND EFFECTIVE PRACTICES

. Three years in the making, this peer-reviewed volume edited by Cody Sandifer at Towson University, and Eric Brewé at Florida International University, and sponsored by PhysTEC provides a practical guide to innovative, state-of-the-art programs. It includes articles in the following areas:

- Preparing Future Physics Teachers: Overview and Past History
  - Case Studies of Successful Physics Teacher Education
  - Recruiting and Retaining Future Physics Teachers
  - Structuring Effective Early Teaching Experiences
  - Preparation in the Knowledge and Practices of Physics and Physics Teaching
- Mentoring, Collaboration, and Community Building

The book contains both invited and contributed chapters. There is a strong emphasis throughout the book on implementation advice, ongoing challenges, and lessons learned. The book's intended audience is physics department chairs and faculty, as well as education faculty who are engaged in physics teacher preparation. The book is freely available for download at: [www.phystec.org](http://www.phystec.org).

## PHYSICS DAYS AT NSTA

Local AAPT Sections hosted Physics Day at nearby NSTA area meetings held in Minneapolis, MN, Portland, OR, and Columbus, OH.

The Physics Day programs offered a full day of physics content at each NSTA area conference. Physics Day consists of presentations on physics topics of current interest, physics demonstrations for the pre-college classroom, and a make 'n take session where participants can construct a piece of physics apparatus for use as a demonstration or laboratory experiment. AAPT was represented at each event by the local section, shared appropriate materials, and recruited science teachers to become members.

- Minneapolis, MN presenters: Jon Anderson, Shane Wood, Erron Sagen, Lee Siudzinski, and David Carter
- Portland, OR presenters: Greg Mulder, Emily Van Zee, Rachael Brickson, Judith Ford, Nathalie Gaebe, Andrea Kenagy, Alison Latham-Ocampo, Kathryn Rodriggs
- Columbus, OH presenters: Mary Whalen, Douglas Forrest, Matthew Kennedy, Brian Carpenter, Shu-Yee Freake, Julie Mills, Arthur Eisenkraft, Gene Easter, Lenore Horner

## COMPREHENSIVE SITES OFFER NEW MODELS FOR TEACHER PREPARATION

In 2015 PhysTEC added four new Comprehensive sites that offer new models for physics teacher preparation. Comprehensive sites are funded for three years and receive up to \$100,000 per year to address the entire teacher education spectrum. The capacity of an institution to sustain these programs beyond the award period is a critical factor in the selection process.

The sites selected are: West Virginia University, Rowan University, Texas State University, the Colorado School of Mines (CSM) and the University of Northern Colorado (UNC).

The PhysTEC project works to increase the number of highly qualified physics teachers. To do this, the project provides substantial support to select colleges and universities to develop their physics teacher preparation programs into national models. Collectively, PhysTEC-supported sites have more than doubled the number of physics teachers they graduate.



## SOLVING THE PHYSICS TEACHER SHORTAGE

The United States is facing a crisis in science and mathematics education. The severe shortage of qualified STEM teachers, necessary to educate and inspire the future technical workforce, undermines the nation's economic competitiveness and technological leadership. The situation in physics is particularly alarming—most secondary physics teachers have neither the deep content knowledge nor the subject-specific pedagogical training needed to teach effectively.

Each year more than 1400 new teachers are hired to teach physics, but only about 600 of these teachers have a major or minor in physics or physics education. Colleges and universities must educate 800 additional new physics teachers per year to meet the national need. There are about 750 institutions in the United States that grant a bachelor's degree in physics. If each institution educated one more physics teacher per year, the problem would be solved. The solution to the nationwide physics teacher shortage is within reach if physics departments become more engaged and see teacher education as part of their mission. The key to realizing this solution is a physics faculty member who cares about teacher education and is supported to take leadership in this area.

## 2016 PHYSTECH CONFERENCE

The 2016 PhysTEC conference was held in Baltimore, Maryland, prior to the APS March Meeting.

PhysTEC Conference plenaries were:

- Preparing teachers for the challenges of physics education in the 21st century: Turning K-20 students into collaborative participants in the practice of physics by Eugenia Etkina, Rutgers
- Consolidating and Organizing Subject Matter Content Knowledge: Didactical Reconstructions in Physics Teacher Education (4) by Terhi Mäntylä, University of Tampere
- Physics is a Choice: Advocating for K-12 Physics at the State, District, and School Levels by Paul Cottle, Florida State University
- Teacher Research Teams by Valerie Otero, University of Colorado at Boulder

A no-cost post-conference workshop, Periscope: Looking Into Learning in Best Practices in University Physics Classrooms provided information about the program furnishing physics faculty, graduate teaching assistants, and undergraduate learning assistants with the opportunity to “look into learning” in best practices university physics classrooms. Periscope is a set of lessons centered on short video episodes that provide the opportunity to watch and discuss authentic teaching events.

# 2016 Awards and Grants



## HANS CHRISTIAN OERSTED MEDAL

**John Winston Belcher, Massachusetts Institute of Technology, Cambridge, MA**  
*The Challenges of Pedagogical Change at a Research I University*

The Oersted Medal for 2016 was presented to John Winston Belcher in recognition of his outstanding, widespread, and lasting impact on the teaching of physics through his tireless work with TEAL (Technology Enabled Active learning) and Massive Open Online Courses (MOOCs).

Belcher graduated summa cum laude from Rice University in 1965 with a double major in math and physics. He then went to Caltech for graduate school. His Doctoral thesis, under the direction of Professor Leverett Davis, Jr. involved analysis of magnetic field data from Mariner 5, a 1967 mission to Venus, and also theoretical work on the acceleration of the solar wind.

Belcher joined the faculty at Massachusetts Institute of Technology (MIT) in 1971 to work with Professors Herbert Bridge and Alan Lazarus, who had the plasma probe on board Mariner 5. Just after he arrived, the MIT Space Plasma Group wrote a proposal for the Voyager mission to Jupiter and Saturn. After reaching these two planets, as well as Uranus and Neptune, Voyager is still going strong, with an expected demise in 2031. In its most recent incarnation, it is referred to as the Voyager Interstellar Mission.

