

Alberta Section

1. Wed April 13, 2015 5:00 PM at Physics Department, University of Alberta. Approximately 18 in attendance.

The topic for the evening was how to make the detection of neutrinos as celebrated by the 2015 Nobel Prize in Physics meaningful to high school students. Participants experienced two different hands-on activities that model neutrino detection. These activities were directed by Dion Skitsko and Laura Pankratz, who were facilitators at the Perimeter Institute for Theoretical Physics Summer Teachers' Institute: Einstein+ in 2015.

2. Wed October 5, 2016, at Physics Department, University of Alberta. Approximately 22 in attendance. An annual general meeting was held prior to our speaker.

Dr Michael Woodside presented on research being done at the U of A relating to biochemistry and physics by describing how his team measures how protein molecules fold and how this can be applied to diagnosis and treatment of pathogens such as those associated with mad cow disease. One of the apparatus that is used is called an optical tweezer which uses electric fields and photon momentum to control and measure locations.

3. Physics Teachers Day: Friday Dec 9 2016 at Physics Department, University of Alberta. Approximately 94 teachers were in attendance for the day- long workshop.

This year, Black Holes and Gravitational Waves was chosen as our theme and Dr. Patrick Brady (University of Wisconsin-Milwaukee /LIGO) was our invited speaker. For the first of two talks, Dr Brady outlined the history and background of LIGO gravitational

wave observatory and the first observations of 14 September 2015. Later in the day, we joined with the University of Alberta Dept of Physics for their colloquium, when Dr Brady expanded on the implications and nuances of these observations and prospects for the new field of gravitational-wave astronomy for the next decade.

Two workshops were presented that attendees could take home classroom ready resources. In the first workshop, members of the Alberta Teachers' Network (Laura Pankratz, Jeff Goldie and Dion Skitsko) presented a hands- on interactive resource, developed by the outreach team at the Perimeter Institute that explores resolution of telescopes, and how, by increasing the base-line of the EHT, its resolution will allow us to "see" a black hole. In the afternoon, a second workshop presented by facilitators from the Theoretical Physics' Einstein+ summer teachers' program presented a modified Black Holes resource designed to match Alberta curriculum that included describing stellar evolution, exploring conditions that lead to the formation of black holes, and analyzing using every-day graphing calculators tactual observations associated with the first detection of a black hole. The Outreach team from the Perimeter Institute for Theoretical Physics shared additional resources, PD opportunities and learning opportunities for students.

—Terry Singleton, Section Representative

Arkansas-Oklahoma-Kansas (AOK) Section

The annual fall meeting of the Arkansas-Oklahoma-Kansas (AOK) Section of the American Association of Physics Teachers (AAPT) was held on October 7th – 8th, 2016. The meeting was hosted by Dr. Chris Pettit and the Department of Physical Sciences, Physics at Emporia State University, in Emporia, KS.

The event consisted of both a Friday evening and Saturday gathering of physics teachers from the states of Arkansas, Oklahoma, and Kansas.

On Friday October 7, 2016 the Schedule of Events included– Planetarium Shows, a traditional dinner banquet and special presentation by banquet speaker, Dr. Dennis B. Neff, Neff’s biography and presentation is outlined below.



Dennis graduated with honors from Emporia State University where in 1973 he received a B.S.E. degree in Physical Science and Mathematics, and an M.S. in Physical Science in 1977. After an initial career as a high school science and mathematics teacher, he migrated to the oil industry for a 25 year career with Phillips Petroleum Company. During his tenure with Phillips, Dennis worked as a Geophysicist, an Exploration Director, and retired as one of only five Senior Scientists and an Executive of the company. He was granted 25 U.S. and international patents involving seismic processing, seismic imaging, seismic interpretation, reservoir analysis and 3D visualization. Dennis’ work was extensively published in professional journals and he received a number of internal and external awards including a SEG Best Paper Award, a Computer Graphics Innovation Award, and the company’s prestigious Innovation Excellence Award. He also served as a Distinguished Lecturer for the Society of Petroleum Engineers and is a Distinguished Alumni of Emporia State University.

