

AAPT-CPS Newsletter



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David McCachren;
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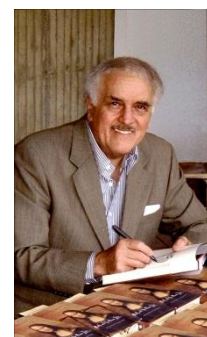
Michael R. Gallis;
Penn State, Schuylkill

Spring Meeting at Millersville University

Keynote Speaker: Dr. Bülent Atalay

Leonardo and the Intersection of Art and Science

Bulent Atalay presents science through art, and art through science, and approaches the larger goal of achieving a synthesis of the two fields. He invokes the model of Leonardo – part-time artist, passionate scientist, consummate inventor. The qualities of timelessness and universality in Leonardo's miraculous works speak eloquently for themselves. With Leonardo's model providing the unifying thread, however, it becomes possible, first, to glimpse Leonardo's restless intellect, that extraordinary psyche; second, to see whence the ideas for his works of art came; and ultimately to appreciate his art at a different level.



About the speaker: Described by the National Geographic, Smithsonian Magazine and Washington Post as a “21st Century Renaissance man, Bulent Atalay, was born in Ankara, Turkey, and received his early education at Eton (UK) and St. Andrew's School (Delaware), site of the 1989 Robin Williams film, "Dead Poets Society." His professional training — BS, MS, MA and PhD degrees and post-doctoral work in theoretical physics — took place at Georgetown, UC-Berkeley, Princeton and Oxford. For four decades he has been a professor of physics at the University of Mary Washington, and the University of Virginia, and a member of the Institute for Advanced Study at Princeton. Dr. Atalay lectures around the world on art, archaeology, astrophysics, and atomic physics. He is an accomplished artist who has presented his works in one-man exhibitions in London and Washington. His two books of lithographs — Lands of Washington and Oxford and the English Countryside — can be found in the permanent collections of Buckingham Palace, the Smithsonian, and the White House. His website can be seen at <http://www.bulentatalay.com>

Meet the Current AAQPT-CPS Executive Officers

President: Stephen Van Hook



Dr. Stephen J. Van Hook is Lecturer in physics at Penn State University Park. He received his M.A. in physics from the University of California at Berkeley, and his PhD in physics from the University of Texas at Austin, where he worked in the Center for Nonlinear Dynamics. His current research interest is in Physics Education Research at both the K-12 and University level and he is the co-Director of the K-3 Research-based Inquiry Physics Experience (RIPE) project. He taught at Georgetown University and Bowling Green State University before coming to Penn State in 2007.

Vice President: Mehmet Goksu



Dr. Mehmet Goksu is an Associate Professor of Physics at Millersville University of Pennsylvania since August 2007. He received his Ph.D. from Case Western Reserve University in 2002. He taught several Physics courses at Truman State University for three years as an assistant professor before he joined the faculty at Millersville. He is a condensed matter experimentalist with extensive experience in low temperature physics. His research interests include quantum computing, Edgemagnetoplasmons, projects on physics education, and renewable energy. He has a strong interest in sustainability and energy related issues are his passion. He has supervised several successful senior projects on renewable energy since he joined the department.

Secretary:

The position of Secretary is currently vacant. Please consider contributing your time and energy to supporting Physics Education in Central Pennsylvania.

Treasurer: Sardari Khanna



Dr. Sardari Khanna is Professor of Physics at York College, Pennsylvania since 1965. He received his Ph.D. from Saugar University, India. His thesis was in the area of Solid State Physics. He has been on the E-Board of the Academic Senate as a Treasurer for the last 32 years. The York College has set up an Academic Senate Scholarship in his name to honor him for his long and distinguished service.

High School Rep: Dave McCachren



Dave McCachren has been teaching physics in the Mifflin County School District since 1973; currently at Mifflin County High School. He received his BS (1973) and Med (1977) in Physics Education from Indiana University of Pennsylvania. He has been a PTRS Representative since 1995.