The Oersted Medal recognizes Belcher's efforts to introduce an active learning format into the mainstream physics introductory courses at MIT. Technology Enabled Active Learning (TEAL) is a teaching format that merges lectures, simulations, and hands-on desktop experiments to create a rich collaborative learning experience. As a result of the TEAL project, MIT has replaced its main-stream two-semester freshman physics sequence (the largest subjects at MIT) with studio-mode classes, where students work collaboratively on laboratory work in a computer-rich environment. The TEAL group has also developed an extensive suite of simulation and visualization software for electromagnetism, which is being distributed across the world through MIT Open-CourseWare. His subsequent developmental work with Massive Open Online Courses (MOOCs) has enabled educators to expand their outreach beyond the classroom, making the content available to many more students.

The full press release is available at <http://www.aapt.org/aboutaapt/John-Belcher-to-Receive-AAPT-2016-Oersted-Medal.cfm>.

ESTABLISHED IN 1936, THE OERSTED MEDAL HONORS THE DANISH PHYSICIST HANS CHRISTIAN OERSTED (1777-1851). THIS PRETIGIOUS AWARD IS PRESENTED ANNUALLY TO A PERSON WHO HAS HAD OUTSTANDING, WIDESPREAD, AND LASTING IMPACT ON THE TEACHING OF PHYSICS.

## RICHTMYER MEMORIAL LECTURE AWARD

**Derek Muller, creator of YouTube channel Veritasium**

*Why Some Confusion is Good – Evidence for How to Make Learners Think*



**Derek Muller** was selected to receive the 2016 Richtmyer Memorial Lecture Award. Muller is recognized with the award for outstanding contributions to physics and effectively communicating those contributions to physics educators. Muller, a physics educator and science communicator, filmmaker, and television personality is best known for creating the YouTube channel *Veritasium*, which has received over 200 million views on YouTube.

Regarding his selection for this award Muller said, "I am honored to be recognized by the AAPT and delighted to have the opportunity to speak to the talented and dedicated physics educators at the Winter Meeting."

A native of Australia, raised in Canada, he graduated with a BSc in Engineering Physics from Queen's University in Ontario. Then he attended the University of Sydney where he completed his PhD in Physics Education Research in 2008 with a thesis,

"Designing Effective Multimedia for Physics Education." He began putting his research into practice with his *Veritasium* YouTube channel in 2011. This quickly led to joining the team of Catalyst, Australia's premiere science TV programme. He has also been featured on the BBC, Discovery Channel, History Channel, and he recently presented a two-part documentary on PBS entitled *Uranium: Twisting the Dragon's Tail*.

Muller is guided by the great quote by Richard Feynman, "The first principle is that you must not fool yourself, and you are the easiest person to fool." His goal is to help people across the world not fool themselves when it comes to science and how it pertains to their lives

THE RICHTMYER MEMORIAL LECTURE AWARD IS GIVEN IN MEMORY OF FLOYD K. RICHTMYER, DISTINGUISHED PHYSICIST, TEACHER, AND ADMINISTRATOR. PROFESSOR RICHTMYER WAS ONE OF THE FOUNDERS OF AAPT AND SERVED AS ITS PRESIDENT. AS A TEACHER, AUTHOR, RESEARCH WORKER, AND DEAN, HE WAS THE GUIDE FOR MANY YOUNG PHYSICISTS WHO BECAME LEADERS OF AMERICAN SCIENCE AND HE HAS HAD A WIDE INFLUENCE ON THE DEVELOPMENT OF PHYSICS IN THE UNITED STATES. THE AWARD HAS BEEN GIVEN SINCE 1941 TO A PERSON WHO HAS MADE OUTSTANDING CONTRIBUTIONS TO PHYSICS AND EFFECTIVELY COMMUNICATED THOSE CONTRIBUTIONS TO PHYSICS EDUCATORS.

# 2016 Awards and Grants (cont.)



## THE DAVID HALLIDAY AND ROBERT RESNICK AWARD FOR EXCELLENCE IN UNDERGRADUATE PHYSICS TEACHING

**Andy Gavrin, IUPUI, Indianapolis, IN**  
*Our Students Are Learning!*

The 2016 David Halliday and Robert Resnick Award for Excellence in Undergraduate Physics Teaching winner is **Andy Gavrin**. He earned his BS in Physics at the Massachusetts Institute of Technology and his MA and PhD in Physics at The Johns Hopkins University. While at Hopkins, he began his teaching career as a TA and did research in superconductivity and magnetic phase transitions. During his time at

Indiana University–Purdue University Indianapolis (IUPUI), Gavrin has been instrumental in improving STEM education in Indiana through a variety of projects funded by the NSF, the NIH, and the Lilly Foundation.

Since arriving at IUPUI in 1995, he has devoted a great deal of effort to creating ways to improve physics teaching, including “Just-in-Time Teaching (JiTT).” This method, developed in collaboration with Gregor Novak (IUPUI), Evelyn Patterson (U.S. Air Force Academy), and Wolfgang Christian (Davidson College) has been highly successful by several different standards. This work was published in the influential book *Just-in-Time Teaching: Blending Active Learning and Web Technology* published by Prentice Hall (1999).

In addition to his work with JiTT, Gavrin has led efforts focused on increasing the numbers and diversity of students pursuing degrees across the STEM fields. These efforts include the “Bridges to the Baccalaureate in Central Indiana” program. Gavrin has also been active in enhancing undergraduate physics education through his work with the AAPT Committee on Physics in Undergraduate Education, the AAPT Undergraduate Curriculum Task Force, the AAPT Committee on Educational Technologies, and his engagement of undergraduates in research at IUPUI.

Read the full press release at <http://www.aapt.org/aboutaapt/pressreleases/2016-Halliday-and-Resnick-Award-Andy-Gavrin.cfm>



## THE PAUL W. ZITZEWITZ AWARD FOR EXCELLENCE IN PRE-COLLEGE PHYSICS TEACHING

**Tom Erikson, Lone Peak High School, Highland, UT**  
*Physics is for Everyone!*

The 2016 Paul Zitzewitz Excellence in Pre-College Physics Teaching Award was presented to Tom Erikson, a high school physics teacher, at Lone Peak High School in Highland, Utah. This award is in recognition of contributions to pre-college physics

teaching and awardees are chosen for their extraordinary accomplishments in communicating the excitement of physics to their students.

Erikson earned his BA in Physics from Brigham Young University and MED in Instructional Technology at Utah State University in Logan, UT. He has a Utah Professional Educator Level 2 License with endorsements in Physics, Physical Science and Mathematics, Level III.