—*Todd R. Leif, Section Representative*

Appalachian Section

The 65th Appalachian Section Meeting was held October 14-15, 2016 at West Virginia Wesleyan University, Buckhannon, WV. Our host, Tracey DeLaney, assembled a full and interesting schedule of sessions and activities. Friday events began with a tasty on-campus dinner and included a public lecture by Sean McWilliams, professor at West Virginia University, titled “The Dawn of Gravitational Wave

Astrophysics” followed by a show in the Christopher Hall of Science Planetarium.

Pam Wovchko, director of the WV Wesleyan School of Science, welcomed attendees to the Saturday morning session. Jason Best, physics professor at Shepard University. Gave the keynote address titled “This is What Do, and If We Don’t....” Seven contributed papers rounded out the morning session. A highlight of this session was a tribute to deceased section stalwart, Steve Luzader, by Frostburg State University colleague Francis Tam. Seven additional contributed papers were presented in the afternoon session.

The Appalachian Section Business Meeting was held following lunch on Saturday. Officers elected included:

Tracey DeLaney, West Virginia Wesleyan University, President

Dennis Kuhl, Marietta College, President-Elect
Hang-Den Luzader, Frostburg State University, Vice-President, 2YC

Pam Sharma, Northern West Virginia Community College, Vice-President, High Schools

Officers whose terms continue until the Fall, 2017 meeting include Joan Vogtman, Potomac State University, Secretary-Treasurer and Greg Puskar, Section Rep, West Virginia University.

Members present voted to support a joint Spring Meeting with the Chesapeake Section. This will be held on Saturday, April 22 at Concord College in Concord, WV.

Our Fall 2017 Meeting is scheduled for Marietta College, Marietta, OH.

—*Gregory Puskar, Section Representative*

Chicago Section

The CSAAPT Fall Meeting was held at Oakton Community College in Des Plaines, IL, on Saturday, November 12, 2016. There were 27 paying attendees (6 4-year college faculty, 4 TYC faculty, 8 high school teachers, 8 college students, and 1 community members), and our guest speaker, Alan Nathan from University of Illinois Urbana-Champaign, and his wife. There were seven contributed talks and a

keynote talk given by Alan Nathan. The keynote talk was on the Physics of Baseball, a very timely subject with the Cubs winning the World Series. Go Cubs! Nathan's talk was very well received with discussion having to be cut off but continuing during lunch.

During lunch, the business meeting was held. The new slate of officers was voted in. The list is attached below. A main point of discussion was how to (and should we) get non-profit status for the CSAAPT so that we can resume providing CPDUs for high school teachers. This question is still open and under investigation.

—*Deonna Faye Woolard, Section Representative*

Chesapeake Section

The Chesapeake Section spans the regions of Virginia, Maryland, and Delaware. We have had little to no participation from members in the Delaware and western Maryland areas. It is our intention to identify and reach out to individuals in those regions to more fully engage them in our section.

We continue to move our section meetings around the region. We can expect, on average, between 25 and 30 attendees, about half of which are new faces to the meetings. We hope to turn the new faces into regular attendees.

We are doing something new for our spring 2017 meeting. We will be holding a joint meeting with the Appalachian Section on April 22 in Athens, WV. We are very excited about this opportunity.

Recommendation on how AAPT can help the section meet this challenge:

Keep sending us the “new members for your section” emails so that we can add them to our list-serv. We find this a great way to reach out to our current and newest members.

—*Deonna Faye Woolard, Section Representative*

Iowa Section

The Iowa Section of AAPT held its annual meeting at Van Allen Hall at the University of Iowa on November 5, 2016. After being welcomed by host Dale Stille and the U of I Physics Department Associate DEO Craig Prior we enjoyed an invited talk, “Juno's Arrival at Jupiter,” by U of I physicist William Kurth. We then moved into the morning session of contributed talks.

Contributed talks included “Active Learning Methods and Snafus That Can Spoil Them” by John Goree (U of I), “The Ranking Task as Interactive Lecture Demonstration” by Nate Quarderer (Northeast Iowa Community College), and “Using Moodle in the Physics Classroom” by Ian Spangenberg (Pleasant Valley High School). After a mid-morning break, contributed talks continued with “Heart Attack Physics” by John Zwart (Dordt College), “Static and Dynamic Fluid Experiments” by Kristen Thompson (Loras College), a demo “A Minor Miracle” by Fred Behroozi (U of Northern Iowa), and “Spinning the Web of Halloween Physics” by Susa Stonedahl (St Ambrose University).

