

## Alabama Section

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The Annual Meeting was held at Huntingdon College in the Bellingrath Building on Saturday, February 4, 2017. The meeting was called to order by Jaime Demick, the 2016-17 President. There were two tracks for the meeting and everyone was welcome to choose their path.

Two Half-Day Workshops were offered during the day. With pre-registration, teachers could attend free of charge one of these workshops and receive equipment/materials for the activity/engineering project to use in their classroom. Taught by PTRAs, they were funded by the AAPT Board and by the Bauder Fund. The K-8 Workshop was Electricity with Play Dough. The 9-12 Workshop guided the teachers through engineering a “Scribble Bot.” Each teacher to home what he/she needed for the lab to return to their school do the lab/activity with their students. A donation will be made to the PTRA Continuation Fund by the Section.

Other sessions available were:

Making Einstein Accessible: Using Hands-On Experiments and Social Media to Teach Einstein’s Theories to Non-Scientists   Maureen and Mike Murphy

Air Resistance: What a Drag   Justin Sanders

Protein X-Ray Crystallography   Doba Jackson

Physics Pet Peeves   Mark Rupright

Throw Me a Lifeline   Ann McCarty

NASA Education K-8   John Weis

NASA Education 9-12   John Weis

Opening Closed Doors: The Impact of Teacher-Led Observation Rounds   Jennifer Brown

Throw Me a Lifeline   Ann McCarty

Sharing Great Demos by Ali Yazdi, Duane Pontius, and Maureen Murphy:

Chladni plates, Is There Hydrostatic Equilibrium in Free Fall?, Rotational Inertia Using Soup Cans, Photoelectric Effect with Soda Cans, Marshmallows and the Speed of Light.

In the Business Meeting the Vice President was

declared President for 2017-18, Tammy Simmons. A new Vice President, Mark Rupright, were elected. A new Section Representative, Tommi Holsenbeck, was elected. The Annual Meeting will be in North Alabama next school year and planned by Tammy Simmons.

—Tommi Holsenbeck, Section Representative

## Alberta Section

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The first event on April 22 was a Workshop co-organized with the University of Alberta Science Makerspace “The Shack” and the Dept of Physics Undergraduate Laboratories. Lead by Workshop Coordinator, Clayton Coutu and Shack Volunteers, Troy Redshaw and Sam Cheng, this one - day workshop used the Raspberry Pi to run three different experiments - analyzing kinematic motion with an IMU unit, the Constant Volume Gas Thermometer and the Doppler effect. The teachers were introduced to the Pi, how to get a store bought sensor operational using open source code, and how to use the Pi to communicate information which is then graphed and analyzed. Twenty-six teachers were able to take-away their Pi unit with the IMU unit for their classrooms.

On Oct 25, eighteen teachers converged and had an evening of Physics, Pizza and Pi (and AGM). Martin Connors, and Farook Al-Shamali, both of Athabasca University presented on uses of the Raspberry Pi in teaching physics. Martin discussed the breakout port on the Pi and some examples of the uses of it in his teaching and research. With Mathematica being included with the Raspberry Pi, Farook presented on using Mathematica to develop diagrams and animated figures that can be used as virtual, on-line experiments for students.

A short AGM was also held and the executive committee was elected:

President: Jeff Goldie  
Secretary: Laura Pankratz  
Treasurer: Isaac Isaac  
AAPT Section Representative: Terry Singleton  
Past-President: Allen Linville

Our final event of the year was our annual Physics Teachers Day on Sat Dec 2 with 44 teachers attending. We started the day with a hands-on LIGO lesson presented by members of the Alberta Teachers' Network of the Perimeter Institute for Theoretical Physics (Laura and Jeff), and followed with three presentations on Stellar Evolution.

—*Terry Singleton, Section Representative*

## Arizona Section

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This meeting was held at Estrella Mountain Community College to take advantage of their Maker Space. We began with a tour of the space, demonstrations of the equipment, and opportunities to try out equipment such as the 3D printer and laser cutter. The student club there was testing out using the laser cutter on pumpkins to do complex engravings for Halloween for a fundraiser.

The first presentation from Mike Vargas was on the status of High School Physics Teaching in Arizona. Simply put, this status is nigh unto apocalyptic. There is something like 160 active certified teachers teaching physics in public high schools in Arizona, a state with more than 1000 public high schools. Efforts to obtain funding to train additional teachers have met with some success, but the resources are both smaller than what is needed and being dispersed too broadly to have a substantial impact. It is left as an exercise for the reader whether the average starting salary for teachers in the state of \$31,874 (for the 2012-13 academic year, according to the NEA) affects this situation.

The second presentation, by Zak Kovach, was on the status of the development of new science standards for the state. Arizona chose not to adopt either Common Core or the NGSS as written, but rather to write its own standards. It is hoped that these standards will be released sometime in 2018.

The third presentation, by Kelli Warble, was on the status of AAPT Leadership development, based on the Aspiring to Lead Report. We broke into discussion groups to talk about leaderships and the different leadership roles we can play in our schools and in our communities.

The fourth presentation, by Rebekah Brubaker, Founder and CEO of RealTime STEAM, was about her company's efforts to bring real scientists to public events, like Comic Conventions and other large events, where the scientists talk about the science they do and how it connects to the various world and realities explored in comics, science fiction, etc.

The fifth presentation, by Karie Meyers, was about her efforts to make her classes more student-centered, and was followed by a general discussion of the topic.

