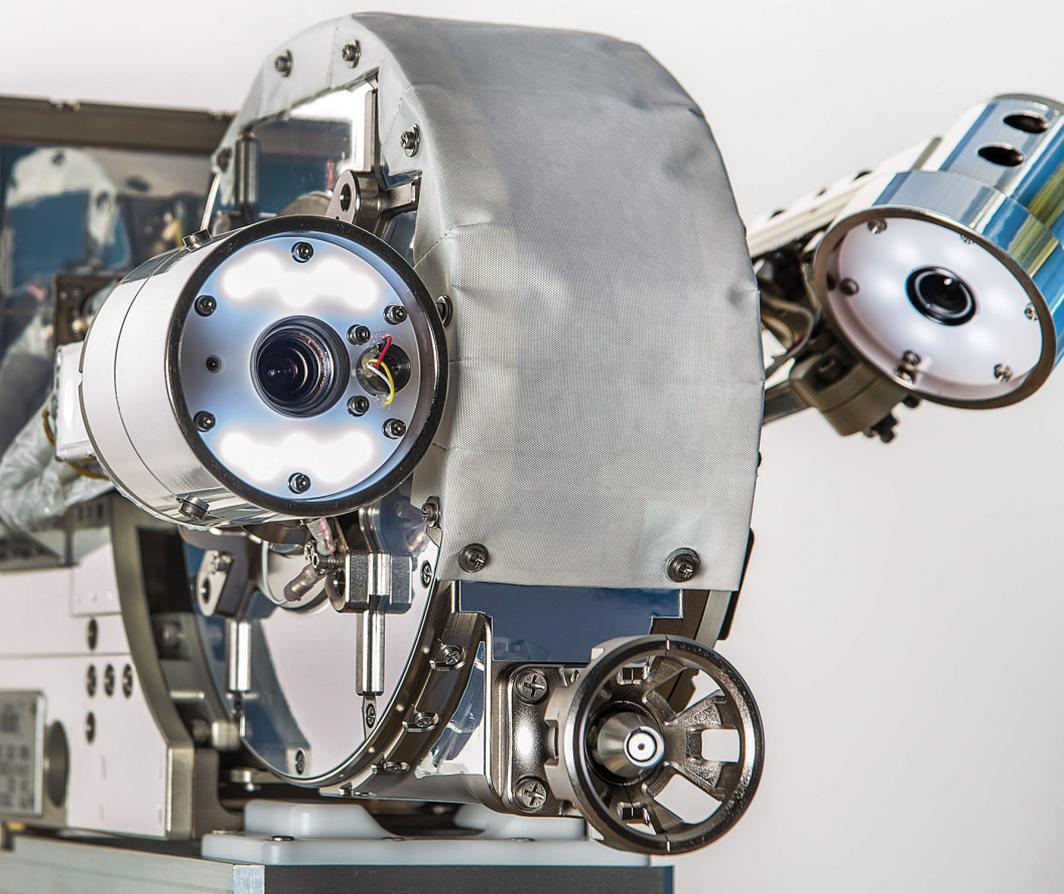


workshop for  
**experienced physics  
and astronomy faculty**

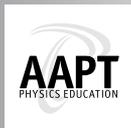
MARCH 18-20, 2016

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AMERICAN CENTER FOR PHYSICS  
COLLEGE PARK, MD



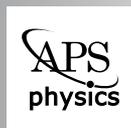
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AMERICAN ASTRONOMICAL SOCIETY



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## EXPERIENCED FACULTY ADVISORY COMMITTEE

### **Edmund Bertschinger**

Massachusetts Institute of Technology

### **Beth Cunningham**

American Association of  
Physics Teachers

### **Paul Gueye**

Hampton University

### **Jack Hehn**

American Association of  
Physics Teachers

### **Warren Hein**

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Physics Teachers (retired)

### **Robert Hilborn, PI**

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### **Theodore Hodapp, co-PI**