After picking up our lunches, President Kristen Thompson called the business meeting to order. Ian Spangenberg provided the treasurer's report which was approved. John Zwart gave an outline of the duties and perks of being a Section Representative. Nate Quarderer (Northeast Iowa Community College) was elected to become the new Iowa Section Rep. Other elected officers were John Zwart (Dordt College) to serve as the VP for Four Colleges and Erica Kilian (Iowa Lakes Community College) to serve as President-Elect. The last item of business was to decide that next fall's meeting will be at Dordt College on the first Saturday in November. Dale Stille encouraged us each to take at least 50 lbs worth of free equipment that he made available.

Taking a short walk to the Old Capitol Museum where U of I astronomer Cornelia Lang gave a short introduction to the “Hawkeyes in Space” exhibit featuring the work of James Van Allen (yes, the man for whom the belts are named) and other U of I space physicists. We continued the astronomy theme with a tour of the Van Allen Observatory with a focus on the undergraduate experience. Our day concluded with “Using Arduino,” a workshop led by Kristen Thompson on the basics of using these devices. Participants were able to take an Arduino board home at the end.

—*John Zwart, Section Representative*

Long Island Section

Over 30 participants gathered at Manhasset High School to attend the Fall conference on Saturday, November 5th. LIPTA President, Ed McDaniels, gave

some opening remarks and asked audience members about ideas for future workshops and conferences. Farmingdale physics teacher, Joanne Schwager, presented a quick overview of the AP 2 physics course and brought several books to show where sample practice problems can be found.

Retired physics teacher, Rich Terwilliger, presented some of his PowerPoint presentations complete with notes and great animations. Rich suggests doing a physics demonstration every day that relates to the lesson to catch the students' attention. He showed us how to make a simple wave demonstrator with a motor, small wood dowel and string and he even provided us with some wood dowels already cut to size to make our own. He had several "handy" suggestions such as using a product called Tough Skin on metal rods to show the "singing rods", which is a resonance demonstration. He had excellent animations in his PowerPoint on charging an electroscope. He has put together videos of common laboratory activities and showed us one he put together for a projectile lab. He suggested having students view the lab setup videos ahead of the lab class. Rich then sold his collection of materials on a DVD for a nominal charge. It is an excellent resource for teachers, especially any teachers new to the profession. If you missed Rich's presentation, he will be back in the spring to share more at the spring conference in April.

The highlight of the conference was Kip Rossner who is a Theremin player. Kip brought three Theremins for the participants to try out. After getting a quick lesson on how to control pitch and loudness, we had a real appreciation for how difficult it is to play the instrument. Kip gave us a background history of the instrument and how it was developed by Leon Theremin. Theremin noticed how his hand could create sound by moving nearer or farther from two antennas. From this, he developed the musical instrument. Kip gave us an interesting history of Leon Theremin and his exploits which involved worldwide travels, spying for Russia, spending time in a concentration camp and developing other inventions. Finally, Kip amazed us by playing songs of all different genres on the Theremin. Watching him play was like watching someone dance with their fingers. There's no physical contact ever made with instrument, but Kip was able to make beautiful music

just by moving his hands and fingers around the antennas. His concert ended with a salute to science fiction movies and TV shows that often used the Theremin in their theme music including the Star Trek theme. If you missed the conference, check out Anthony Mangiacapre's short video on YouTube: <https://www.youtube.com/watch?v=fVTooIe3w1U>.

—Richard E. Slesinski Jr., *Section Representative*

Michigan Section

The Fall 2016 meeting of MIAAPT took place Saturday, October 15, 2016, at Lansing Community College (LCC) in Lansing, Michigan. About 35 attendees from the high school, two-year college, and four-year college communities were present as well as many undergraduate students. The meeting was chaired by our President David Shane (LCC) and coordinated by our 1st Vice President Laurence Tarini (U. Michigan-Flint). Dr. Elaine Pogoncheff, Dean of Arts and Sciences at LCC, offered words of welcome after attendees checked in, partook of early morning refreshments, and settled into their seats.