Membership report:

There are 25 lifetime members of the section and 14 regular members. The current officers are:

President: Jim Ward, Veritas High School  
Vice-President: Amy Johnson, Saguaro High School  
Secretary: Allison VanLiew, Northwest Christian High School  
Treasurer: Michael Canham, Scottsdale Community College  
Section Rep: Eric Martell, Phoenix Country Day School  
High School Rep: Zak Kovach, La Joya Community High School  
4 Year College Rep: Kelli Warble, Arizona State University  
2 Year College Rep: Jeff Hegensbach, Estrella Mountain Community College

—*Eric Martell, Section Representative*

## AOK section

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The AOK section met in Hot Springs, Arkansas on Nov 9 – 10, 2017. The meeting was organized by Shane Thompson and held at the Arkansas School for Mathematics, Science and the Arts (ASMSA). Speakers included Joel Gordon, Executive Director of the Arkansas Regional Innovation Hub, and talked

about the Maker Movement in the USA and Dr. Jon Ruehle, Biology Instructor at ASMSA and his work with quantum biology.

The fall 2018 meeting is to be held at Northeastern State University in Tahlequah, Ok and the Fall 2019 meeting Ottawa High School in Ottawa, KS.

—*Martin Shaffer, Section Representative*

## British Columbia Section

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The BC Association of Physics Teachers (BCAPT) and Simon Fraser University (SFU) hosted a physics professional development event for high school teachers on Friday, February 24, 2017. Approximately 50 physics instructors and student teachers were in attendance. The focus of the meeting was the new BC science curriculum for Grades 10- 12, especially the physics topics that are new to the curriculum.

The day began with a keynote talk by high school teacher Joe Muise on “Inquiry Learning at Canada’s National Synchrotron Laboratory”. This presentation included student perspectives on the program provided by several of Joe’s students who were able to take some time out from their busy schedules to attend in person. The keynote was followed by a selection of hands-on workshops and talks including Daria Ahrensmeier’s (SFU Physics) workshop entitled “From Schrodinger’s Cat to Quantum Computing”, Barbara Frisken’s (SFU Physics) workshop on energy in the Grade 10 curriculum, Levon Pogosian’s (SFU Physics) talk: “Our Universe: The Big Bang” (See Figure 1.) and a special workshop led by Svetlana Catia, a physics teacher from Crofton House school, “Teaching Quantum Physics in High School”. A catered lunch was provided in between the workshop sessions.



Figure 1: Levon Pogosian’s cosmology presentation.

The meeting concluded with a physics education research talk by Dr. Eugenia Etkina, a physics education professor at Rutgers University in New Jersey, who presented the SFU Dept of Physics colloquium. A big “Thank you” to all the presenters and organizers, and to the SFU Dept of Physics for their sponsorship of the meeting. The day provided much insight into the developments in BC’s new science curriculum and new developments in physics education in general.

The BCAPT held its Annual General Meeting on Saturday, May 6, 2017 at the University of Victoria (UVic) on Vancouver Island. A group of about 20-30 attendees comprised of local physics teachers and dedicated BCAPT executive committee members, who traveled from the Vancouver Metro area by ferry, enjoyed a day of talks, a panel discussion, lunch and a tour of the UVic campus. The talks included a presentation by Jennifer Kirkey (Douglas College) on open source educational resources and a talk by Mark Laidlaw (UVic) entitled “Getting more from Multiple-Choice Questions”. We are grateful to the University of Victoria Physics Department for sponsoring us. We also voted to elect new Executive Committee members:

The 2017-18 BCAPT Executive Committee is:

President: Takashi Sato

Vice-President: Giselle Lawrence Past President: Mark Laidlaw Treasurer: Paul Cheng Secretary: Bruno Tomberli

AAPT Section Representative: Sarah D. Johnson

BCAPT Web Designer: Marina Milner-Bolotin

—*Sarah D. Johnson, Section Representative*

## Chesapeake Section

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The Chesapeake Section spans the regions of Virginia, Maryland, and Delaware. We intentionally plan our meetings (two per year, one spring and one fall) so that we are in different locations within the tri-states. We are seeing new faces at our meeting, but we are not finding that these new participants are willing to travel to other locations outside of their “area.” Our Communication Liaison, Elena Kuchina, is doing a

wonderful job keeping our section website updated with meeting locations along with presentation links in addition to sending out email alerts to all CS-AAPT members about upcoming meetings.

For the first time we participated in a joint meeting with an adjacent section (Appalachian). Those who attended found it to be a great meeting. Unfortunately, the date of this meeting coincided with the March on Science in DC making our attendance small.

Nevertheless, we hope to do this again.

We have had very little participation from members in the Delaware and western Maryland areas. Our plan is to open more direct communications with adjacent sections -- section reps and presidents. It our hope to share their meetings with our members and our meetings with their members so that interested individuals can find a “local” meeting to attend. While section meeting information is available on the AAPT website, we hope that this would be a more personal approach.

—*Deonna Faye Woolard, Section Representative*

## Chicago Section

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The CSAAPT Spring Meeting was held at Niles West High School in Niles, IL, on Saturday, March 18, 2017. There were 48 attendees (6 4--year college faculty, 4 TYC faculty, 28 high school teachers, 7 college students, and 3 community members). Our guest speaker was Kelly O’Shea, who gave the keynote talk and an afternoon workshop on white--boarding, which were both excellent. There were eight contributed talks and a contributed poster as well. Kelly O’Shea was a popular draw, and this was our largest turnout for a meeting and workshop in a several years

During lunch, the business meeting was held. There was an update on the local section business and on National AAPT News, including information about the summer meeting. The 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 is still unresolved.