Erikson was one of the authors of the Utah Physics Core Curriculum, and was an item writer for Utah end of level physics exams. He serves as Science Department chairman and leads the physics collaboration team on improving student learning. As a result of his leadership, Lone Peak High School teaches more physics classes than any other high school in Utah (27 sections). He sets the tone for teacher dedication and student achievement.

He has been honored with “Teacher of the Year,” and various other school, community, district, and state school recognitions for his service to students.

Read the full press release at <http://www.aapt.org/aboutaapt/pressreleases/2016-Zitzewitz-Award-Tom-Erikson.cfm>

ESTABLISHED IN 1993 AND NOW NAMED FOR THE AUTHORS OF A VERY SUCCESSFUL COLLEGE-LEVEL TEXTBOOK ON INTRODUCTORY PHYSICS AND FUNDED SINCE 2010 PRIMARILY BY A GENEROUS ENDOWMENT FROM JOHN WILEY AND SONS, THE DAVID HALLIDAY AND ROBERT RESNICK AWARD FOR EXCELLENCE IN UNDERGRADUATE PHYSICS TEACHING RECOGNIZES OUTSTANDING ACHIEVEMENT IN TEACHING UNDERGRADUATE PHYSICS, WHICH MAY INCLUDE THE USE OF INNOVATIVE TEACHING METHODS.

ESTABLISHED IN 1993 AND FUNDED SINCE 2010 BY A GENEROUS GIFT TO AAPT FROM PAUL W. AND BARBARA S. ZITZEWITZ AND NAMED FOR PAUL W. ZITZEWITZ, THE PRINCIPAL AUTHOR OF THE HIGHLY ACCLAIMED AND WIDELY ADOPTED HIGH SCHOOL PHYSICS TEXT *PHYSICS: PRINCIPLES AND PROBLEMS* AND A LONG-TIME MEMBER AND SUPPORTER OF AAPT, THE PAUL W. ZITZEWITZ AWARD FOR EXCELLENCE IN PRE-COLLEGE PHYSICS TEACHING RECOGNIZES OUTSTANDING ACHIEVEMENT IN TEACHING PRE-COLLEGE PHYSICS.

# 2016 Awards and Grants (cont.)

## KLOPSTEG MEMORIAL LECTURE AWARD

THE KLOPSTEG MEMORIAL LECTURE AWARD IS NAMED FOR PAUL E. KLOPSTEG, A PRINCIPAL FOUNDER, A FORMER AAPT PRESIDENT, AND A LONG-TIME MEMBER OF AAPT, AND RECOGNIZES OUTSTANDING COMMUNICATION OF THE EXCITEMENT OF CONTEMPORARY PHYSICS TO THE GENERAL PUBLIC. THE RECIPIENT DELIVERS THE KLOPSTEG LECTURE AT AN AAPT SUMMER MEETING ON A TOPIC OF CURRENT SIGNIFICANCE AND AT A LEVEL SUITABLE FOR A NON-SPECIALIST AUDIENCE AND RECEIVES A MONETARY AWARD, AN AWARD CERTIFICATE, AND TRAVEL EXPENSES TO THE MEETING.

**Margaret Wertheim**, Institute for Figuring, Los Angeles, CA  
*Of Corals and the Cosmos: A Story of Hyperbolic Space*



**Margaret Wertheim** is an internationally noted science writer and exhibition curator whose work focuses on relations between science and the wider cultural landscape. She is the author of six books including *The Pearly Gates of Cyberspace*, a groundbreaking exploration of the history of Western concepts of space from Dante to the Internet, and *Pythagoras's Trousers*, a cultural history of physics that also explored the place of women in this field. As a journalist, Wertheim has written for the *New York Times*, *Los Angeles Times*, *The Guardian*, *Washington Post*, *Cabinet* magazine and many other publications.

Wertheim is the founder and director of the Institute For Figuring, a Los Angeles-based organization devoted to creative public engagement with science and mathematics ([www.theiff.org](http://www.theiff.org)). Through the IFF, she has designed exhibitions for galleries and museums around the world, including the Hayward Gallery in London, Science Gallery in Dublin, and the Smithsonian's National Museum of Natural History in Washington, D.C. At the core of the IFF's work is the concept of material play, and a belief that abstract ideas can often be embodied in physical practices.

Throughout her career, Wertheim has been a pioneer in communicating math and science to women. Her "Crochet Coral Reef" project – spearheaded with her twin sister Christine – is now the world's largest participatory science-and-art endeavor, and has been shown at the Andy Warhol Museum (Pittsburgh), Chicago Cultural Center, New York University Abu Dhabi (UAE), and elsewhere. More than 8000 women in a dozen countries have participated in the project, and its exhibitions have been seen by two million visitors.

Read the full press release at [http://www.aapt.org/aboutaapt/pressreleases/2016\\_Klopsteg.cfm](http://www.aapt.org/aboutaapt/pressreleases/2016_Klopsteg.cfm)

## ROBERT A. MILLIKAN MEDAL

**Stephen M. Pompea**, National Optical Astronomy Observatory, Tucson, AZ  
*Knowledge and Wonder: Reflections on Ill-Structured Problem Solving*

The Robert A. Millikan Medal for 2015 was presented to Stephen M. Pompea for his notable and creative contributions to the teaching of physics. He started his teaching career in 1977 at Air Academy School District in Colorado, where he taught physics, astronomy, and earth science courses. He also was responsible for teaching gifted and talented science classes in summer programs in Nebraska during the time he worked in the aerospace industry.

His professional work on astronomy instrumentation and optical properties of surfaces at Martin Marietta Aerospace, the University of Arizona, and at the Gemini 8-Meter Telescope Project greatly informed his teaching approach which emphasized problem solving and innovative teaching methods. He has consulted widely on the development of science education centers, museum exhibits, and instructional and teacher professional development materials, working with notable institutions such as the NASA Classroom of the Future and the University of California Berkeley's Space Sciences Lab and Lawrence Hall of Science.

His professional work on astronomy instrumentation and optical properties of surfaces at Martin Marietta Aerospace, the University of Arizona, and at the Gemini 8-Meter Telescope Project greatly informed his teaching approach which emphasized problem solving and innovative teaching methods. He has consulted widely on the development of science education centers, museum exhibits, and instructional and teacher professional development materials, working with notable institutions such as the NASA Classroom of the Future and the University of California Berkeley's Space Sciences Lab and Lawrence Hall of Science. He was later able to expand these research experiences for teachers and students to integrate teachers and students into research teams with the NASA Spitzer Space Telescope.