Contributed presentations. Conferees enjoyed nearly a dozen contributed presentations during the morning. These included presentations by Jim Gell (Plymouth High School) and Robert Peters (Caro Community Schools) in which they presented teaching strategies that support the new state and national science standards, focusing (respectively) on new emphases on engineering and design as well as on effective implementation of Modeling Instruction. Taoufik Nadji (Interlochen Arts Academy) shared recent renovations to their physics lab/classroom space have enabled innovative student-centered teaching. Three other speakers—Vance Nannini (Divine Child High School, Hector Ochoa (Henry Ford Community College), and Michael LoPresto (also from HFCC)—discussed exciting applications of visualizations (PhET simulations from U. Colorado-Boulder) and NASA data for their students to wrestle with real astrophysics problems. Other insightful presentations were given by Danny Caballero (Michigan State University), Don Pata (Grosse Pointe High School), and Paul Hosmer (Hillsdale College).

Featured speaker. After lunch conferees gathered for the plenary address delivered by Dr. Barbara Oakley, Professor of Engineering at Oakland University. Dr. Oakley is currently a Visiting Scholar at the University

of California San Diego. She has also won numerous teaching awards, including the American Society of Engineering Education's Chester F. Carlson Award for technical innovation in engineering education. In her presentation, "Learning How to Learn," Dr. Oakley drew from her experience teaching the immensely popular MOOC of the same name. She shared how current understandings of how the brain learns and how it stores information can lead to effective teaching and studying techniques. The presentation was well received and elicited vibrant discussion among the meeting participants.

Afternoon workshop. Following the plenary talk and business meeting, an afternoon workshop was facilitated by Don Pata, Grosse Pointe North High School physics teacher. A leader in the Modeling community of Michigan physics teachers, Don designed a workshop that focused on magnetostatic phenomena—a topic that often gets short shrift due to time constraints at the secondary level—and conducted the workshop so as to illustrate key aspects of the Modeling teaching approach. Workshop participants experienced, from the perspective of students and with the careful guidance of a Modeling instructor, how it is possible to build a conceptual model for magnetic fields from current-carrying wires from simple (though not easily interpreted) observations.

Next meeting. We look forward to our next section meeting, which will be hosted at Lawrence Technological University in Southfield, MI. The meeting will be scheduled for sometime in April.

—Bradley S. Ambrose, *Section Representative*

Montana Section

The Montana Section of AAPT held its annual meeting on Thursday October 20th, 2016 during the MEA-MFT Educators conference in Helena MT. Rich McFate, Section Representative, facilitated the meeting. President David Hembroff could not be in attendance.

Discussion of current Internet resources for physics education and suppliers of physics demonstration materials were shared. Much of the time was spent in modeling and discussing how inquiry could be effectively used throughout the process of conducting a demonstration. The 20 attendees were given prizes for participation that were donated by both

the local section and the national AAPT membership recruitment kit.

It was decided to extend the terms for both President David Hembroff and Section Representative Rich McFate through November 2018. Darlene Ruble, past Treasurer, will no longer fill that position as we have spent our remaining funds to support new AAPT members and closed our account. The Treasurer position will remain vacant until it is deemed appropriate to elect a new treasurer.

Our next meeting will be at the MEA-MFT Educator conference in October 2017 in Missoula MT.

—Rich McFate, *Section Representative*

North Carolina Section



The 21th Annual Spring Meeting of the North Carolina Section of the American Association of Physics Teachers was held April 15-16, 2016 at Elon University in Elon, NC. Our local hosts were Dr. Tony Crider and the Department of Physics at Elon University.



The meeting started Friday night with a reception followed by a dinner. The Friday evening invited speaker was Dr. Karelle Siellez of Georgia Tech who spoke about "Listening to the Universe: The Way to Detect the First Gravitational Waves." Following the talk was a Student Trivia Contest. On Saturday morning we held our business meeting,

followed by a poster session with 9 posters and a coffee break. After the break were two parallel morning workshops, “Teaching Mathematical Methods with Active Learning Exercises” and “Help, I’m a Physics Teacher Who is Teaching Astronomy!” as well as a parallel session for students, “LIGO Student Q&A” led by Dr. Siellez and a “Physics Careers Panel” led by the Elon Chapter of SPS. After lunch there were also two parallel afternoon workshops, “Applying the Elements of Thought to Introductory Physics” and “Starting Your Own Maker Hub” as well as a parallel session for students, “Building Model Rockets” led by the Elon Chapter of SPS. The afternoon concluded with a second opportunity to look at the 9 posters and a rocket launch competition.