The CSAAPT Section applied for and was awarded a Section grant to survey local teachers to see how we could best serve them and the better advertise our meetings to teachers who are not on the mailing

list. Unfortunately, the award was made too late to make a direct mail push to many teachers, but we did generate a large e--mail list of local high school and college teachers and sent a couple of e--mails to them. Several teachers who had never attended a CSAAPT meeting did respond to the e--mails and attend the Fall meeting!

The CSAAPT Fall Meeting was held at Lewis University in Romeoville, IL, on Saturday, November 18, 2017. There were 40 attendees (9 4--year college faculty, 6 TYC faculty, 14 high school teachers, 10 college students, and 1 community member). We had nearly 50 people pre--register, but the day had torrential rains (major roads flooded in the Chicagoland area, etc.) and many registrants did not attend, but we did have a few attendees who did pre--register show up for the meeting. Dr. Don Lincoln from Fermilab was our Keynote Speaker, and gave a preview of his plenary at the national meeting. Dr. Jason Keleher from the Lewis University Chemistry Department gave an excellent invited talk entitled “Nanotechnology.... Blurring the lines between Chemistry and Physics,” which was an excellent and very well--received presentation as well. There were also five contributed talks and Dr. Keleher and Amy Mlynarski from the Lewis Chemistry Department and James Hofmann and Dr. Joe Kozminski from the Lewis Physics Department gave an interdisciplinary afternoon workshop entitled “Small Science with Big Value.”

During lunch, the business meeting was held. The new slate of officers was voted in. The list is attached below. There was discussion of section business and news from AAPT National, including information about the Winter Meeting. Joe Kozminski was awarded the CSAAPT Award for Distinguished Service.

—*Joseph Kozminski, Section Representative*

## Florida Section

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The Florida Section’s Annual Fall Meeting was held at Florida Polytechnic University, November 4, 2017. The meeting began with an informal gathering Saturday morning with the obligatory coffee followed by welcomes from Adam LaMee, FL AAPT President, Dr. Nicoleta Sorloaica-Hickman, from Florida Polytechnic and our local host: Sesha Srinivasan.

Beth Smith from Texas Instruments provided the opening plenary on 10 Minutes of Code and then there were short talks from faculty from colleges around the state. After lunch, J.P. Keener from PASCO provided the second plenary on data collection using Bluetooth, giving some insights into current and future data collection resources for teaching physics laboratories. An afternoon of contributed talks followed before two hands-on activities presented by our hosts. The meeting adjourned Saturday evening at 5pm. The Section held its annual business meeting during lunch, hearing reports the officers. Of note have been the initial FL Section newsletters sent out monthly or bi-monthly from Section President, Adam LaMee as well as a move to a new domain: [www.flaapt.us](http://www.flaapt.us). The next section meeting will be fall 2018 at the University of Florida in Gainesville hosted by Shawn Weatherford.



—*Shawn A. Weatherford* , *Section Representative*

## Illinois Section

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In late October, for the Fall 2017 Meeting, the ISAPT held a joint meeting with the Wisconsin Section. The two-day meeting, “Contemporary Physics Instruction”, welcomed nearly seventy attendees and spanned from Friday, October 20 through Saturday, October 21 at Rockford University in Rockford, IL. The meeting google site is found here: <https://sites.google.com/site/isaaptsite/meetings/fall-2017>. Of the seventy members attending (and counting those who took advantage of the pre-deadline online conference registration), approximately 25 attendees came from the Wisconsin AAPT section and 45 members from the Illinois AAPT section. We welcomed two speakers from outside the IL-WI region: Professor Sarah Tuttle joined us from the University of Washington in Seattle, WA, and Gregory Good joined us from the American Institute of Physics in College Park, MD.

Professor Sarah Tuttle delivered one plenary and one 45-minute invited talk. Her enjoyable post-

banquet plenary talk, titled “Building Instruments for Discovery”, discussed her research astronomy interests, specifically the experimental impact of her two projects she has assisted in building: HETDEX, a replicated spectrograph to measure signatures of dark energy, and FIREBall, a balloon experiment hunting for the intergalactic medium. The following morning, she delivered her 45-minute invited talk, titled “Is the Pipeline Leaking? White Women and Other Minoritized Scientists in Astronomy”, where she addressed her involvement as an organizer for the recent “Women in Astronomy IV” meeting and how an over-emphasized framing around STEM and “filling the pipeline” may even have the opposite of intended effects.

Following Professor Sarah Tuttle’s invited talk, Mr. Gregory Good lead a workshop, titled “Women and Minorities in the History of Physics: Role Models for Today”, where he discussed the American Institute of Physics’ mission to assist students in their appreciation that not only white males made substantial contributions in the development of physics, astronomy, and in the physical sciences. In his well-attended workshop, he introduced a captive audience to the teaching materials and other activities provided by the AIP (and available on the AIP website, free of charge) to help instructors bring these history lessons to their classrooms.

—*Jennifer L. Gimmell* , *Section Representative*

## Kentucky Section

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AAPT members from the Kentucky Section provided support for the 2017 summer meeting of the AAPT, held in Covington, Kentucky (across the Ohio River from Cincinnati). Members of the Kentucky Section worked with the Southern Ohio Section to maintain a successful Local Organizing Committee. In addition to planning, and providing volunteers to support AAPT staff during registration, members of the Kentucky Section visualized, organized, and implemented the two-hour long Solar Fest share-a-thon event at mid-day on Monday 24 July 2017.

