

## Chesapeake Section

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### Mini Grant:

Fourteen teachers were in attendance (October 11, 2019 on the campus of VCU). This was funded by a \$1000 grant from the AAPT. It included several activities, including STEP UP: Physics Together (Alma Robinson), Make-and-Take (David Wright), Alternatives to Traditional Physics Problems (Alex Barr) and a tour of the VCU Research labs. It was well received. It was noted, that contacting the County Science Supervisors is important in recruiting this kind of workshop.

### Major challenge faced by the section:

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 meetings, but we are not finding that these new participants are willing to travel to other locations outside of their “area.” Our Web Master, 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.

### 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. We have also had some additional interest in joint meetings – NC and PA. While those are in the planning stages, we do alert nearby sections of our meetings in the event that our meeting location might be close to some of their members.

—*Deonna Faye Woolard*, Section Representative

## Florida Section

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The Florida Section’s Annual Fall Meeting was held in Saint Petersburg on the campus of the Eckerd College on October 5th, 2019.

The meeting was attended by 20 section members from the greater Tampa Bay region, Orlando, Gainesville, and Palm Beach. Members affiliations included undergraduate students, high school faculty, K-12 administration, and two-year and four-year university faculty. The meeting provided a forum to present and disseminate ideas on physics teaching and discuss the current challenges in promoting the teaching and learning of physics in K-12 education in Florida.

Presentations included topics on connecting K-12 faculty to physics careers and universities, lessons on human generated power, using a makerspace and PBL to enhance physics instruction, augmented reality environments to explore relationships between force and motion, and reflections on foraging a community of practice among local physics instructors in the Tampa Bay region. Undergraduate students from Florida Polytechnic presented research on the design and testing of sleeves for ionization counters. The business meeting discussed ways to use organization resources to support recruitment of preservice and beginning in-service K-12 physics teachers. Members approved the recruitment and funding of FL-AAPT mini grants for qualifying individuals to receive \$100 to support costs associated with attending the AAPT Winter Meeting in Orlando in January. Members were asked to nominate qualifying individuals for consideration.

Adam LaMee led a discussion about the presentation of evidence and the forums available to advocate for increased support from school districts for offering physics courses in high schools. LaMee identified and presented correlations between taking physics courses and student success in Florida colleges and universities for students in the STEM pipeline. The

business meeting ended with a call for candidates to run for President and Treasurer of the organization, with an expected slate of candidates to proceed to ballot of members in January. The section thanked Adam LaMee, for his service to the organization, serving as President for two consecutive terms who must step down due to term limits.

A demonstration share-a-thon followed the business meeting and lunch with several demonstrations of homemade apparatus. The meeting ended with a workshop on utilizing STEP-UP resources in K-12 science courses to showcase how studying physics can lead to many options for careers among currently under-represented members of the community, and a tour of the Eckerd College makerspace.

The organization announced the awarding of six FL-AAPT mini-grants in November following the Fall Meeting to three undergraduate pre-service teachers and three in-service teachers in the first three years of teaching to attend the AAPT Winter Meeting. Finally, in December, nominations for the next two-year term for President and Secretary/Treasurer were solicited from current members with a vote of the members occurring in January. Brian Lee, from Santa Fe College, was elected to President. Kevin Thomas, from Orange County Schools, was re-elected to Secretary/Treasurer. These terms end December 2021. Respectfully submitted: Shawn A. Weatherford, University of Florida, Florida Section Representative.

—*Shawn Weatherford, Section Representative*

## Hawaii Section

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The AAPT-Hawaii Section had our 2019 fall meeting on August 27th at Leeward Community College. All officers elected in May (Liz King, President; Pui Lam, Vice President; Mike Weber, Treasurer; Tessie Ford, Secretary; Lisa Agle, Chapter Representative) in addition to 11 other members were present.

After official business Roger Kwok, AAPT member and professor at LCC, took us on a tour of LCC's Natural History Exhibit on campus. This collection of fossils and minerals are open to the public when school is in session. This was especially interesting for those physics teachers who are interested in natural history or are teaching earth sciences and looking for

more resources.

This was followed by a Bismuth Crystal Demonstration performed by Liz King from Olomana School. Several Crystals were obtained from the demonstration. (Technique similar to one used in the video: <https://youtu.be/v8KYZHMkTHw>).

We planned next year's Physics Olympics to be hosted at UH-West O'ahu. Each year, teams of high school students are invited to participate in five fun events based on concepts in physics. The specific events will be announced on the day of the Physics Olympics and are created by local college-level physics student groups including: Hawaii Chapter Engineering Club at UH, Kapiolani Society of Physics Students, Univ. of Hawaii Chapter, Hawaii Academy of Science.