Benjamin Kaiser of Elon University received the Best Undergraduate Paper Award for the poster “The Nearby Analogues of Pure Starburst Galaxies.” Colleen Countryman of NCSU received the Best Pedagogical Paper for her talk, “Understanding How Smartphones Collect Motion Data in Physics Labs.”



As stated earlier, the North Carolina Section Business Meeting was held Saturday morning. Jack Dostal of the Department of Physics at Wake Forest University was elected Vice President (4-year presidential chain). Michael Daub of Surry Community College was elected Two-Year College Representative. The 21th Annual Fall Meeting of the North Carolina Section of the American Association of Physics Teachers was held on November 18-19 at UNC Asheville, Asheville, NC. Our local hosts were Charles Bennett and the Department of Physics at UNCA. The meeting was also held jointly with the Zone 5 Society of Physics Students Meeting.



On Friday evening there was the Friday night keynote by Dr. Gabriel Perez-Giz, astrophysicist, educator and science communicator from New York City with research interests in gravitational physics, black holes, and astroinformatics. He is also author and host of PBS Space Time. Dr. Gabriel Perez-Giz’s talk was titled, “How I Teach Physics.” Following the talk shuttles took participants to Lookout Observatory for a tour of the facilities and the night sky.

On Saturday the day started with breakfast followed by Dr. Michael Ruiz presenting lecture demonstrations both traditional and online HTML5 for light and sound. This was followed by a Contributed Paper session of 6 talks. The morning invited speaker was Dr. Tom Carruthers whose presentation was titled, “Detecting Gravitational Waves: The Symphony of Warped Space.” After lunch was a second contributed session, both poster presentations (10) and oral presentations (4). Following a short break there were two parallel workshops, “Argumentation in the Physical Science/Physics Science Classroom” led by Dr. Sharon Price Schleigh and “#STEM #LikeAGirl: Expanding Participation in STEM” led by Dr. Zodiac Webster followed by the business meeting.

James Howe of Southwestern Community College received the Best Undergraduate Paper Award for the poster “Using RSpec for an Introductory Bright Star Spectroscopy Lab Activity.” Judy Beck of the University of North Carolina at Asheville received the Best Pedagogical Paper for the presentation “The “Making Connections” Project for Introductory Physics II.”

Our Spring 2017 Meeting is scheduled for Edgecombe Community College with Rebecca Stamilio Ehret as our local host.

—*Mario Belloni, Section Representative*

Ontario Section

1. OAPT Annual Conference OAPT’s 38th Annual OAPT Conference titled “Capturing Diverse Perspectives in STEM” took place May 12-14, 2016. It was hosted by the Department of Physics and Computer Science, Wilfrid Laurier University in Waterloo, Ontario. The highlight of the program was “Distractingly Sexist” interactive research photo exhibit inspired by women’s real-world confrontations.

This unique exhibition highlighted experiences of female scientists and the consequences of confronting sexism in STEM. “Diverse Perspectives on Physics and STEM” Panel Discussion was another conference event inspired by the conference’s theme of diversity and inclusion. The panel featured Dr. Paul Salvani, Dr. Shohini Ghose, Ms. Cailin Clarke and Ms. Nicole Barucha. Once again, the conference program featured an array of captivating hands-on workshops. More details can be found in the conference program. Some of the materials presented at the conference are posted at the OAPT resource page .

Members of OAPT participated in a number of science education-related events that took place in Ontario. For example, several our members contributed to Teaching Inquiry Through Science and Physics OFT Workshop. The complete list of recent and upcoming science education events that OAPT members are taking part in can be found at <http://www.oapt.ca/events/index.html>.

2. Awards and Recognitions

We are pleased to report that Christopher Meyer (York Mills Collegiate Institute) is awarded the 2016 CAP Award for Excellence in Teaching High School/CEGEP Physics (Ontario) for his outstanding work in reforming the high school physics curriculum in a manner that has produced demonstrable improvement of student performance over a sustained period.

Chris Meyer has come to the forefront in the past five years as a physics teacher unequalled in Ontario for the rigor, research, and reflection that he applies to physics education.