Section Rep: Lynn Aldrich



Dr. Lynn K. Aldrich is an Associate Professor of Physics at Misericordia University and has been teaching physics there since 1988. She received her Ed.D. in Science Education from Temple University and her M.S. in Physics from the University of Alabama in Birmingham. Her research interests include topics in Physics Education such as self-efficacy in pre-service elementary teachers of science and service learning in introductory physics classes.

Two Year College: Greg Dolise

Gregory Dolise is an Associate Professor of Physics at Harrisburg Area Community College. He teaches astronomy as well as physics courses in traditional and online formats. Greg has worked in the aerospace sector, where he specialized in star simulation and space optics. An early job was with Perkin-Elmer on the Hubble Space Telescope. Greg performed measurements for vibration testing of the secondary mirror, and helped with design and fabrication of the star simulator to test the Optical Control system and Fine Guidance System of HST. Later jobs with

Bendix Aerospace involved star simulation for satellite navigation systems. Greg has written test banks for astronomy and physics texts and is currently involved in a project for teacher certification exams.

Web Master: John Reid

Dr. John D. Reid has been a Professor of Physics at Lock Haven University since 1997. From 1981-1985 he worked for 4 years at Lockheed Missiles and Space Co., in Sunnyvale, CA, as a Satellite Operations Engineer. He received his Ph.D. in Experimental High Energy Physics from Penn State in 1993. Before teaching at Lock Haven, he did his graduate work on Chamonium Spectroscopy at Fermilab, and postdoctoral work with Penn State and Vanderbilt University on Strange Quark Matter at Brookhaven Lab.

Past President: Michael Gallis

Dr. Michael R. Gallis is an Associate Professor of Physics at Penn State Schuylkill where he has been teaching since 1990. He received his PhD in Theoretical Physics from Penn State in 1990. His original research interests were in the Dynamics of Quantum Open Systems with applications to Quantum Decoherence and Measurement Theory. His current focus is on developing visual materials for use in Astronomy and Physics Courses, and maintains a YouTube channel for his 3-D animations

AAPT-CPS Spring 2012 Conference

The 60th Annual Conference of the American Association of Physics Teachers, Central Pennsylvania Section (AAPT-CPS) was held as a joint meeting with the Western Pennsylvania Section (AAPT-WPA) on Friday the 23rd and Saturday the 24th of March 2012 at Penn State, University Park. Dr. Stephen J. Van Hook was responsible for organizing the conference.

There was an all day workshop on Friday run by the Physics Teachers Resource Agents (PRTA) for physics teachers. The workshop, entitled Open Source Physics Resources, provided an opportunity experiments with many of these resources and discuss how to implement them in the classroom. Dave McCahren of Mifflin County High School in Lewistown, PA and Pat Callahan of Delaware Valley Regional High School in Frenchtown, NJ conducted the workshop. The workshop was followed by a tour of the Breazeale Reactor. The poster session was held Friday afternoon followed by the conference reception and banquet. After the banquet dinner Dr. Robert L. Park gave the public lecture: "The Last Endangered Species" on the conflict of scientific knowledge and the tendency of humans to hold unquestioning beliefs in superstition.

Morning and afternoon presentation sessions were held on Saturday. The talks were well attended, and covered a variety of topics pertaining to physics and physics education. The General Business meeting was held before lunch. After the afternoon presentation session there was a presentation of award certificates to student presenters and drawing for door prizes. The program ended with a Demo Show.

Physics Demonstration Page: Dramatizing That Demo

-by Mike Gallis, Penn State Schuylkill



One of my favorite demonstrations to perform is the precessing bicycle wheel, mostly because of how I dress the demo up with distraction and misdirection. Using a standard demonstration bicycle wheel gyroscope with handles, a volunteer, specifically a “strong” volunteer, is solicited from the audience. The volunteer is asked to firmly grasp the handles and hold the wheel vertically (so that the handles are horizontal) first using both hands and then only one hand. Upon successful completion of these tasks, the victim, err, volunteer is congratulated and the demonstration moves on to the challenge phase.

