

workshop for  
experienced physics  
and astronomy faculty

JULY 24-26, 2014

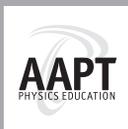
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MINNEAPOLIS, MINNESOTA

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COMMONS HOTEL

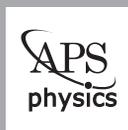
THE WORKSHOP FOR  
EXPERIENCED PHYSICS AND  
ASTRONOMY FACULTY  
IS SPONSORED BY



AMERICAN ASSOCIATION  
OF PHYSICS TEACHERS



AMERICAN ASTRONOMICAL SOCIETY



AMERICAN PHYSICAL SOCIETY



AMERICAN INSTITUTE OF PHYSICS



NATIONAL SCIENCE FOUNDATION



# EXPERIENCED FACULTY ADVISORY COMMITTEE

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**Beth Cunningham**

American Association of  
Physics Teachers

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**Paul Gueye**

Hampton University

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**Jack Hehn**

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**Warren Hein**

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**Charles Henderson**

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University of North Carolina,  
Chapel Hill

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**Edward Prather**

American Astronomical Society

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**Timothy Slater**

University of Wyoming

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**Steven Turley**

Brigham Young University

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# WORKSHOP LEADERS

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**James Stith**

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# WORKSHOP PARTICIPANTS

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BREAKOUT III

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Southern Illinois University-Edwardsville

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Jack Glassman  
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Moises Orengo-Aviles  
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Morehouse College

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Colgate University

BREAKOUT II

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BREAKOUT III

Chad L. Rodekohr  
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BREAKOUT I

Carl Rosenzweig  
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BREAKOUT II

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BREAKOUT II

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BREAKOUT III

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BREAKOUT I

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BREAKOUT II

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California State University -  
San Bernardino

BREAKOUT III

**Yumin Zhang**  
Southeast Missouri State University

BREAKOUT I

**Stefan Zollner**  
New Mexico State University

BREAKOUT II

## THURSDAY, JULY 24

11:00 A.M.–6:00 P.M.	WORKSHOP REGISTRATION Commons Hotel	PINNACLE FOYER
5:00–5:15 P.M.	OPENING REMARKS <b>Welcome and Introductions</b> Robert Hilborn, Associate Executive Officer, AAPT, Chair, Experienced Physics and Astronomy Faculty Workshop Beth Cunningham, Executive Officer, AAPT	PINNACLE BALLROOM
5:15–6:15 P.M.	PLENARY SESSION <b>Interactive Engagement in Large Introductory Courses</b> Ed Prather, University of Arizona	PINNACLE BALLROOM
6:30–7:30 P.M.	DINNER	PINNACLE BALLROOM
7:30–8:30 P.M.	PLENARY SESSION <b>How 10 Years of Physics Education Research Refuted 40 Years of My Assumptions</b> David Pritchard, Massachusetts Institute of Technology	PINNACLE BALLROOM

## FRIDAY, JULY 25

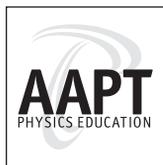
7:00–8:00 A.M.	BREAKFAST	PINNACLE BALLROOM
8:00–9:00 A.M.	PLENARY SESSION <b>Just-in-Time Teaching</b> Andrew Gavrin, Indiana University-Purdue University-Indianapolis	PINNACLE BALLROOM
9:00–10:00 A.M.	SMALL GROUP DISCUSSIONS – VARIOUS TOPICS BASED ON PRE-SURVEY BREAKOUT I BREAKOUT II BREAKOUT III	INVENTOR 1 INVENTOR 2 INVENTOR 3
10:00–10:30 A.M.	BREAK	
10:30–11:30 A.M.	PLENARY SESSION <b>Time Management</b> Tim Slater, University of Wyoming	PINNACLE BALLROOM
11:30–12:30 P.M.	SMALL GROUP SESSIONS II Best ideas about teaching and learning from the experienced faculty members	
12:30–1:30 P.M.	GROUP PHOTO AND LUNCH	PINNACLE BALLROOM
1:30–2:30 P.M.	PLENARY SESSION <b>Using PhET Simulations to Enhance Student Learning</b> Mike Dubson, University of Colorado-Boulder	PINNACLE BALLROOM
2:30–3:30 P.M.	PANEL DISCUSSION <b>Mentoring New Faculty about Teaching and Learning</b>	PINNACLE BALLROOM
3:30–4:00 P.M.	BREAK	

## FRIDAY, JULY 25 (CONT.)

4:00–5:00 P.M.	PLENARY SESSION <b>Periscope</b> Rachel Scherr, Seattle Pacific University	PINNACLE BALLROOM
5:00–6:00 P.M.	PLENARY SESSION <b>Interactive Engagement in Upper-Level Courses</b> Corinne Manogue, Oregon State University	PINNACLE BALLROOM
6:00–6:30 P.M.	PLENARY SESSION <b>Resources for interactive Engagement Teaching Methods - Where to Find More Information</b> Bob Hilborn, Facilitator	PINNACLE BALLROOM
6:30–7:30 P.M.	DINNER	PINNACLE BALLROOM
7:30–8:30 P.M.	PLENARY SESSION <b>Thinking Broadly About Educational Technology</b> Ed Price, California State University-San Marcos	PINNACLE BALLROOM

## SATURDAY, JULY 26

7:00–8:00 A.M.	BREAKFAST	PINNACLE BALLROOM
8:00–9:15 A.M.	PLENARY SESSION <b>Teaching for Retention and Diversity</b> Jim Stith, American Institute of Physics (retired)	PINNACLE BALLROOM
9:15–10:00 A.M.	SMALL GROUP DISCUSSIONS III Leadership in Undergraduate and Graduate Physics Programs - How to Shape Your Department's Teaching Program	
10:00–10:15 A.M.	BREAK	
10:15–10:45 A.M.	PLENARY SESSION <b>Reports from Breakout Sessions and Discussion</b>	
10:45–11:15 A.M.	PLENARY SESSION <b>Wrap-up and Farewell</b>	PINNACLE BALLROOM



BETH CUNNINGHAM  
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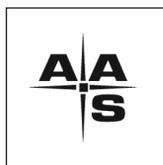
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## AMERICAN ASSOCIATION OF PHYSICS TEACHERS

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

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

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



KEVIN MARVEL  
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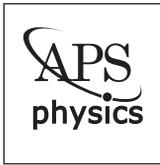
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## AMERICAN ASTRONOMICAL SOCIETY

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



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## AMERICAN PHYSICAL SOCIETY

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

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



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## AMERICAN INSTITUTE OF PHYSICS

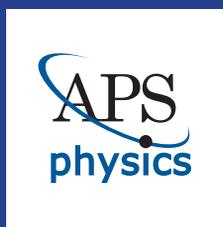
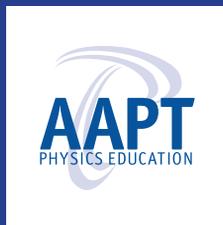
AIP's mission is to advance, promote and serve the physical sciences for the benefit of humanity.

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

AIP Member Societies cover a broad range of fields in the physical sciences and collectively represent more than 120,000 scientists, engineers, educators and students in the global physical sciences community.



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