Chris has been massively influential in reforming physics teaching in this province through his workshops, his articles in the OAPT Newsletter, his facilitation at OAPT Summer Physics Camps, and his website, www.meyercreations.com/physics. Having embraced the Physics Education Research (PER) movement, Chris was the first teacher in Ontario to take a rigorous, systematic, and well-documented approach to developing a complete and comprehensive Ontario reformed physics programme based on PER data and conclusions. He now has six years of data for his own students, proving substantial gains on standardized test instruments such as the Force Concept Inventory following instruction.

Most valuable in reaching the maximum number of students has been Chris’s willingness to share his learning and his teaching materials, developed over hundreds of hours of careful thinking and concentrated effort, with all physics colleagues, free of charge. He has followed up with a tireless five-year campaign advocating reform in physics teaching.

Chris Meyer has always been very popular with his students, but he now has a huge following amongst Ontario physics teachers; his influence in physics teaching today is unparalleled.

Information about the Award: The CAP Award for Excellence in Teaching High School/CEGEP Physics, which was introduced in 2010, is intended to recognize excellence in teaching physics in Canadian high schools or CEGEPs and to encourage and promote physics at the high school/CEGEP level in Canada. The award is sponsored by the CAP, Perimeter Institute for Theoretical Physics, TRIUMF, the Institute of Particle Physics, and the Association of Professional Engineers and Geoscientists of BC.

3. Future Events: Our next (39th) annual conference will take place May 11th – 13 at Lassonde School of Engineering, York University, Toronto, Ontario. As always, we are looking forward to refine and further expand our activities by building upon our successes and strengths in 2017 and beyond.

—*Tetyana Antimirova, Section Representative*

Oregon Section

The Oregon Section held their 193rd meeting at Linn-Benton Community College on March 12th, 2016. Coffee, tea, and breakfast snacks were provided by Vernier – Thank you! Paul Bunson started the meeting off by welcoming members and introduced the first speaker, Ray Frey (UO) who talked about the exciting news of the observation of gravity waves. Ray started a discussion on how we can implement modern physics into the classroom. Next, Erik Jensen (Chemeketa CC), David Sokoloff (UO), and Erik Bodegom (PSU) talked about research validated distance learning labs for introductory physics using IOLabs. This talk was followed by a poster presentation by KC Walsh (OSU) on teaching assistants in physics education during a coffee and social break. Toby Dittrich (PCC) provided important

information and plans for The Great American Eclipse of 2017. These talks were followed by a workshop on epistemological framing lead by Wendi Wampler (COCC).

After a lunch break, Jennifer Rice (UO) described two different models of courses and common language issues for non-native English speakers in physics courses. Next, MacKenzie Lenz (OSU) discussed faculty expectations of dimensional analysis. The meeting ended with a workshop by Bruce Weinberg (Kalapuya High School) on engineering project based learning using wind energy for students who sound like they come from an at-risk population.

The Oregon Section held their 194th meeting at Pacific University on October 15th, 2016. Despite hurricane force winds, tornados, and a good old Oregon down pour, members came from all over Oregon to attend. Coffee, tea, and breakfast snacks were provided by Vernier! We started with a short business meeting, KC Walsh (OSU) was elected as the OR Section Representative. Then KC Walsh shared the work that he has been doing to organize physics web content into a single site allowing students to more efficiently search for online physics help. The site can be found at Boxsand.physics.oregonstate.edu. Next, Toby Dittrich (PCC) shared his “More Trouble on the Loop the Loop” talk. Using Quiz Show, Toby entertained us with a series of more and more complex problems dealing with motion of a mass doing a loop the loop. Hint: the correct answer is always A. Wendy Wampler (COCC) gave a captivating talk on “How Our Students Frame Learning”. Learning is a process of applying and modifying one’s own beliefs to make sense of the world. Creating conditions for epistemological change. Andrew Boudreaux (Western Washington University) followed with a talk on how he has been working to help future science teachers more fully understand falling objects.

After a social break, Eugenia Etkina (Rutgers) and Gorazd Planinsic (University of Ljubljana) lead a workshop on Light-Emitting Diodes: A Hidden Treasure. During the lunch break, Lilit Haroyan (East L.A. College) discussed how to help students learn the most from reading a physics text. The afternoon was spent finding more hidden treasures of LED’s with the help of Eugenia and Gorazd.

On November 11th, 2016, the Oregon Section held a Physics Day at the NSTA conference in Portland. Greg

Mulder (LBCC) led 3 one-hour workshops on using microcontrollers to operate and display results for LED’s, light sensors, and motors, in a fun and exciting way. Pat Keefe (CCC) gave a presentation on a group project were students develop and energy policy for the United States. The day ended with Bob Brown’s workshop on making holograms using the Litiholo Holography kit.