For the last business of our meeting several teachers shared demonstrations for our group. These included: one on specific heat of metal vs wood, resonance water bowl, and using a handheld dynamo in reverse fashion. Our meeting concluded with a generous amount of donated door prizes (provided by Jeanine Nakakura, Roger Kwok, and others). These included books, demonstration equipment, and samples of fossils.

Our spring meeting was set to be April 18, 2020 at Le Jardin Academy in Kailua, Hawaii.

—*Lisa Agle, Section Representative*

## Long Island Section

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Long Island Section Report for 2019

Preparations for our 35th Physics Olympics started early in the year which resulted in 18 schools participating from all over Long Island. On March 22, 2019 ninety students competed on the campus of Farmingdale College in five events challenging their general knowledge in the Physics Bowl and Fermi Questions. Their knowledge of optics in the Laser Light Show and mechanics in Slow Roller and Accelerate!. Division Avenue High School in the Levittown School District placed first lead by their teacher Jeff Miller.

The Olympics was followed closely by the Spring Conference on April 6, 2019, which took place at Bay

Shore High School. About twenty local high school Physics teachers attended. In the first session Tania Entwistle shared her Peace Corps experiences teaching Physics in Tanzania. Justin King of Commack High School followed with a presentation examining how the New York State Science Learning Standards (NYSSLS) can be used to allow students to ask their own questions and formulate models. The day ended with a hands-on activity provided by Dr. Gillian Winters from Smithtown High School East -building colorful paper roller coasters. This was a great way to bring home the spirit of experimentation and exploration desired in the classroom.

The AP post-test examination analysis took place at the Deer Park BOCES center on May 22, 2019. The AP B exam was prepared by Bill Leacock and The AP C exam was handled by Dr. Gillian Winters.

On June 27, 2019 the opportunity to relax and share the end of the year challenges occurred at the LIPTA Barbeque hosted by Ed McDaniels, section president, at his home. The executive board reconvened a few days later to discuss the year's events and enjoy more of Ed's grill skills.

Our board's monthly breakfast meetings resumed in September. Each board member prepares a delicious meal which is a great incentive to be on time! The agenda for the year was set. Our board is now composed of nine members, however five of us are retired high school teachers. We would like to recruit more teachers who are currently teaching. Several meetings to develop the events for the Physics Olympics next March have been chaired by Dr. Gillian Winters and materials for information and registration are being mailed to our members shortly.

The Fall Conference took place on November 16, 2016 at Mephram High School with 25 participants giving up their Saturday morning to get more details on the NYSSLS that is being implemented over the next few years. Justin King again provided examples to discuss and to revamp to fit the standards. Bill Leacock, our host at Mephram, set up the materials for a make-and-take, an inverse-square demonstrator. The three hour Saturday morning conference format seems to be working well for our members who enjoy ample time for breakfast, time with their colleagues, and

professional development.

—*Tania Entwistle, Section Representative*

## Minnesota Section

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The MAAPT had its annual meeting on April 27, 2019 at the Bell Museum in St. Paul, MN. The meeting was organized by Parke Kunkle, who is a member of the board at the Bell Museum, Ben Stottrup (MAAPT president), Jolene Johnson (MAAPT vice-president), Dick Schwarz (MAAPT treasurer), and Marie Lopez del Puerto (MAAPT section representative).

Twenty six people attended the meeting. Highlights of the meeting included a show at the planetarium and a special session on women in Physics that included negotiation skills and information on the STEPUP program. A complete agenda is attached.

8:00 a.m. Registration in "The Den" classroom (Enter front door. Keep right of grand stair case. Continue straight past Touch and See Lab. Pass the elevator.

8:30 a.m. Planetarium show (MN in the Cosmos). No late entries.

9:15 a.m. Open doors to late comers. Continue with how UM-Twin Cities uses the planetarium in beginning astronomy course

9:45 Break & Posters

Measurement of the Lorentz Factor using a Muon Telescope, Liam Taylor, Univ. of Minnesota, Morris.

Measurement of Neutrons versus Altitude using Personal Neutron Dosimeters, Alaina Swanson, Univ. of Minnesota, Morris; Gordon McIntosh Univ. of Minnesota, Morris.

Exploring the Effects of Surface Tension on the Shapes of Fabricated Photopolymer Lenses, Sam Stevenson, Carleton Col.; Zack Johnson, Emily K. Schwartz Carleton Col.

10:15 Presentations

10:15 The Hamline University Medical Physics Research Collaboration, and the Development of an Algorithm to Estimate an Injured Worker's Limitation in the Workers'

Compensation System. Jerry L. Artz, Hamline Univ.; John Alchemy, MD Alchemy Logic Systems

10:30 Exploring the Effects of Surface Tension on the Shapes of Fabricated Photopolymer Lenses. Emily Schwartz, Carleton Col.; Sam Stevenson, Zack Johnson, Robert Thompson, Martha-Elizabeth Baylor, Carleton Col.

