

\*\*\*\*\*

**PHYSICS FOR THE NATION'S FUTURE**  
**Science Education Highlights of the**  
**Joint APS/AAPT Meeting to be held**  
**Feb. 13-17, 2010 in Washington, D.C.**

\*\*\*\*\*

For more information, please contact:  
Marilyn Gardner,  
American Association of Physics Teachers  
301-209-3306 (office)  
[mgardner@aapt.org](mailto:mgardner@aapt.org)

Jason Socrates Bardi,  
American Institute of Physics  
301-209-3091 (office)  
858-775-4080 (cell)  
[jbardi@aip.org](mailto:jbardi@aip.org)

Washington, DC, Feb. 10, 2010 -- Recent international studies of math and science education suggest that students in the United States are falling further behind their foreign counterparts. Next week, this issue and others will take center stage at the 2010 joint meeting of the American Association of Physics Teachers (AAPT) and the American Physical Society (APS), which takes place from Feb. 13-17 at the Washington Marriott Wardman Park Hotel in Washington, D.C.

Educators, researchers, and policy-makers from across the nation will come together to discuss strategies for improving the nation's education system, share perspectives from inside its classrooms, and hear the latest innovative ideas under the overarching theme "Physics for the Nation's Future."

Journalists are invited to attend the meeting for free. Registration instructions and more information on the meeting can be found at the end of this press release. Some highlights of the meeting include:

- 1) Plenary Talks: Re-Energizing America's Focus in STEM Education
- 2) Physics First in Baltimore
- 3) For the Love of Science
- 4) Physics Boot Camp
- 5) Everyday Science Stories

\*\*\*\*\*

**1) PLENARY TALKS: RE-ENERGIZING AMERICA'S FOCUS IN STEM EDUCATION**

The Kavli Foundation will sponsor a series of talks by high-profile speakers that present strategies for improving Science, Technology, Engineering and Mathematics (STEM) education in the United States, a session chaired by Alex Dickison, president of AAPT and professor at Seminole State College of Florida. For more information about the implementation of good teaching practices, the value of diversity in STEM education, and the Algebra Project's efforts to improve math education, see:

<http://www.aps.org/meetings/april/events/spec-sessions/plenary.cfmk>

**2) PHYSICS FIRST IN BALTIMORE**

American high school students typically take a biology class in ninth grade, followed by chemistry and then physics, an order chosen to reflect the perceived accessibility of each subject. But the Physics First movement advocates a more European approach, which would teach algebra-based physics in ninth grade to lay the groundwork for chemistry. At this year's AAPT meeting, Elissaveta Bachvarova -- a physics teacher at the Mergenthaler Vocational/Technical High School in Baltimore -- will share data that compares the performance of students in ninth and twelfth grade physics classrooms. This data is part

of a larger effort that includes eight other schools in Baltimore that have adopted the Physics First approach. The project, still in its first year, will follow these students to assess the impact of ninth grade physics on performance in chemistry and biology classes. (Talk HD02, <http://www.aapt.org/scheduler/wm2010/NameResult.cfm?Code=HD02>)

### 3) FOR THE LOVE OF SCIENCE

Consider two college students who plan to study science in graduate school. One wants to pursue science because of past recognition for good performance -- high test scores, awards, and accolades. The other may not have the best grades but is pursuing science because he or she has always been fascinated by science. Which student will end up publishing more papers and receiving more grant money as a scientist? According to Geoffrey Potvin and Zahra Hazari of Clemson University, who analyzed data on more than 2,000 students, the science lover will tend to prevail -- perhaps, speculates Potvin, because the graduate school experience does not tend to emphasize individual recognition. Ensuring the scientific competitiveness of the United States is not simply a matter of testing, the researchers say, but will also require encouraging students who are truly passionate about science. (Talk Z11.5, <http://meetings.aps.org/Meeting/APR10/Event/115993>)

Potvin and his colleagues will also present evidence from Project Crossover suggesting that students who spend more years in graduate school tend to earn less money after they finish. The reason for this connection is still unclear. The data also suggest that time spent in graduate school is usually dictated not by student, but by the university. (Talk FD02, <http://www.aapt.org/scheduler/wm2010/NameResult.cfm?Code=FD02>)

### 4) PHYSICS BOOT CAMP

Mark Greenman, a fellow at the National Science Foundation, runs a physics boot camp -- a training program for 50 Massachusetts teachers designed to improve their understanding of the subject. According to data from his small, self-selected group, a substantial portion of physics teachers know less about the content they are teaching than a proficient student would. Greenman gave the teachers a standardized test covering the subject of mechanics, which requires a score of 80 percent to achieve proficiency. While physics teachers with physics degrees tended to score above 90 percent, certified Physics teachers without physics degrees scored an average of 77 percent. Those who teach physics but without physics certifications were worse still: they only scored an average of 54 percent correct. "From our sample, 70 percent of the teachers have real misconceptions about the content that I'm sure they're sharing with their students," he said. But there is good news, too -- after the course, nearly all of the teachers tested as proficient, in the 90 percentile. "A 60-hour course can make a big difference," said Greenman.