—*Kenneth C. Walsh, Section Representative*

Southern California Section

On Saturday, November 5, 2016, fifty members of the Southern California Section of AAPT gathered at University of California, Riverside (UCR) for an exciting day filled with new physics and helpful advice for the classroom.

James Lincoln kicked off the day with a “cool” workshop on the uses of liquid nitrogen in the physics classroom. He described how to procure liquid nitrogen, safety procedures and a multitude of demonstrations, including several of his own creation. After the debris of smashed flowers, tomatoes and gummy worms was cleaned up, the meeting began. The meeting was called to order by SCAAPT President Cliff Gerstman and Kenneth Barish, Chair of UCR Department of Physics and Astronomy.

The meeting included several fascinating invited presentations:

Laura Tucker, University of California, Irvine, discussed some of the subtleties of implementing interactive methods in a classroom and how slight differences can result in different student responses. She shared examples and data from her own teaching and research experience.

Owen Long, University of California, Riverside, shared his experiences teaching an orientation course for new physics majors at UCR, that included information about local research opportunities and careers in physics. To further the engagement of students, he makes significant usage of material from Richard Muller’s textbook *Physics and Technology for Future Presidents*.

Several other SCAAPT members also gave engaging contributed presentations:

- Bill Layton, University of California, Los Angeles- The early UCR experience as a perfect preparation for becoming a physics teacher and Constructing equipment for the New Physics Teacher Workshop
- Chija Bauer, La Salle High School- Standards Based Grading in the Physics Classroom
- Harry Manos, Los Angeles City College- The Falkirk Wheel
- Peanut McCoy, Azusa Pacific University- Intervention to Prevent Degradation of Students' Epistemologies
- Jeff Phillips, Loyola Marymount University- Activities to Illustrate the Statistical Nature of Entropy
- Sonia Tye, CK-12 Foundation- Using CK-12's Open Educational Resources to Increase Student Engagement
- Lee Loveridge, Pierce College- Teaching for Johns Hopkins Center for Talented Youth

The ever-popular Show 'n' Tell featured demonstrations by Gary Reynolds (challenges of 100% graduation rate), Cliff Gerstman (battle bot competitions), James Lincoln (sound and light demos), Bryn Bishop (surprising air pressure demo), Bob Baker (Quarknet), Harry Manos (Archimedes demo), and David Sumida (measuring coefficients of friction). The meeting ended with our traditional "World Famous Order of Magnitude Question" discussion, led by Bill Layton, James Lincoln and Cliff Gerstman, and the raffle of donated door prizes.

SCAAPT thanks its corporate sponsors –Arbor Scientific, PhysicsVideos.com and PASCO– for their support and donation of door prizes. SCAAPT thanks Maria Simani and the UCR Physics Department for hosting the meeting. Thanks also to Chad Kishimoto, for serving as Program Chair of the meeting.

The Southern California Section will hold its next meeting in the spring. Please bookmark the SCAAPT homepage <<http://www.scaapt.org/>> and check for more information in the winter.

NPTW

The New Physics Teacher Workshop program continues to be successful in its 6th year. The program has expanded to serve San Diego and Los Angeles areas of Southern California with three workshops in each area annually. The workshops provide free

equipment, lunch, and CEUs to more than 25 teachers at a time. SCAAPT is very thankful to James Lincoln and Bill Layton, who are the experienced teachers leading this program. Those interested in learning more about the program should email james@physicsvideos.net.

—*Jeff Phillips, Section Representative*

Wisconsin Section

The Wisconsin Association of Physics Teachers meeting was held on October 28th and 29th, at the University of Wisconsin Oshkosh

The Friday evening plenary speaker, Dr. Jim Gates from the University of Maryland, presented a talk titled:

Is SUSY the Guardian of Our Reality from Oblivion?

Jim Gates is University System Regents Professor, Distinguished University Professor, the John S. Toll Professor of Physics, and the Center for Particle & String Theory Director, University of Maryland, College Park, MD

—*A. James Mallmann, Section Representative*

To list your section meeting in the AAPT Calendar of Events, e-mail the information to mhall@aapt.org

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