Read the full press release at <http://www.aapt.org/aboutaapt/pressreleases/2016-Millikan-Medal-Awarded-to-Stephen-M-Pompea.cfm>

THE ROBERT A. MILLIKAN MEDAL, ESTABLISHED IN 1962, RECOGNIZES TEACHERS WHO HAVE MADE NOTABLE AND CREATIVE CONTRIBUTIONS TO THE TEACHING OF PHYSICS.



# 2016 Awards and Grants (cont.)

HOMER L. DODGE CITATIONS  
RECOGNIZE AAPT MEMBERS  
FOR THEIR EXCEPTIONAL  
CONTRIBUTIONS TO THE  
ASSOCIATION AT THE NATIONAL,  
SECTIONAL, OR LOCAL LEVEL.

## HOMER L. DODGE CITATIONS FOR DISTINGUISHED SERVICE TO AAPT

Winter Meeting 2016



**Marina Milner-Bolotin**, assistant professor at the University of British Columbia, is recognized for her outstanding service as a section representative and as a member of the AAPT Board of Directors. She earned her BSc and MSc in Physics at V.N. Karazin Kharkiv National University, Ukraine. Her MA and PhD in Science Education were earned at The University of Texas at Austin. Her service to AAPT includes section representative of the Ontario and British Columbia Sections, Vice Chair and Chair of the Section Representatives, Publications Committee member, and Board of Directors member. She served on the organizing committee for several national meetings and has made numerous invited and contributed presentations at AAPT meetings.



**Michael Faleski**, a professor of Physics at Delta College, joined AAPT in 1998. He earned his BS in physics at the Rochester Institute of Technology. His MS and PhD in physics were from Syracuse University, where he also received a certificate for completing the Future Professoriate Program. He has been working with the PhysicsBowl for 15 years, originally serving on the committee and becoming the academic coordinator in 2008. One of the challenges he faces is crafting a test that challenges the very top students while not discouraging the majority of students. Each year, over 7,000 students take this 40-question, 45-minute timed, multiple-choice test, and Faleski is responsible for scoring the tests and publishing results in just a few weeks. In addition to all of these regular duties, he has worked hard to expand the PhysicsBowl in a variety of ways.



**Karl C. Mamola**, physics professor emeritus at Appalachian State University, is being recognized for his distinguished service to AAPT in a wide range of leadership roles at the section and national levels. He served as editor of *The Physics Teacher* from 2000-2013. Throughout his career, Mamola has touched a multitude of lives, as a physics teacher, a prolific author, a presenter at national and local meetings, as editor of the "Apparatus for Teaching Physics" column in *The Physics Teacher*, and as editor of *The Physics Teacher*, AAPT's signature publication. He consistently produced an extraordinary publication with content accessible to and usable by physics teachers at all levels. Regarding his selection to receive this honor Mamola said, "AAPT has played a major role in my professional life for more than 50 years. I am pleased and honored to receive the Association's Homer L. Dodge Distinguished Service Citation."



**Gay Stewart**, Eberly Professor of STEM Education and director of the West Virginia University Center for Excellence in STEM Education is recognized for her outstanding service as a member of the AAPT Board of Directors, serving in the presidential chain from 2011–2015. Stewart has served as AAPT liaison to the APS Forum on Education (FEd) Executive Committee, and as chair of the FEd Executive Committee. She was a member of the PhysTEC Leadership Council, PKAL Faculty for the 21st Century, the NRC-BOSE k-12 Science Education Frameworks focus group, the APS Committee on Education, and chair of the AP Physics Redesign Commission and Curriculum Development and Assessment Committee. She is a friend of the AAPT Teacher Preparation Committee, chair of the College Board AP Physics Test Development Committee, and a member of the APS Board of Directors and Council of Representatives.



**David Weaver**, a member of AAPT since 1992, recently retired from teaching at Chandler-Gilbert Community College (C-GCC) in Chandler, AZ, where he served as a division chair, occupational program designer and director, occupational dean, faculty senate president, member and chair of the C-GCC Instructional Technology committee, chair and co-chair of district-wide instructional technology initiatives, curriculum design facilitator, staff development coordinator, and district-wide chair of the physics instructional council. He received Emeritus distinction from C-GCC and is currently teaching at Estrella Mountain Community College as a sabbatical replacement. His contributions to AAPT include service at both the national and the local level. Nationally, he has served on the Committee on Physics in Two-Year Colleges as a member and also as chair, member of the Programs Committee, Secretary of the Section Representatives and as Co-Chair of the AAPT Ad Hoc Committee on Alternative Access. Locally, David served as president, vice president, two-year college representative, and section representative of the Arizona section of the American Association of Physics Teachers. He is known as a leader in the two-year college community. Tom O'Kuma noted that David "has been involved in every major two-year college initiative of AAPT." He was active in the TYC21 (Two-Year College for the Twenty-First Century) and the SPIN-UP/TYC project.



# 2016 Awards and Grants (cont.)

## HOMER L. DODGE CITATIONS FOR DISTINGUISHED SERVICE TO AAPT

Summer Meeting 2016

**Kathleen Falconer**, Buffalo State College, Buffalo, NY, is recognized for her work at the national level. She has been active in several Area Committees. She has been a member and Chair of the Committee on Minorities in Physics, a member, Vice-Chair, and Chair of the Committee on Physics in Pre-High School Education and the Committee on Physics in Undergraduate Education, a member of the Committee on Women in Physics, and a member of the Programs Committee. She has also been a friend of the Committee on Laboratories as well as the Committee on Physics in Two-Year Colleges and has been active in the SEES Program which provides low-socioeconomic students with the opportunity to engage in hands-on science activities. (More at: [http://www.aapt.org/aboutaapt/pressreleases/Dodge\\_2016\\_Falconer.cfm](http://www.aapt.org/aboutaapt/pressreleases/Dodge_2016_Falconer.cfm).)



