workshop for experienced physics and astronomy faculty

April 5-7, 2013

Holiday Inn
College Park, MD

New Faculty Advisory Committee

Beth Cunningham, American Association of Physics Teachers
Paul Gueye, Hampton University
Jack Hehn, American Institute of Physics (retired)
Warren Hein, American Association of Physics Teachers (retired)
Charles Henderson, Western Michigan University
Robert Hilborn, American Association of Physics Teachers
Theodore Hodapp, American Physical Society
Kenneth Krane, Oregon State University
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Tim McKay, University of Michigan
Laurie McNeil, University of North Carolina, Chapel Hill
Timothy Slater, American Astronomical Society
Steven Turley, Brigham Young University

Sponsored by

American Association of Physics Teachers

American Astronomical Society

American Physical Society

National Science Foundation

RESEARCH CORPORATION for SCIENCE ADVANCEMENT
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Workshop Leaders

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James Madison University

Bruce Barnett
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Joel Berlinghieri
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Univ. of Colorado at Col Springs

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Michael Cobb
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Tom Colbert
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(Augusta State University)

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The University of Akron

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Nebraska Wesleyan University

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Dan Gibson
Denison University

Karen Gipson
Grand Valley State University

Puru Gujrati
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Karen Magee-Sauer
Rowan University

Kingshuk Majumdar
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Dickinson College

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Chung-Sang Ng
University of Alaska Fairbanks

Doug Petkie
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Bahram Roughani
Kettering University

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Seth Smith
Francis Marion University

Paul Sokol
Indiana University

Kathryn Svinarich
Kettering University

Laura Van Wormer
Hiram College

Kenneth Voss
University of Miami

James (Jamie) White
Juniata College

John Zwart
Dordt College

Workshop Schedule

Friday, April 5

3:00–4:30 p.m. **Education Funding Opportunities** – Holiday Inn-College Park Ballroom B
NSF Program Officers
Duncan McBride, Division of Undergraduate Education
dmcbride@nsf.gov
Kathleen McCloud, Division of Physics
kmcloud@nsf.gov
Gary White, Division of Undergraduate Education
gwhite@nsf.gov

4:45–6:15 p.m. ***Introduction to Peer Instruction*** – Ballroom B
Eric Mazur, Harvard University

6:15–6:30 p.m. **Welcoming Remarks and Overview** – Ballroom B
Bob Hilborn, Workshop Chair
Beth Cunningham, Executive Officer, American Association of Physics Teachers
H. Frederick Dylla, Executive Director and CEO, American Institute of Physics
Kate Kirby, Executive Officer, American Physical Society
Kevin Marvel, Executive Officer, American Astronomical Society
Duncan McBride, Division of Undergraduate Education, National Science Foundation

6:30–7:30 p.m. **Dinner** – Holiday Inn – Ballroom A

7:30–8:30 p.m. **Keynote: *Scientific Teaching*** – Ballroom A
Carl Wieman, University of Colorado-Boulder

Saturday, April 6

7:00–8:00 a.m. **Breakfast** – Holiday Inn – Moose Creek Steak House

8:00–9:00 a.m. ***Interactive Engagement in Large Introductory Courses*** Ballroom B
Ed Prather, University of Arizona

9:00–10:00 a.m. **Breakout I,** ***Topics TBD*** – Ballroom B, C, D

10:00–10:30 a.m. **Break** – Ballroom Foyer

10:30–11:30 a.m. ***Assessment and Evaluation*** – Ballroom B
Noah Finkelstein, University of Colorado

11:30–12:30 a.m. **Breakout II,** ***Best Ideas About Teaching and Learning From the Experienced Faculty Members*** – Ballroom B, C, D

12:30–1:30 p.m. **Group Photo and Lunch** – Ballroom A

1:30–2:30 p.m. ***Using PhET Simulations to Enhance Student Learning*** Ballroom B
Katherine Perkins, University of Colorado-Boulder

2:30–3:30 p.m. ***Panel Discussion – Mentoring New Faculty About Teaching and Learning*** – Ballroom B
Bob Hilborn, American Association of Physics Teachers