The 2017 spring meeting of the Kentucky Association of Physics Teachers was held on Saturday 11 March at Bluegrass Community & Technical College, in Lexington.

The 2017 fall meeting was held in conjunction with the Kentucky Academy of Sciences on Saturday 4 November at Murray State University. The results of the on-line election for Section officers were announced at the fall meeting; Marilyn Akins was re-elected as Secretary-Treasurer, J. Scott Miller was elected as Vice-President for Two-Year Colleges.

—*Richard Gelderman, Section Representative*

## Long Island Section

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The Long Island Chapter of the AAPT had its fall conference on October 28, 2017 at Northport High School (154 Laurel Hill Road Northport, NY 11768). The featured presenter was Greg Guido who is a high school physics teacher at Northport High School. He gave two presentations:

### Digital Data Acquisition and Analysis in the Physics Classroom

Participants had a chance to try out various probes and sensors (motion, voltage, force, sound) from Vernier as well as using LoggerPro software to analyze the data as they go from station to station. Each station was geared toward a lab or activity that has been done with Regents or AP/IB physics classes. Handouts with lab instructions as well as a link to electronic copies were provided.

### An Introduction to Using Arduinos

Members learned how to use NGSS-ready kits. They learned how to use a breadboard and hack computer code.

—*Rich Slesinski, Section Representative*

## Michigan Section

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The Fall 2017 meeting of MIAAPT took place Saturday, October 21, 2017, at Grand Valley State University (GVSU) in Allendale, Michigan. About 20 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 President Laurence Tarini (U. Michigan-Flint) and coordinated by our 1st Vice President Taoufik Nadji (Interlochen Arts Academy). Both Dr. Tarini and Dr. Brad Ambrose, acting chair of the Physics department at GVSU (and the author of this report), offered words of welcome to attendees.

Contributed presentations. Conferees enjoyed seven contributed presentations during the morning session. Danny Caballero, co-director of the Physics Education Research Lab at Michigan State University, was accompanied by MSU student Daniel Oleynik. Both presented contributed talks in order to share results from an ongoing project focusing on computation in teaching introductory physics, both at secondary and post-secondary levels. Taoufik Nadji (Interlochen Arts Academy) shared an experiment in offering a more creative format for his course syllabus. Josh Veazey (Grand Valley State University) presented recent findings from a teaching experiment using a specifications-based grading system for different sizes of physics courses. Along with other contributed talks by Mike LoPresto and Alan Grafe (both from U. Michigan-Flint), the morning also included a poster presentation, “Exploring gendered performance differences in introductory physics,” by Nita Kedharnath, an undergraduate physics major at U. Michigan-Ann Arbor.

Featured speaker. Before lunch conferees were treated to a plenary address delivered by Kathleen Stetson, who shared of her adventures from an interdisciplinary career that includes acoustical engineering, promotion of the arts (particularly music), and entrepreneurial efforts to use technology to infuse arts into everyday life. Holding Masters degrees in both vocal performance and architectural acoustics, Kathleen presented the audience with examples of challenges that one faces while simulating, planning, and testing designs for new or improved performance spaces, including Greece’s first national opera house.

Afternoon activities. A brief business meeting was held immediately after lunch. In addition to reports from the treasurer (Don Pata) and section representative (Brad Ambrose), Alan O’Keefe of Lansing Community College was elected as new 2nd Vice President. (This position had been vacant since the Spring 2017 meeting.) A workshop was also offered in the afternoon, facilitated by Brad Ambrose (GVSU) and focusing on classroom materials relating to the 2017 Great American Solar Eclipse. Development of these materials was supported by a grant from the NASA Heliophysics Education Consortium and are intended of incorporating active-learning strategies to the teaching of eclipse-related topics in physics and astronomy.

Next meeting. We are eagerly anticipating our next section meeting, which will be a joint meeting with the Ohio Section of the American Physical Society. This meeting has the theme, “Promoting a diverse and inclusive future for physics and astronomy,” and is scheduled to be held at Michigan State University for March 23-24, 2018.

—Bradley S. Ambrose, *Section Representative*

## Mississippi Section

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After several years of inactivity, I called together the people still on the roll for a Mississippi Section meeting in the summer of 2017. We elected new officers and changed our name for MAP (Mississippi Association of Physicists) to MAPT (Mississippi Association of Physics Teachers) to be in line with the national organization. Also college professor members brought old laboratory apparatus for the high school teachers to take back to their labs.

We planned a fall meeting in conjunction with the fall meeting of MSTA (Mississippi Science Teachers Association). The plan was carried out with two demo shows and recruitment of new members.

—John R. Banks, *Section Representative*

## Nebraska Section

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The meeting was called to order by Andrew Baruth, UNL to host Winter/Spring Meeting mid to late March.

UNL to host Fall 2018 meeting with the Astronomy Education on October 6th 2018.

Trudi moved to accept UNL for Spring 2017 and Fall 2018.

The Facebook page needs more attention needs to be more interactive.

Thane Lewis was nominated, seconded, and elected President for the 2018/2019 school year.

Trudi had extra physics boards and web cams. She gave them away to attendants.

Meeting adjourned by Thane and 2nd by Jerry.