**Steve Kanim**, New Mexico State University, Las Cruces, NM, emeritus, received his bachelor's degree in electrical engineering from UCLA in 1981. After spending a few years designing microwave amplifiers, he decided to try teaching instead. He obtained his teaching certification from San Jose State University and taught high school physics in Palo Alto, CA, and in Las Cruces, NM. While teaching, he became more and more curious about the physics ideas expressed by his students, and decided to pursue a career doing physics education research. He received his PhD in physics from the University of Washington in 1999, and returned to Las Cruces to teach in the physics department at New Mexico State University. Kanim's primary research focus has been on how students use conceptual understanding to help solve physics problems and how they use mathematics in physics. (More at: [http://www.aapt.org/aboutaapt/pressreleases/Dodge\\_2016\\_Kanim.cfm](http://www.aapt.org/aboutaapt/pressreleases/Dodge_2016_Kanim.cfm))



**Kevin Lee** is Research Associate Professor at the University of Nebraska-Lincoln Center for Science, Mathematics, and Computer Education and the Department of Physics and Astronomy, Lincoln, NE. He earned his BS in Astronomy at the University of Michigan. As a longtime AAPT member and 2-year chair of the AAPT Committee on Space Science and Astronomy (CSSA), he elevated the role of research and teaching of astronomy for the sessions/talks sponsored by CSSA. Lee's work in astronomy education has been remarkable and innovative. His accomplishments include the development of numerous simulations and peer instruction questions, resulting in many workshops. His two seminal works, to date, are The Nebraska Astronomy Applet Project and ClassAction, the clicker question database which is designed to help make large lecture-format astronomy courses more interactive. He freely shares these materials on his web site <http://astro.unl.edu>. (More at: [http://www.aapt.org/aboutaapt/pressreleases/Dodge\\_2016\\_Lee.cfm](http://www.aapt.org/aboutaapt/pressreleases/Dodge_2016_Lee.cfm))



**Dan MacIsaac**, Buffalo State College, Buffalo, NY, is recognized for his work at the section and national level. He was active in the Arizona Section of AAPT from 1998-2000 as a Section Representative. He has also served as the Indiana Section Representative. He served as a member of several AAPT Area Committees including: the Committee on International Physics Education, the Committee on Research in Physics Education, the Committee on Laboratories, the Committee on Professional Concerns, and the Committee on Teacher Preparation. He has also been a member of the AAPT Programs Committee and active as a Column Editor for *The Physics Teacher* from 2004-present. Outside of AAPT, MacIsaac has been a member the AIP Committee on Publishing Policy and the AIP Subcommittee on Serials. (More at: [http://www.aapt.org/aboutaapt/pressreleases/Dodge\\_2016\\_MacIsaac.cfm](http://www.aapt.org/aboutaapt/pressreleases/Dodge_2016_MacIsaac.cfm))



**Mel Sabella**, Chicago State University, Chicago, IL, earned his BS in Physics at Binghamton University (SUNY) and his PhD in Physics at the University of Maryland in College Park, MD. He worked as a Postdoctoral Research Associate at the University of Washington in the Physics Education Group before his current appointment at Chicago State University—a majority African American institution on Chicago's south side. Sabella has been a reviewer for numerous publications including: *Science Education*, *Physics Education Research Supplement*, *Physics Education Research Conference proceedings*, *Physical Review: Special Topics*, *Sessions of 2004 American Education Research Association Conference*, *The Physics Teacher*, and *The American Journal of Physics*. He has been an active member of the Chicago Section of AAPT, a member of the Physics Education Research Leadership Organizing Council, a member of AAPT's Research in Physics Education Committee and Committee on Diversity. (More at: [http://www.aapt.org/aboutaapt/pressreleases/Dodge\\_2016\\_Sabella.cfm](http://www.aapt.org/aboutaapt/pressreleases/Dodge_2016_Sabella.cfm))



# AAPT 2016 Fellows Award

The 2016 recipients of the AAPT Fellows Award, selected from AAPT's Four-Year College/University community were:

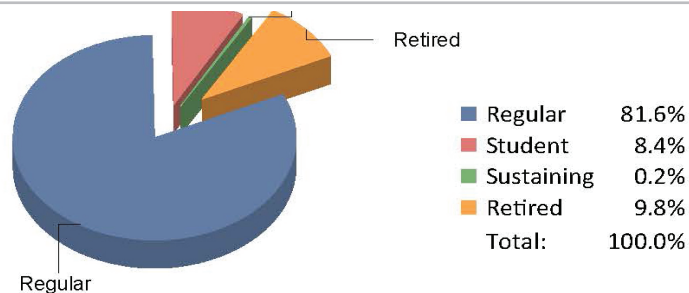
- John Belcher, Massachusetts Institute of Technology, Cambridge, MA
- Ruth Chabay, North Carolina State University, retired to Santa Fe, NM
- Tom Erikson, Lone Peak High School, Highland, UT
- Andrew D. Gavrin, Indiana University-Purdue University, Indianapolis, IN
- Karl Mamola, Appalachian State University, retired to Portland, OR
- Jill Marshall, University of Texas-Austin, Austin, TX
- Marina Milner-Bolotin, The University of British Columbia, Vancouver, BC
- Stephen Pompea, National Optical Astronomy Observatory, Tucson, AZ
- Bruce Sherwood, North Carolina State University, retired to Santa Fe, NM
- Francis Tam, Frostburg State University, Frostburg, MD
- Denise Wetli, Wake Tech Community College, Raleigh, NC

## Membership

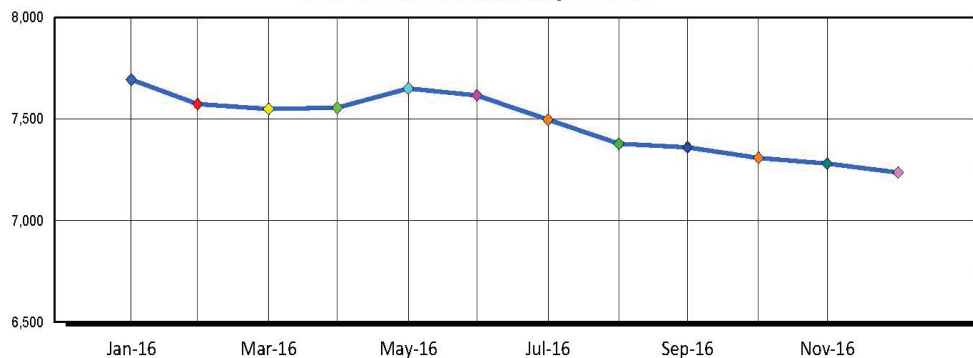
*Spanning academia, research, and industry; comprised of educators, Nobel Prize winners, and students alike; our members bring a wealth of experience, diversity, and individual recognition. Most importantly, all share the same dedication to physics and the physics education community.*  
*(December 31, 2016)*

### MEMBERSHIP BY MEMBER TYPE

Regular	<b>5,902</b>
Student	<b>606</b>
Sustaining	<b>16</b>
Retired	<b>712</b>
<b>Current</b>	<b>7,236</b>