Moving on to the challenge level, the volunteer is now asked to hold each side by the eye screws attached at the ends of each handle by only thumb

and forefinger of each hand. Using both hands, the volunteer can easily keep the wheel vertical but when pressed to hold the wheel using only the eye screw one side using only thumb and forefinger from one hand the victim finds the task absolutely impossible. I then offer to bet the volunteer or any member of the audience, a small sum that I could actually perform the task with a single finger. The now wary audience never takes up my offer. At this point I take the wheel, pause dramatically, then give it a good spin and place it on my finger, where it precesses about me. The sight of the suspended wheel often garners a few gasps from the startled audience.

I use this set up in public science demonstrations, but I find that it can be a good curiosity inducing prelude to angular momentum topics in a calculus based physics course.

It does take some practice to master holding the wheel and move with its precession. I recommend starting your practice using a closed fist grip over one handle (palm up) and then opening up the hand to see how the wheel will naturally move.

PTRA Workshop

Electronic and Digital Resources for Physics Teaching

This workshop will be a sharing of methods and ideas for physics or physical science teachers of all experience levels. It will focus on how we can use Electronic and Digital Resources for Physics Teaching. AAPT and other national organizations support digital libraries that can be used to enhance your teaching. Two of these are ComPADRE and NSDL. The ComPADRE Digital Library is a network of free online resource collections supporting faculty, students, and teachers in Physics and Astronomy Education. NSDL is the nation's online portal for education and research on learning in Science, Technology, Engineering, and Mathematics. Participants will be able to explore these resources and decide how they can be used in the classroom to enhance their teaching.

AAPT-CPS is proud to support PTRA workshop program, serving as host to fall and spring PTRA workshops for many years. Our workshop facilitators Pat Callahan and Dave McCachren have served an impressive number of years and lead the PTRA organization in terms of the number of workshops given. Come join Pat and Dave for a worthwhile Experience that will help enhance your students' physics experience.

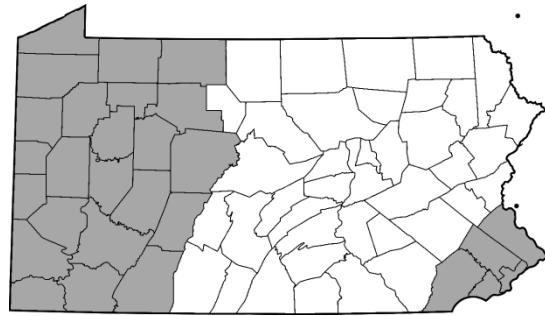
Mini-Meetings

Members of AAPT-CPS have been hosting mini meetings in various corners of the state. Some of these mini meetings include:

The Fermi Paradox: If ET is everywhere, where is everyone? by Professor Gregory L. Dolise, hosted by HACC, Harrisburg Campus on April 25, 2012

An Introduction to Stars & Exoplanets by Professor Michael Orleski, hosted by Misericordia University on March 13, 2012

Interested in hosting a Mini Meeting? Contact an AAPT-CPS executive officer to see what we can do for each other.



From the AAPT-CPS Constitution...

The objectives of the Central PA Section of the American Association of Physics Teachers (AAPT-CPS) are to:

- advance the teaching of physics in the colleges and universities of Central Pennsylvania and environs,
- promote a professional spirit and acquaintanceship among the members of the Section, and
- encourage instruction in physics in the secondary schools of the region served by the Section.

OTHER NEWS :

- Please visit the Section website: <http://www.aaptcps.org> which contains lots of useful information and links to Physics teaching resources.
- Volunteers for executive board membership are always welcome; please contact any current board member for information about serving!
- PTRAs workshop to be held in Fall 2013 location to be determined.
- The AAPT-CPS Annual Meeting and PTRAs workshop will be held in Spring 2013 at Millersville University. Contact Mehmet Goksu (email: Mehmet.Goksu@millersville.edu) about the meeting and Dave McCachren (email: drm34@mcsdk12.org) about the PTRAs workshop.
- The 2014 AAPT-CPS Annual Meeting and PTRAs workshop will be held in Spring 2014 at Misericordia University

Newsletter compiled by Mike Gallis. Please direct all comments and submissions to mrg3@psu.edu