Respectfully Submitted,

Tom Brestel Sec./Treas. N-AAAPT

—Tom Brestel, *Section Representative*

## New Jersey Section

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The NJ section (NJAAAPT) had another very active year. As of 12/31/17, our active membership is 210

members. Significant events of the section during 2017 include:

January:

The annual NJ Physics Olympics (held on Jan. 14th) is sponsored and hosted by the NJAAAPT. It is open to all high schools in the state. There were more than 40 teams competing in this one-day, 6-event competition.

February:

We held our annual “Demo Night” on Feb 3rd where many teachers get together for an informal evening of demonstrations given by the attendees for the benefit of all in attendance. This year we had 32 members in attendance and it was held at Princeton University.

March:

The annual NJ section meeting was held at Princeton University on Friday March 17th and Saturday March 18th. The title and focus of the 2017 section meeting was “New Approaches in Physics Education.” On Friday night the schedule of events included dinner and a special presentation by our invited speaker Dr. Kent Yagi, a Postdoctoral Research Scholar at Princeton University. Dr. Yagi gave a fascinating talk on the first observing run of LIGO.

The dinner was attended by 39 members and their guests. Saturday’s program included three presenters as well as breakfast, lunch and a general business meeting. Saturday’s program was attended by 56 members and guests.

June:

On June 3rd, the section hosted a workshop entitled “Adding Inquiry to Physics First” The workshop was designed to help the new “Physics First” teacher integrate more accessible, inquiry-based activities and performance tasks into their curriculum.

The section hosted another workshop on June 28th at Rowan University. The title of the workshop was “Get your Graph On!” In this workshop, graphing techniques and analysis for Introductory physics students were demonstrated and discussed, along with common errors and misconceptions that students have. Classroom and lab activities were provided. The workshop was attended by 11 members.

October:

A video workshop held on October 21st was given to

assist teachers in video analysis in the classroom. We also provided Vernier video-analysis manuals to each of the 10 attendees.

December:

“STEAMing Physics”, a workshop where members looked at innovative ways of teaching through creativity and incorporating art and design into lessons was provided on Dec. 2nd. Each of the 10 attendees was also given a rattleback in order to design a lesson around creative things which students can do with it

Our annual Holiday party was celebrated on Dec. 8th at Princeton University. This year the event was called the “Physics Film Fiesta” where attendees watched various physics videos and discussed as a group how to utilize the various videos in our physics classrooms. Each of the 25 participants received classroom physics demonstration items (prism mirrors) built by a section member and given other miscellaneous items to spark discussions in the classroom.

In addition, Executive Board meetings were held monthly except during July.

—*Dr. Jim Ferrara, Section Representative*

## NYSS Section

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This past fall, the New York, New England and New Jersey Sections conducted a joint meeting at Syracuse University. Our invited speakers were the two VP Candidates for AAPT (Genaro Zavala and Chandralekha Singh). Our Friday evening banquet included a plenary by AAPT EO Beth Cunningham, followed by a demo show performed by some of the northeast’s most famous lecture demonstration professionals.

The formal meeting, held on Saturday, featured both invited and contributed talks ranging on topics from PER to LIGO to (other) astronomy to how to construct a Schlieren-type imaging system easily. We were all treated to some very interesting live images from the latter. 3-d printers are the rage right now. An interesting and less known device is a 3-d pen. If you can imagine it, you can 3-d draw it as well. Need a spring but can’t find one? Then 3-d draw it.

While we all saw the talk and learned valuable information, some attendees chose to participate in

the 3-d pen afternoon workshop. They were assigned a physics task, and then created an object using a 3-d pen to carry out that task. The workshop participants also took home their own 3-d pen.

As in previous meetings, the PTRA Fun and Engaging Labs workshop, led by Steve Henning, was well attended and the reviews were excellent.

energyteachers.org (Shawn Reeves) conducted a bicycle power workshop. energyteachers.org conducts workshops and can loan equipment for little to no cost. Check out their website.

Our spring meeting was located in Buffalo. Many braved the fierce Buffalo weather for engaging talks on LIGO, video creation, and methods to encourage and evaluate critical thinking.

—*Samuel Sampere, Section Representative*

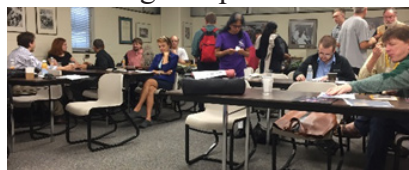
## North Carolina Section

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The 22nd Annual Fall Meeting of the North Carolina Section of the American Association of Physics Teachers was held on October 13-14, 2017 at East Carolina University, Greenville, NC. Our local hosts were Steven Wolf, the Department of Physics and the ECU Center for STEM Education. The meeting was also held jointly with the Zone 5 Society of Physics Students Meeting.



On Friday evening, Dr. Marcos “Danny” Caballero of Michigan State University, a physics education researcher who studies how tools and science practices affect student learning in physics, and the conditions and environments that support or inhibit this learning, gave the keynote talk. Danny co-directs the Physics Education Research Lab at MSU and serves as research faculty at the University of Oslo’s Center for Computing in Science Education. Dr. Caballero’s talk was titled, “How might Physics Education Research facilitate the coming computational revolution?”





On Saturday, the day started with breakfast followed by an invited talk, “A Physics Approach to the Stock Market: A Relation between Price and Traded Volume.” By Dr. Martin Bier of East Carolina University. This was followed by a Contributed Paper session of 10 talks.