### MEMBERSHIP TRENDS YEAR TO DATE



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David Charles Straw	Earl Zwicker
Charles L. Strecker	Anonymous (11)
Harry Stuckey	
Evan R. Sugarbaker	
Kazunari Suzuki	
James L. Taaffe	
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# Committee Contributions

## Committees are essential to AAPT.

*In addition to committees that advise and oversee operations, such as publications, awards, and budget, there are those that focus on advancing physics education. There are currently 18 Area Committees, each with nine members who hold staggered three-year terms: One new member is appointed each year by the Nominating Committee and two are appointed by the incoming President. Their responsibilities range from developing academic content for the meetings to acting as stewards for their particular area of interest.*

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Philip Hammer

### AAAS SECTION FOR EDUCATION Q

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Noah Finkelstein

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Beth A. Cunningham

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# AAPT Physics Education Funds

Contributions support the future of physics education and are an investment in the enhancement of physics teaching, from high school to far beyond the graduate level.

## Membership Development Funds

- E. Leonard Jossem International Education Fund—Provides grants to individuals in support of international programs dealing with teaching and learning of physics.
- New Teacher Fund—Support outreach and provide reduced membership fees for first and second year physics teachers.
- Student Fund—Support reduced membership fees for physics students and outstanding teaching assistants.

## Program Funds

- AAPT Annual Fund—Support ongoing outreach and development programs
- Betty Preece SEES Memorial Fund—The SEES program provides 100 minority, low-socioeconomic students with the opportunity to engage in three hours of hands-on science activities. AAPT provides lunch, career and science materials
- ComPADRE Continuation Fund—Sustain and continue the operation of the ComPADRE website
- Memorial Fund—zDiscretionary fund resulting from donations given in memory of members who are deceased. Funds are used to honor deceased members and help preserve and share their interest(s) in physics education with the greater physics community.
- Physics Olympiad Fund—Promote academic excellence by helping U.S. students prepare for and participate in the International Physics Olympiad, providing a meaningful scientific and cultural experience for team members.
- PTRA Continuation Fund—Continue the work of the PTRA program.
- Undergraduate Curriculum Task Force Fund—Provides data on the current status of undergraduate physics and guidelines for enhancing undergraduate physics programs.

## Excellence in Physics Education Award Funds

- AAPT-ALPhA Award—The AAPT-ALPhA Award will be given to a student (or group of students) majoring in physics, who has built, and possibly developed, an advanced laboratory experiment that becomes part of their school's advanced laboratory program
- John David Jackson Excellence in Graduate Education Award recognizes physicists and physics educators who, like Jackson, have made outstanding contributions to curriculum development, mentorship, or classroom teaching in graduate physics education
- Melba Newell Phillips Award Endowment—Restricted fund to endow the award that is presented to an AAPT leader whose creative leadership and dedicated service have resulted in exceptional contributions within AAPT.
- Oersted, Phillips, Millikan, Klopsteg, and Richtmyer Endowments fund the awards for AAPT's recognition of contributions to physics education.



# AAPT Section Representatives

**Fifty-one local sections increase the impact of AAPT programs and resources.**

*AAPT Sections spread from Alaska and Canada to Mexico. Some sections follow geopolitical boundaries, serving a province, a state or a territory. Others may serve part of a state or areas as large as six combined states. AAPT members' activity in their local sections strengthens physics education. Sections provide an outstanding opportunity to interact and network with other local physics educators. Acting together we are much stronger and have a bigger impact on physics education. Section Representatives are AAPT members who are officers in the local section.*

<b>ALABAMA SECTION</b> Mark E. Rupright	<b>HAWAII SECTION</b> Lisa Agle	<b>MONTANA SECTION</b> Rich McFate	<b>SOUTHEASTERN PENNSYLVANIA SECTION</b> Jeremy P. Carlo
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# Financials

## THE AMERICAN ASSOCIATION OF PHYSICS TEACHERS, INC.

### Balance Sheet—Year Ended December 31, 2016 (With comparative totals for 2015)

	DECEMBER 2016	DECEMBER 2015
<b>ASSETS</b>		
Cash and Cash Equivalents	\$1,791,437	\$2,150,692
Investments	5,785,476	5,367,177
Receivables, Net	884,085	745,101
Inventory	9,713	107,547
Prepaid Expenses	57,437	73,370
Property and Equipment, Net	80,539	58,782
Investment in ACP	1,018,479	523,196
<b>TOTAL ASSETS</b>	<b>\$9,627,166</b>	<b>\$9,025,865</b>
	DECEMBER 2016	DECEMBER 2015
<b>LIABILITIES &amp; NET ASSETS</b>		
<b>LIABILITIES</b>		
Accounts Payable and Accrued Liabilities	\$318,769	\$485,119
Accrued Payroll and Related Liabilities	134,492	128,825
Unearned Revenue	2,133,870	2,595,922
Capital Lease Obligation	7,244	10,490
Accrued Postretirement Benefit Obligation	347,725	346,809
<b>TOTAL LIABILITIES</b>	<b>2,942,100</b>	<b>3,567,165</b>
<b>NET ASSETS</b>		
Unrestricted		
Undesignated	4,400,831	3,290,126
Board designated	1,210,400	1,143,965
	<b>5,611,231</b>	<b>4,434,091</b>
Temporarily Restricted	585,600	536,374
Permanently Restricted	488,235	488,235
<b>Total Net Assets</b>	<b>6,685,066</b>	<b>5,458,700</b>
<b>TOTAL LIABILITIES &amp; NET ASSETS</b>	<b>\$9,627,166</b>	<b>\$9,025,865</b>