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University of Michigan

### **Laurie McNeil**

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### **Jesus Pando**

DePaul University

### **Edward Prather, co-PI**

University of Arizona

### **Marilyne Stains**

University of Nebraska-Lincoln

### **Jodi Wesemann**

American Chemical Society

# WORKSHOP LEADERS

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## FRIDAY, MARCH 18

3:00–4:30 P.M.	WORKSHOP REGISTRATION Holiday Inn – College Park, MD	GRAND BALLROOM FOYER
4:30 P.M.	OPENING REMARKS <b>Welcome and Introductions</b> Robert Hilborn, Associate Executive Officer, AAPT, Chair, Physics and Astronomy Experienced Faculty Workshop Beth Cunningham, Executive Officer, AAPT Kate Kirby, Chief Executive Officer, APS Kevin Marvel, Executive Officer, AAS Robert Brown, Chief Executive Officer, AIP	GRAND BALLROOM AB
4:45–5:45 P.M.	LARGE GROUP SESSION <b>Interactive Engagement in Large Introductory Courses</b> Ed Prather, University of Arizona	GRAND BALLROOM AB
6:00–7:00 P.M.	DINNER	GRAND BALLROOM AB
7:00–8:00 P.M.	LARGE GROUP SESSION <b>Peer Instruction</b> Eric Mazur, Harvard University	GRAND BALLROOM AB

## SATURDAY, MARCH 19

6:30–7:45 A.M.	BREAKFAST – Holiday Inn – College Park	MOOSE CREEK STEAK HOUSE
8:00 A.M.	SHUTTLE BUS LEAVES (ON TIME) FOR AMERICAN CENTER FOR PHYSICS	
8:20 A.M.	INTRODUCTIONS AND MARCHING ORDERS Robert Hilborn, AAPT	
8:30–9:30 A.M.	LARGE GROUP SESSION <b>Responsive Course Design: Introductory Physics for the Life Sciences – A case study</b> Joe Redish, University of Maryland	CONFERENCE ROOM A
9:35–10:30 A.M.	SMALL GROUP SESSIONS <b>Topics Chosen from Pre-workshop Survey</b>	CONFERENCE ROOMS A, B, C
10:30–11:00 A.M.	BREAK	ACP ROTUNDA
11:00 A.M.–NOON	LARGE GROUP SESSION <b>What Should We Teach? How Can Flipping Help?</b> <b>What Is the Evidence About What Students Have Learned?</b> David Pritchard, MIT	CONFERENCE ROOM A
12:00–1:00 P.M.	GROUP PHOTO AND LUNCH	ACP CAFETERIA

1:00–1:45 P.M.	BREAKOUT SESSIONS	
	Best Ideas About Teaching and Learning from the Experienced Faculty Members (I)	CONFERENCE ROOM A
	ALPhA and Beyond First Year Labs – Randy Peterson, Sewanee (II)	CONFERENCE ROOM B
	Mentoring Junior Faculty in Teaching and Learning (III)	CONFERENCE ROOM C
1:45–2:30 P.M.	BREAKOUT SESSIONS	
	Best Ideas About Teaching and Learning from the Experienced Faculty Members (II)	CONFERENCE ROOM A
	ALPhA and Beyond First Year Labs – Randy Peterson, Sewanee (III)	CONFERENCE ROOM B
	Mentoring Junior Faculty in Teaching and Learning (I)	CONFERENCE ROOM C
2:30–3:00 P.M.	BREAK	ACP ROTUNDA
3:00–3:45 P.M.	BREAKOUT SESSIONS	
	Best Ideas About Teaching and Learning from the Experienced Faculty Members (III)	CONFERENCE ROOM A
	ALPhA and Beyond First Year Labs – Randy Peterson, Sewanee (I)	CONFERENCE ROOM B
	Mentoring Junior Faculty in Teaching and Learning (II)	CONFERENCE ROOM C
3:45–5:00 P.M.	LARGE GROUP SESSION	CONFERENCE ROOM A
	<b>Interactive Engagement in Upper-Level Courses</b> Corinne Manogue, Oregon State University	
5:00–5:45 P.M.	LARGE GROUP SESSION	CONFERENCE ROOM A
	<b>1. Summary of “Best Ideas” from Breakout Sessions</b> <b>2. Resources for Interactive Engagement Teaching Methods – Where to find More Information</b>	
5:45 P.M.	SHUTTLE BUS LEAVES FOR HOLIDAY INN – COLLEGE PARK	
6:30–7:30 P.M.	DINNER – HOLIDAY INN – COLLEGE PARK	GRAND BALLROOM AB