After lunch were nine student poster presentations. Following a short break there were two parallel workshops and a tour. Dr. Danny Caballero presented a “PICUP Demonstration Workshop” while Dr. Jung, Dr. McLawhorn, and Nichole Libby, all from the Biomedical Physics PhD program at East Carolina University, presented “Medical Physics and you.” Finally, there was a tour of the ECU Accelerator Laboratory: a 2 MV tandem Van de Graaf accelerator with sputter ion source which is used for basic and applied research. Following the workshops was the business meeting.

Christopher Allen of Appalachian State University received the Best Undergraduate Paper Award for his presentation, “Using Vpython to teach High School Physics.” Phillip DeVille and Mark Sprague of East Carolina University received the Best Graduate Student Paper Award for their poster “Modeling Noise Propagation from Deeper Vessel Channels to Very Shallow Water Fish Nesting Sites using a Finite Difference Time Domain Method.” Regina Dewitt of East Carolina University received the Best Pedagogical Paper Award for her talk, “Guided by Cold Light: From Ancient Settlements via Antarctica to Mars.”

—*Mario Belloni, Section Representative*

## **NCN Section**

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On November 4, roughly 110 members of the Northern California/Nevada section attended the Fall meeting at City College of San Francisco. The day started with a poster session during registration. The first main event was a tribute session to the Exploratorium’s Paul Doherty, who recently passed. Paul was an active section member who touched the lives of many in our community, we remembered him through his demos, five members shared activities that he had taught them. Brian Holmes from San Jose State University followed with 90 minutes on

the Physics of Brass Instruments. Starting from a visualization of standing waves, Professor Holmes explained how the different parts and geometries of trumpets, horns, and other instruments affected their musical qualities. There was an extended lunch featuring a taco service. Topic tables included Physics of Amusement Parks, Math in Gen Ed Classes, Issues in Articulation, Equity, AP Physics, NGSS, and of course social tables. Upon return, members were treated to a 90-minute question and answer session with Mary Roach (proclaimed by the Washington Post as America’s funniest science writer). This was followed by an expert panel on Transgendered students, moderated by Ardel Thomas, chair of CCSF’s LGBTQ Studies department. Ardel was joined by two of their students. Section members learned best practices for establishing and maintaining a welcoming and supporting environment. We closed with our traditional Share & Tell, a dozen members shared their coolest new ideas.

—*David Marasco, Section Representative*

## **Ontario Section**

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The Ontario Section of AAPT (Ontario Association of Physics Teachers) enjoyed yet another very busy and successful year. The current report features the 2017 calendar year news, events and activities.

Ontario Section maintains a very active website at <http://www.oapt.ca>. Various teaching resources assembled by OAPT are posted at <http://www.oapt.ca/resources/index.html>. Our Newsletter can be found at <http://newsletter.oapt.ca/>.

### **1. OAPT Annual Conference**

OAPT Annual (39th) Conference was hosted by Lassonde School of Engineering, York University, Toronto. It took place May 11-13, 2017. “Harnessing Emotion to Improve Learning” conference highlighted affective learning. As always, we had a great selection of hands-on, practical workshops and many award-winning presenters.

### **2. Events and Activities**

Members of OAPT participated in a number of science education-related events that took place in Ontario, such as York University Evening for High

School Physics Teachers, Canadian Light Source (CLS) Teachers' Workshop, TDSB Eureka Science Conference, and many other events. The complete list of recent and upcoming science education events and activities that OAPT members took part in can be found at <https://oapt.wildapricot.org/events>.

### 3. Awards and Recognitions

We are excited to report that Lisa Cole (Lim-Cole), Durham District School Board is awarded 2017 CAP Award for Excellence in Teaching High School/CEGEP Physics (Ontario) for her up-to-date pedagogical skills that have enhanced the educational experience and future success of over nearly 70,000 students within the Durham Region and her superb leadership with teachers all over Ontario. The award citation: "Lisa Lim-Cole is a one-of-a-kind physics educator. Her creative approach inspires students to explore everyday experiences and deepen their conceptual understanding. Lisa illuminates for physics students the relevance of their learning and connects physics to career pathways. This has increased physics enrollment at her school and inspired many students to pursue degrees in physical science and engineering. Currently, Lisa has a central role supporting K-12 STEM educators in the Durham District School Board (DDSB). Lisa created the DDSB STEM Plan and works with DDSB educators to develop innovative strategies for physics-STEM teaching and learning. Lisa continues to explore new ways to promote physics-STEM by annually organizing student events like STEM Olympics and Mystery Box Challenges, and by mentoring groups of students in events like Future City Competitions, Inspiring Girls in STEM and STEM Talks.

Her love for physics, students, and lifelong learning drive Lisa to engage in conversations throughout Ontario with peers, students, parents, and top-level civil servants. Her goal is to advocate for and support physics/STEM education. Lisa is past president of the Ontario Association of Physics Teachers and is the Eastern Ontario Teacher Network Coordinator for the Perimeter Institute for Theoretical Physics. She has organized provincial physics teachers' conferences and participates in the national Engineering Change Lab. Lisa believes that addressing diversity in physics/STEM starts with inspiring physics/STEM educators to learn alongside their students.

Lisa Lim-Cole is a dedicated physics educator who motivates large numbers of students and teachers and inspires creativity and innovation in physics and STEM education."