### Statement of Activities—Year Ended December 31, 2016 (With Comparative Totals for 2015)

	UNRESTRICTED			2016 TOTAL	2015 TOTAL
	UNDESIGNATED	BOARD DESIGNATED	TEMP RESTRICTED		
<b>REVENUE &amp; SUPPORT</b>					
American Journal of Physics	\$1,656,290	-	-	\$1,656,290	\$1,700,407
The Physics Teacher	946,405	-	-	946,405	962,544
Membership	832,240	28,227	-	860,467	898,910
Meetings, workshops and projects	763,986	161,996	-	925,982	981,359
Grants	763,271	-	-	763,271	755,256
Investment Income (Loss)	281,302	90,225	76,677	448,204	(63,611)
Other Publications	157,244	740	-	157,984	149,406
International Physics Olympiad	130,107	-	-	130,107	136,971
Earnings of investment in ACP	495,283	-	-	495,283	89,779
Contributions	32,960	22,062	613	55,635	105,338
Miscellaneous Income	9,554	16	-	9,570	12,732
Net assets released from restrictions	28,064	-	(28,064)	-	-
<b>TOTAL REVENUE AND SUPPORT</b>	<b>6,096,706</b>	<b>303,266</b>	<b>49,226</b>	<b>6,449,198</b>	<b>5,729,091</b>
<b>EXPENSES</b>					
Program Services:					
American Journal of Physics	398,496	-	-	398,496	\$464,386
The Physics Teacher	470,169	-	-	470,169	462,279
Memberships	532,718	64,549	-	597,267	576,728
Meetings, workshops and projects	765,072	56,355	-	821,427	918,905
Grants	660,529	-	-	660,529	624,056
Other Publications	280,980	96,704	-	377,684	390,531
Support services:					
General and administrative	1,877,407	19,223	-	1,896,630	1,825,523
Fundraising	630	-	-	630	4,780
<b>TOTAL EXPENSES</b>	<b>4,986,001</b>	<b>236,831</b>	<b>-</b>	<b>5,222,832</b>	<b>5,267,188</b>
<b>CHANGE IN NET ASSETS</b>	<b>1,110,705</b>	<b>66,435</b>	<b>49,226</b>	<b>1,226,366</b>	<b>461,903</b>
Net Assets:					
Beginning	3,290,126	1,143,965	536,374	4,970,465	4,996,797
<b>ENDING</b>	<b>\$4,400,831</b>	<b>\$1,210,400</b>	<b>\$585,600</b>	<b>\$6,685,066</b>	<b>\$5,458,700</b>

# 2016 In Memoriam

## AAPT Member and Physics Community Obituaries

*Remember someone special by giving a gift in their memory...*

*Donate to the Memorial Fund at [aapt.org/Membership/memoriam.cfm](http://aapt.org/Membership/memoriam.cfm).*

### Thomas Glenn Stinchcomb

APRIL 10, 2016

Dr. Thomas Glenn Stinchcomb passed away on Sunday April 10, 2016 after a brief illness. He was born September 12, 1922 in Tiffin, Ohio. After graduating from Heidelberg College in Tiffin, he was commissioned in the US Naval Reserve at Annapolis, received the Admiral's Award for class academic achievement and served as radar officer on the USS Mississippi during WWII. In 1945, he began graduate studies in physics at the University of Chicago (UC), specializing in high altitude radiation physics. His early career of research and teaching included Washington State University, Heidelberg College, and the Illinois Institute of Technology Research Institute. In 1968 Stinchcomb joined the physics faculty at DePaul University as chairman, and in 1976, his research took a new direction during a year as a visiting professor at UC, where he began focusing on radiation therapy in medicine. In the following years he continued as UC visiting research associate while teaching medical physics at DePaul and serving as primary thesis advisor for many students before retiring as professor emeritus in 1991.

### John David Jackson

MAY 20, 2016

John David Jackson, whose landmark textbook, *Classical Electrodynamics*, has been a central part of graduate education for more than half a century, died on May 20, 2016, in Lansing, Michigan, at the age of 91. He was a meticulous scholar, a wise counselor, a tireless advocate for human rights and academic freedom, and a pillar of the international particle physics community. His theoretical research was characterized by uncommon insight and a deep engagement with experiment.

Born January 19, 1925 in London, Ontario, Jackson earned his B.Sc. (1946) in Honors Physics and Mathematics at the University of Western Ontario and completed his Ph.D. under the supervision of Victor F. Weisskopf at MIT in 1949. He was a legendary teacher at McGill University (1950–1957), the University of Illinois (1957–1967), and the University of California, where he became Professor Emeritus in 1993.

Beyond the three editions of *Classical Electrodynamics* (1962, 1975, 1998), he published two small volumes, *The Physics of Elementary Particles* (1958) and *Mathematics for Quantum Mechanics* (1962, 2006). Several of his summer-school lecture courses are enduring classics in the particle-physics literature. His numerous contributions to the *American Journal of Physics* may be found online.

The American Association of Physics Teachers established the John David Jackson Award for Excellence in Graduate Physics Education for outstanding contributions to curriculum development, mentorship or classroom teaching. "A short philosophy of teaching," he said, "might be love your subject and convey that love."

A strong believer in the value of scholarly reviews, he served with distinction as Associate Editor of *Reviews of Modern Physics* (1968–1972) and Editor of the *Annual Review of Nuclear and Particle Science* (1977–1993).

Jackson became a naturalized U.S. citizen in 1988. Among many honors, he was a Member of the National Academy of Sciences, a Fellow of the American Physical Society, and a Member of the American Academy

of Arts and Sciences. At Berkeley, he received the Distinguished Teaching Award and the Berkeley Citation. He particularly cherished a certificate presented by the women graduate students conferring the title Honorary Woman, in recognition of his outstanding achievements as chair of the Berkeley Physics Department, 1978–1981.

"Snapshots of a Physicist's Life," a reminiscence of the first half of Jackson's life as a physicist, appeared as a prefatory chapter in *Annual Review of Nuclear and Particle Science* 49, 1–33 (1999) (<http://www.annualreviews.org/doi/pdf/10.1146/annurev.nucl.49.1.1>).

### Stephen Luzader.

JUNE 12, 2016

Dr. Stephen Luzader, Emeritus Professor of Physics and Engineering at Frostburg State University (FSU), Frostburg, MD, passed away June 12, 2016 at Frostburg. The AAPT family has lost a faithful servant and great ambassador of physics and physics education. His love of physics exuded all around him, unpretentious, unmistakable, and inspiring.

Steve earned his B.S. (1966) from West Virginia University, M.S. (1972), and Ph.D. (1979) from the University of Wisconsin, Madison. He taught at University of Wisconsin, Parkside (1979–1988), and SUNY, Brockport (1988–1990) before he joined FSU. He had been an Emeritus Professor at FSU since 2007.

An actively contributing member of AAPT since 1973, Steve served on the Committee of Undergraduate Education for many years, as well as on the Committee on Women in Physics. Besides being noted for the workshop "Science of Music," he is fondly remembered for his spectacular and often unique demonstrations in Summer AAPT Demonstration Shows. In recent years, he collaborated with others in teaching "Physics of Toys" workshops at the summer meetings.