## SUNDAY, MARCH 20

6:30–7:45 A.M.	BREAKFAST – Holiday Inn – (checkout by noon)	MOOSE CREEK STEAK HOUSE
8:00–9:30 A.M.	LARGE GROUP SESSION	GRAND BALLROOM AB
	<b>Teaching for Retention and Diversity</b> Jim Stith, AIP (retired)	
9:30–10:15 A.M.	SMALL GROUP DISCUSSIONS	GRAND BALLROOM AB
	<b>Leadership in Undergraduate and Graduate Physics Programs – How to Shape Your Department’s Teaching Program</b>	
10:15–10:30 A.M.	BREAK	GRAND BALLROOM FOYER
10:30–11:15 A.M.	LARGE GROUP SESSION	GRAND BALLROOM AB
	<b>Reports from Breakout Sessions and Discussion</b>	
11:15–11:30 A.M.	LARGE GROUP SESSION	GRAND BALLROOM AB
	<b>Final Words, Evaluation Procedures, and Adjourn</b> Bob Hilborn, AAPT	

# WORKSHOP PARTICIPANTS

**Wathig Abdul-Razzaq**  
West Virginia University

BREAKOUT I

**Margaret Benoit**  
The College of New Jersey

BREAKOUT II

**Clarisa Bercovich Guelman**  
California State San Marcos

BREAKOUT III

**Dan Boye**  
Davidson College

BREAKOUT I

**William Brown**  
Colorado State University Pueblo

BREAKOUT II

**Juan Cabanela**  
Minnesota State University  
Moorhead

BREAKOUT III

**Randall Carlson**  
United States Air Force Academy

BREAKOUT I

**Yong Chen**  
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BREAKOUT II

**John Cummings**  
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BREAKOUT III

**Linda Dake**  
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BREAKOUT I

**Tracy Davis**  
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BREAKOUT II

**Alan Denton**  
North Dakota State University

BREAKOUT III

**Michael Famiano**  
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**Rose Finn**  
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BREAKOUT II

**Wilhelmus Geerts**  
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BREAKOUT III

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Scripps

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**Joshua Hamblen**  
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Chattanooga

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**Sally Hicks**  
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**Dawn Hollenbeck**  
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**Amir Huda**  
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BREAKOUT III

**Narendra Jaggi**  
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**Karen Johnson**  
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BREAKOUT II

**Byung Kim**  
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**Olga Korotkova**  
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**Ira Kroll**  
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BREAKOUT II

**Stamatios Kyrkos**  
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BREAKOUT III

**Susan Lehman**  
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**Nina Markovic**  
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BREAKOUT II

**Theresa Moreau**  
Providence College

BREAKOUT III

**Jian Peng**  
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University

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**James Rafert**  
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BREAKOUT II

**Natarajan Ravi**  
Spelman College

BREAKOUT III

**Adam Rengstorf**  
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BREAKOUT I

**Michael Richmond**  
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BREAKOUT II

**Bernd Surrow**  
Temple University

BREAKOUT III

**Mohammed Tahar**  
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**George Thurston**  
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BREAKOUT II

**Uwe Trittman**  
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BREAKOUT III

**Graziano Vernizzi**  
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BREAKOUT I

**Gianfranco Vidali**  
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BREAKOUT II

**Heidi WainScott**  
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BREAKOUT III

**Christer Watson**  
Manchester University

BREAKOUT I

**Gary Westfall**  
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BREAKOUT II

**Terrance Worchesky**  
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County

BREAKOUT III

**Daqing Zhang**  
California State University Fresno

BREAKOUT I

# AMERICAN ASSOCIATION OF PHYSICS TEACHERS

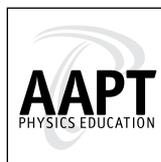
Founded in 1930, AAPT is the premier professional society established to advance the greater good through physics education. With the support of our members worldwide, AAPT is an action oriented organization designed to develop, improve, and promote best practices for physics education as part of the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

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

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

# AMERICAN ASTRONOMICAL SOCIETY

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



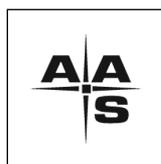
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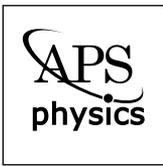
KEVIN MARVEL  
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## AMERICAN PHYSICAL SOCIETY

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.



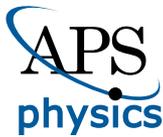


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