**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

### 4. Future Events:

Plans are well underway for this year's conference which is being held May 10-12 at the Western University, London, Ontario. This year's theme is "Physics at the Boundaries". We will be highlighting some of the exciting things happening where physics connects with astronomy, biology, philosophy and more

As always, we are looking forward to refine and further expand our activities by building upon our successes and strengths in 2018 and beyond.

—*Tetyana Antimirova, Section Representative*

### SEPS Section

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Over the past year, SEPS has held its two traditional meetings, a Spring Meeting and a Fall Demo Show, in addition to several workshops and other activities. In this report these activities are summarized, and upcoming plans are discussed.

Our Spring 2017 meeting was held on March 7 and 8 at West Chester University in West Chester, Pennsylvania, hosted by Dr. Michelle Caler and the WCU Department of Physics, and drew approximately 40 registered attendees. Our Friday evening keynote speaker was Dr. Shawn Pfeil of WCU, who presented about his research on Nanofabrication, and on Saturday morning our invited speaker was Dr. Paul Angiolillo of Saint Joseph's University, on the topic of carbon-based electronics. Following Paul's talk,

a panel discussion was held on the topic of “Physics First” in high schools.

These presentations were followed by our Business meeting, at which Ryan Batkie (The Shipley School) was elected President and B. J. Enzweiler (Science Leadership Academy) was elected Vice-President, Barry Feierman (The Westtown School, ret.) and Art Zadrozny (West Chester East High School) were re-elected Secretary and Treasurer, respectively. Jeremy Carlo (Villanova University) continued on in his 2-year term as Section Representative, and was not up for election in 2017.

The Spring Meeting concluded with two concurrent workshops, one on topics appropriate for 9th grade physics courses led by Barry Feierman, and a panel on teaching astronomy at the college level. Photos of the meeting may be found on the SEPS website at <http://www.physics.upenn.edu/aapt/PastEvents/17-0318SpringMeetingWCU/index.html>.

The SEPS Fall 2017 Demo Show was held on October 28 at Owen J. Roberts High School in Pottstown, PA, hosted by SEPS Webmaster Mary Pandya. At this event over a dozen SEPS members presented demonstrations on topics ranging from mechanics to electromagnetism to optics and superconductivity. SEPS also coordinated a Vernier workshop at West Chester East High School in West Chester, PA, led by Fran Poodryor Vernier (and a long-time SEPS member). SEPS has also continued to support Bill Berner’s annual Holiday Demo Show at the University of Pennsylvania, typically held in early January each year, which has grown into a significant area attraction for physics outreach and education.

Our Spring 2018 meeting will be held at Penn State University Abington, in Abington, PA, hosted by Ann Schmiedekamp and the Department of Physics. We are in the process of inviting speakers and establishing a schedule, which will be posted on the Section website when it is available. At this meeting we will also elect Officers for the 2018-9 membership year.

—*Jeremy P. Carlo, Section Representative*

## **Southern California Section**

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On Saturday, November 4, 2017, fifty members of the Southern California Section of AAPT gathered at

Saddleback College for a day filled with new physics and helpful advice for the classroom.

Jo Ann Merrell, Saddleback College, led a session on how a multiplatform application, ImageJ, can be used for image analysis in the classroom. ImageJ is an open source Java image processing program developed by the National Institute of Health. Prof. Merrell showed how this application allows here students to investigate and apply physics principles to real situations. She provided attendees with instruction on the use of basic measurement tools and sample classroom activities, which, along with the necessary image and video files, she provided to attendees

Several other SCAAPT members also gave engaging contributed presentations:

- Cliff Gerstman, Middle College High School— Playing with NASA
- Jonathan Stamper, Palos Verdes Peninsula High School— Using an authentic assessment for Hooke’s Law
- Robert Baker, Wildwood School High— A resource for Middle and High Schools introducing High Energy Physics: QuarkNet
- Jeff Phillips, Loyola Marymount University— Public outreach – 500,000 people at a time
- Bill Layton— Future Workshop Possibilities
- Lee Loveridge, Los Angeles Pierce College— Operation and Thermodynamics of Peltier Devices
- Smbat Avetyan, CSU Los Angeles— The Calculus-Based Physics Tutorial Program at CSU Los Angeles: An Assessment of Utility, Gains, and Student Group Dynamics
- Nuwan Karunaratne, Cypress College— Looking at Protein Molecules through Super Bright X-rays
- Harry Manos, Los Angeles City College— Thomas Young and the Rosetta Stone
- James Lincoln, PhysicsVideos.com, The Physics Teacher— Superconductors in the high school classroom

The ever-popular Show ‘n’ Tell featured demonstrations by James Lincoln (retro reflectors), Bob Baker (Quarknet), John McGuffie (Sanford Underground Research Facility) and Larry Stein (compact object merger analog). 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 Todd Brei and the Saddleback College 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.

—*Jeff Phillips, Section Representative*

## **SAC Section**

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The SACS-AAPT met on October 6-7, 2017 at the South Carolina Governor’s School for Science and Mathematics in Hartsville, SC. Twenty four people registered for the meeting. After the banquet on Friday evening, Dr. Sarah Formica, University of North Georgia, gave the keynote address on “Best Practices of Significant Learning in the Flipped Classroom.”

On Saturday, eleven papers and one poster were presented.

The spring meeting will be in March at Dalton State College in Dalton, Georgia.