At the section level, Steve had been a leader and mentor in the Appalachian Section of the AAPT. He served many years on the Nomination Committee. The Appalachian Section awarded him the Distinguished Service Citation.

Steve was a tireless champion of physics, science education and STEM for western Maryland. At FSU, he was instrumental in first revising physics and science labs and courses into a computer-based, modelling, and inquiry-based format. Steve and his wife, Dr. Hang Deng-Luzader, also an FSU physics professor, organized and taught the outreach program, "Maryland Summer Center for the Physics of Solar and Wind Power" for gifted and talented 7th through 9th graders. He was an invaluable collaborator on the Maryland Higher Education Commission "Improving Teaching Quality Through Training Opportunities in Physics and Physical Science" workshops for Maryland middle and high school teachers (2010–2014).

Steve regularly contributed papers to AAPT national and section meetings. They were always innovative and interesting. He lived his life to the fullest. In his leisure time, Steve played French horn for concert bands. He taught astrophotography to astronomy enthusiasts, young and old.

A memorial celebration of his life will be held August 21, 2016, at 2:00 p.m. on the Frostburg State University campus.

# 2016 In Memoriam Continued

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## Gordon J. Aubrecht II

NOVEMBER 21, 2016

Dr. Gordon J. Aubrecht, II. Aubrecht earned his A.B. at Rutgers University in 1965 and his Ph.D. from Princeton University in 1971 and joined AAPT in 1972. He spent two years in research at Ohio State and three years at the Institute of Theoretical Science in the Department of Physics at the University of Oregon. In 1975 he returned to Ohio State, eventually moving to the regional campus in Marion, and then becoming a full professor in 1987. During 1979-80 he was an Alexander von Humboldt Fellow at the Institut für Theoretische Physik at Universität Karlsruhe.

He served AAPT in many ways and positions. His resume includes service on the Editorial Board of *The Physics Teacher* (1984-87). AAPT committee service included: Committee on Professional Concerns, 1984-88 (Chair, 1986-88); Committee on SI Units and Metric Education (1990-2016); Chair, Epstein Prize Subcommittee (Committee on Undergraduate Education, 1991-93). He played a leading role in the Conference on the Teaching of Modern Physics at Fermilab (1986) and its follow-up conference in 1987. He was Secretary of the Working Group on Teaching Modern Physics for the Inter-American Conference on Physics Education in July 1987 and Chair of the Topical Network Group for follow-up on Teaching Modern Physics for that Inter-American Conference (1987-89). He also served on the IEEE Metric Practice Committee (2001-2007); the Committee on International Physics Education (2002-2005); the Inter-American Council Representatives (2002-2005); and the Committee on Teacher Preparation (2015-2016).

Aubrecht was an active Physics Teacher Resource Agent (PTRA), serving at several levels: He assisted in running the PTRA program at Columbus, OH (1986) and in College Park, MD (1986). He was an organizer of the PTRA meeting in San Francisco (1987), and Coordinator for the PTRA program in 1986-87.

In 1986, under the direction of the AAPT Executive Officer, Jack Wilson, the American Association of Physics Teachers (AAPT) organized the United States Physics Team for the first time. Aubrecht was a trainer for the first U.S. Physics team for the International Physics Olympics Olympiad.

Aubrecht received the AAPT Distinguished Service Citation in 1996 and Ohio State's Faculty Award for Distinguished University Service in 2008. In 2014, as part of the Inaugural Cohort, he received the AAPT Fellow Award.

Aubrecht was a co-founder and incredibly active member of the Southern Ohio Section of AAPT. His service included President for Colleges and Universities (1983-83), President (1984-85), Past President (1985-86), Vice President -TYC (2000-2002), Board Member At Large (2005-2006, 2009-2016) and Treasurer (2006-2009). He was the driving force behind the awarding of special physics prizes (co-sponsored by SOS-AAPT and the Ohio Section of APS) at Ohio's State Science Day, a practice that began in 1984; for the majority of that time, Aubrecht shouldered the significant responsibility of recruiting and coordinating judges.

Aubrecht was also active in the American Physical Society, the Association for University Regional Campuses of Ohio, and the American Association of University Professors. In fact, at the time of his passing, he was the president of The Ohio State University Chapter of the AAUP. He also served as one of the leaders of the Contemporary Physics Education Project, the group that,

among other things, developed the particle and nuclear physics charts seen in so many physics departments and classrooms. For many years, Aubrecht was involved in helping high school and middle school science teachers incorporate inquiry-based techniques into their courses. He was working on a book on the subject at the time of his death.

AAPT gratefully recognizes Gordon Aubrecht's life of service to the physics education community.

## Shannon O'Leary and Adam Clausen

DECEMBER 26, 2016

Shannon O'Leary, 39, and Adam Clausen, 37, both physics educators and AAPT members, died in an automobile accident on December 26, 2016. AAPT joins the Oregon section and the Lewis & Clark College physics community in honoring their work on behalf of physics education for the benefit of their many students, colleagues, and friends.

O'Leary was an assistant professor of physics at Lewis & Clark College. She earned her BS from the University of Puget Sound, and her MS and Ph.D. from the University of Oregon before joining the Lewis & Clark Physics Department in the fall of 2011. She joined AAPT in 2015 and regularly shared her work with participants in the AAPT/ALPHA Conferences on Advanced Labs.

She was working to build up an experimental quantum optics laboratory at Lewis & Clark College. With support from the Research Corporation for Scientific Advancement and a major grant from the National Science Foundation, she was working with Lewis & Clark undergraduate students to study quantum mechanical interactions of laser light with atomic vapor, with an eye towards building a sensitive magnetometer based on these fundamental processes.

Clausen attended graduate school at the University of Oregon, where he studied general relativity, in particular model cosmological solutions to Einstein's equations. By examining the behavior of these model universes, scientists gain insight into the behavior of our own universe, where it came from, and where it may be going. He was a visiting professor at Lewis & Clark College for several years, teaching classes at all levels of undergraduate physics, including advanced theoretical courses for physics majors, introductory physics for physics and life-sciences majors, and special topics for a general audience. Clausen taught at four colleges: University of Puget Sound, Lawrence University, University of Portland, and Lewis & Clark College before becoming a technology consultant at Kolisch Hartwell, a law firm specializing in intellectual property, patent and technology law with offices in Portland, Oregon and Palo Alto, California.