3:30–4:00 p.m. **Break** – Ballroom Foyer

4:00–5:00 p.m. ***Online Homework and Course Systems*** – Ballroom B
David Pritchard, Massachusetts Institute of Technology

5:00–6:00 p.m. ***Interactive Engagement in Upper-Level Courses*** – Ballroom B
Corinne Manogue, Oregon State University

6:00–6:30 p.m. **Resources for Interactive Engagement Teaching Methods – where to find more information** – Ballroom B

6:30–7:30 p.m. **Dinner** – Ballroom A

7:30–8:30 p.m. ***Thinking Broadly About Educational Technology*** – Ballroom A
Edward Price, California State University-San Marcos

Sunday, April 7

7:00–8:00 a.m. **Breakfast** – Holiday Inn – Moose Creek Steak House

8:00–9:00 a.m. ***Just-in-time Teaching*** – Ballroom B
Andrew Gavrin, Indiana Univ.-Purdue Univ.-Indianapolis

9:00–10:00 a.m. **Breakout III,** ***Leadership in Undergraduate and Graduate Physics Programs – How to Shape Your Department's Teaching Program*** – Ballroom B, C, D

10:00–10:15 a.m. **Break** – Ballroom Foyer

10:15–10:45 a.m. **Reports from Breakout Sessions and Discussion** – Ballroom B
Bob Hilborn, American Association of Physics Teachers

10:45–12:00 a.m. ***Teaching for Retention and Diversity*** – Ballroom B
James Stith, American Institute of Physics

12:00 a.m. **Concluding Remarks and Farewell**

American Association of Physics Teachers

Founded in 1930, The American Association of Physics Teachers (AAPT) is dedicated to enhancing the understanding of physics through teaching. For our 10,000+ members who serve physics students across the spectrum of schools, colleges, and universities, AAPT is a professional home that helps bring together knowledgeable and innovative colleagues who care deeply about physics teaching and education, and that offers valuable resources and benefits.

We serve our members through programs, publications, and networking, 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 nation and beyond to promote a better understanding of physics at all levels. The association supports physics educators at all levels through our two publications, the *American Journal of Physics* and *The Physics Teacher*; NSF-funded programs including the Physics Teaching Resource Agents institutes; the digital physics library, ComPADRE (with APS and AIP); the Physics Teacher Education Coalition, PhysTEC (with APS and AIP); the Workshops for New Physics and Astronomy Faculty (with APS and AAS); our two national annual meetings; and the student programs and scholarships that we administer, including the Lotze Scholarship for Future Teachers, the High School Physics Teacher Grant, the Physics Bowl, and the U.S. Physics Olympiad.

Beth Cunningham
Executive Officer

American Association of Physics Teachers
One Physics Ellipse, College Park, MD 20740-0845; 301-209-3340; www.aapt.org

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.

Kevin Marvel
Executive Officer

American Astronomical Society
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American Physical Society

With more than 47,000 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*), and *Reviews of Modern Physics*. The APS conducts more than 20 meetings per year, to connect physicists and disseminate physics knowledge and information relevant to the community. In addition, APS vigorously lobbies for funding for physics research and education, provides the physics community with timely information about government affairs, carries out studies of physics-based topics of importance to the country, and promotes the interests of the physics community through extensive public information efforts such as www.PhysicsCentral.com, a website for the public.

APS is actively involved in educational programs to improve undergraduate education and to improve the education of future physics and physical science teachers through its leadership in the Physics Teacher Education Coalition (www.PhysTEC.org). APS partners with AAPT in PhysTEC and on numerous other education programs including, the New Faculty Workshop, the ComPADRE digital library of educational resources, and conferences and workshops on education at various levels. For many years APS has worked to increase the number of female and minority physicists, and has several significant programs that advance these goals. Information about these and other APS programs can be found at www.aps.org.

Kate Kirby
Executive Officer

Theodore Hodapp
Director of Education and Diversity

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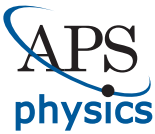

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