(Talk AI07, <http://www.aapt.org/scheduler/wm2010/NameResult.cfm?Code=AI07>)

### 5) EVERYDAY SCIENCE STORIES

Several speakers will present their own creative approaches to teaching that connect physics to everyday life (also useful as backgrounders for science stories). These include:

- James Moore of Longwood University will discuss how physics can show that a punter's kick during a Dallas Cowboys football game that hit the scoreboard was an accident that is likely to happen again, (Talk GA04, <http://www.aapt.org/scheduler/wm2010/NameResult.cfm?Code=GA04>)

- Renee Lathrop of Dutchess Community College will apply physics concepts to one of her favorite hobbies -- running -- to demonstrate ways for runners to be more efficient and effective in their movements. (Talk GA03, <http://www.aapt.org/scheduler/wm2010/NameResult.cfm?Code=GA03>)

- Erick Agrimson of St. Catherine's College will describe the physics of launching and piloting a high-altitude balloon. (Talk GA02, <http://www.aapt.org/scheduler/wm2010/NameResult.cfm?Code=GA02>)

- William Hogan of Joliet Junior College will present examples of physics concepts that have appeared in crossword puzzles, such as the New York Times' clue "velocity" for the word "speed". (Talk GA01, <http://www.aapt.org/scheduler/wm2010/NameResult.cfm?Code=GA01>)

\*\*\*\*\*

#### MORE INFORMATION FOR JOURNALISTS

- Main meeting site: <http://www.aapt.org/conferences/wm2010/>
- AAPT program: <http://www.aapt.org/Conferences/wm2010/upload/Program-Final.pdf>
- Searchable abstracts: <http://www.aapt.org/scheduler/wm2010/>
- Hotel: <http://www.marriott.com/hotels/travel/wasdt-washington-marriott-wardman-park/>

News releases describing meeting highlights, including this year's plenary lectures featuring several nationally renowned speakers, are available at: <http://aapt.org/aboutaapt/pressreleases.cfm>

#### REGISTERING AS A JOURNALIST

Journalists intending to go to the meeting should contact Jason Bardi ([jbardi@aip.org](mailto:jbardi@aip.org)) or 858-775-4080 about free registration. Onsite registration is possible in the pressroom throughout the meeting, but to speed the process journalists are encouraged to register in advance. Press badges can be picked up in the pressroom and will allow you to attend any session at the meeting as well as the press conferences.

#### PRESSROOM INFORMATION

A dedicated and staffed pressroom will operate throughout the meeting in the Marriott Wardman Hotel. Phones, computers, printers, and free wireless Internet access will be available to reporters using the pressroom.

- Location: Park Tower, Room 8219
- Hours: Feb 13-15, 2010, 7:30 a.m. to 5:30 p.m. Feb. 16, 7:30 a.m. to noon
- Phone numbers: (202) 745-2134, x2135, x2136, and x2137
- Fax number: (202) 745-2138
- Food service: breakfast and lunch will be provided each day except for Tuesday (breakfast only)

#### PRESS CONFERENCES

Press conferences will be held daily in Park Tower Room 8222, which is adjacent to the pressroom. For a schedule of press conferences, email Jason Bardi ([jbardi@aip.org](mailto:jbardi@aip.org)).

#### SCIENCE WRITERS' RECEPTION

Journalists at the meeting are invited to attend a reception for the winners of the American Institute of Physics science writing awards, to be held Monday, February 15 from 5:30 to 7:30 p.m. The reception will be in room Wilson A of the Marriot Wardman Park Hotel. For more information, contact Jason Bardi ([jbardi@aip.org](mailto:jbardi@aip.org)).

#### ABOUT AAPT

AAPT is the leading organization for physics educators -- with more than 10,000 members worldwide. Its mission is to enhance the understanding and appreciation of physics through teaching. AAPT was founded in 1930 and is headquarters in the American Center for Physics in College Park, Maryland.

#### ABOUT AIP

Headquartered in College Park, MD, the American Institute of Physics is a not-for-profit membership corporation chartered in New York State in 1931 for the purpose of promoting the advancement and diffusion of the knowledge of physics and its application to human welfare.

####