—*Bob Powell, Section Representative*

## **Southern Ohio Section**

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The fall meeting of the Southern Ohio Section was held on Saturday October 14 at Miami University in Oxford, in their beautiful new physics building. This meeting was held jointly with the Ohio Region Section of the American Physical Society, who met on the 13th, as well. Many thanks to Jennifer Blue for making all of the AAPT arrangements and serving as the local host.

During the morning parallel contributed sessions, we enjoyed presentations by Fred Thomas (retired from Sinclair Community College) on replicating earthquakes in the classroom, Lenore Horner on a coherent approach to teaching interference and on using GeoGebra for teaching physics, Hunter Daymon (Eastern Michigan University) on testing drag forces with a specially-designed pendulum, Herbert Jaeger (Miami University) on using Audacity

when teaching the physics of music, Jennifer Blue on student-reported strategies for improving their course grades, and Beverley Taylor (Miami University – Middletown) on teaching physics with toys. As if a toy-based presentation wasn’t cool enough, Beverly, who is going to retire at the end of this academic year, brought plenty of toys to give away.

We welcomed Tom Foster (University of Southern Illinois – Edwardsville) as the AAPT-sponsored speaker for a joint plenary with APS. He gave the audience much to think about from cognitive science in his talk, “Explicit Content and Spoilers: What We Know About Solving Problems.” Benjamin Schumacher (Kenyon College) combined two areas that might not be thought of together in the second plenary, “Quantum Flows of Probability and Heat.” In the afternoon we had a plenary addressing the implementation of the relatively new AP Physics 1 curriculum from Doug Forrest, Kevin McChesney, and Kathy Harper.

At the section business meeting, it was announced that we are looking for volunteers to finish the term of Terry Toepker, who recently had to step down from the position of Vice-President for Four-Year Colleges.

## **Upcoming Meetings**

The spring meeting will be held at New Albany High School on February 10, 2018. It will be a joint meeting in conjunction with the Ohio Modeling Instruction community’s “Modelpalooza.” Jessica Whitehead is hosting, and Kathy Harper is coordinating the program.

The fall 2018 meeting will be in October at The Seven Hills School, hosted by Lenore Horner. The exact date will be determined once some other school events have been confirmed.

—*Kathy Harper, Section Representative*

## **St. Louis Area Physics Teachers Section**

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Update on SLAPT mini-grant. October 7, 2017: Sound Workshop at SEMO. This workshop was facilitated by Bob Brazzle, who traveled to Cape Girardeau using funds remaining from the AAPT mini-grant. This workshop incorporated some of the same hands-on materials as the December 3 workshop (see above), as well as a SLAPT workshop facilitated by Bob several years ago. Bob wants to again thank AAPT for the

mini-grant program.

—*Bob Brazzle* , *Section Representative*

## Southwestern Section

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Currently the section needs more members and more participation by the members which it has. There are two main efforts by the section. They are

- 1 Contact with High School teachers of physics
2. An informative web site

Most High School teacher contacts were through a yearly STEM Conference. Organizational presentations and subject matter presentations were made. An information display was created. Unfortunately, the conference series has been discontinued.

An informative web site is in operation at the URL [www.swaapt.qzxservices.com](http://www.swaapt.qzxservices.com). The web site could use more content in addition to the informative links there. A current, but somewhat unimaginative, membership drive is underway.

, *Section Representative*

## Washington Section

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Washington Section Fall 2017

This fall the meeting was held at Central Washington University in Ellensburg, WA. This year's theme was "Project Based Learning – Lecture Less, Teach More." The program featured Friday evening workshops and Saturday sessions as we have been doing for the past several years.

Friday Oct 6th:

- Student-led tours of classrooms and research labs in Science II
- Workshop Session I: Using WorldWide Telescope to tour the universe in your classroom
- Workshop Session II: How to incorporate inexpensive telescopes into your curriculum
- Rooftop observing (weather permitting)

Saturday Oct 7th:

- Tony Smith, Central Washington University, "The Impact of High-Context Activities on an Online Physics Class"
- Andrew Boudreaux, Western Washington University, "Measuring far transfer: Investigating

student attempts to apply energy concepts across contexts"

- Keith Clay, Green River Community College, "Data collection and analysis with Mathematica and Vernier"
- Richard Stevens, Whitworth University, "Robotics Projects in a Junior-level analog circuits course"
- Robert Ruotsalainen, Eastern Washington University, "Photometric distances and ages of open star clusters"
- Andy Piasek, Central Washington University, "A high school course on musical acoustics: If I build it, will they come?"
- Thomas Haff, Forest Ridge School of the Sacred Heart, "Taking a set using a ticket tape timer"<sup>[SEP]</sup>
- Hillary Stephens, Pierce College, "Flipping Physics using EdPuzzle"
- WA-AAPT section business meeting
- Planetarium show
- Show and Tell: bring your favorite demos!

We were able to share the excitement of our Central Washington colleagues for their new facilities in the recently opened physical sciences building (Science II). Features include a quiet room (seriously quiet! Vibration isolated and acoustically damped – research level silence!), new planetarium and observatory and excellent research lab space supporting faculty and undergraduate research in, biophysics<sup>[SEP]</sup>, low temperature physics<sup>[SEP]</sup>, computational physics, acoustics, and optics.

The next meeting will be at Bellevue college, October (ish) 2018.

—*Robert Hobbs* , *Section Representative*

To list your section meeting in the AAPT Calendar of Events, e-mail the information to [mhall@aapt.org](mailto:mhall@aapt.org)

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