10:45 Elliptical centrifugal clutch system theory and experiment. Zengqiang “John” Liu, St. Cloud State Univ.; Kevin Haglin, Hyun Seo, St. Cloud State Univ.

11:00 Get the Facts Out about STEM Teaching. Jennifer Docktor, Univ. of Wisc. - La Crosse

11:15 New Possibilities for Science Teaching with Interactive Video. Peter Bohacek, Henry Sibley High School; Matthew Vonk, Univ. of Wisconsin River Falls

11:30 What’s interactive video and how can it help students learn? Matthew Vonk, Univ. of Wisconsin River Falls; Peter Bohacek, Henry Sibley High School

11:45 A Wind Energy Lab For a Sustainable Energy Course. Ananda Shastri, Minnesota State Univ. Moorhead

12:00 What constitute physics research?: An example of neuroscience. Demian Cho, Saint Mary’s Univ. of Minnesota

12:15 Computation with Spreadsheets in Introductory Mechanics. Marie Lopez del Puerto, Univ. of St. Thomas

12:15 p.m. Lunch/Business meeting

1:15 Special Focus On Women In Physics (see attachment for bios on the two speakers)  
Negotiation and Communication Skills for Women in Physics (Laura McCullough – UW Stout)  
STEP UP for Women: Supporting Teachers to Encourage the Pursuit of Undergraduate Physics for Women (Jolene Johnson-Armstrong – Edison High School)

—*Marie Lopez del Puerto* , *Section Representative*

## Northern California/Nevada Section

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On November 1/2, 2019 Foothill College hosted the Fall Meeting of the Northern California/Nevada section of the AAPT.

On Friday night a small group gathered at one of the officers houses for a social, followed by a trip to the Foothill Observatory for star gazing.

Roughly 100 members were in attendance for Saturdays events, approximately 40% were women. After a poster session during registration, the meeting started with announcements and a short memorial for long-time section member Scott Chan, who along with his daughter lost his life in the boat fire this past Labor Day. The comments were delivered by fellow section member Dan Burns, who had known him for over two decades.

The first talk was given by Silja Paymer, who spoke for an hour on the national-level Step-Up program, designed to encourage young women to become physics majors.

San Jose States Cassandra Paul gave the keynote address, “Equitable Grading Practices: Why we need to think carefully about grade-scales in introductory physics classes, which detailed differences in outcomes between a traditional percentage grading system and one that features a five-point scale. Pauls research has shown that there are equity impacts associated with success rates of underserved populations when percentage systems are implemented rather than the five-point option.

The section sat for a group photo, and there was a surprise presentation of the Paul Robinson Service Award to Bree Barnett-Dreyfuss. The Robinson Award is the highest honor our section bestows, and it was done in recognition of Brees dedication and hard work. This was followed by a taco lunch.

When the formal meeting resumed, Dean Baird and Bree Barnett-Dreyfuss gave a joint talk on how to secure funding, and what activities and projects could be done on the cheap in order to stretch a teachers budget.

This was followed by an extended show&tell, which featured ten-minute talks by Dan Burns, Valerie

Risk, Frank Cascarano, Bernard Cleyet, Jon Celesia, Andrew Park, Kaushik Basu, Richard Piccioni and Lee Trampleasure, with additional five-minute presentations by other section members. This closed the meeting.

At this meeting the section introduced its Code of Conduct, and also required members to make use of the microphone when speaking. The use of QR codes was strongly encouraged. Two members made use of dependent-care grants that were made possible by AAPT's mini-grants to sections. We continued to provide both gender-neutral bathrooms and a lactation room.

—*David Marasco, Section Representative*

### North Carolina Section

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The 24th Annual Fall Meeting of the North Carolina Section of the American Association of Physics Teachers was held on November 15-16, 2019 at North Carolina School of Science and Mathematics, Durham, NC. This was a Joint Meeting of the NCS-AAPT and SPS Zone 5. We thank our Local Organizing Committee: Jon Bennett, Jacob Brown, Shalane Hairston, Brent Kitchen, Matt Meers, Charlie Payne, Kyle Slinker, Gabriela Stefan, and Sam Wheeler as well as the NCSSM staff and administration. We also acknowledge the Broyhill Endowment Fund and our Exhibitors: Morehead Planetarium and Science Center, Shodor Foundation, NCSSM DEEP, and NCSSM Admissions.

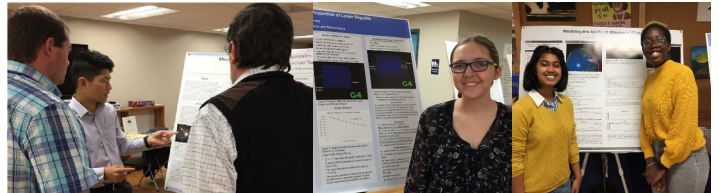


On Friday evening began with registration and a visit to our exhibitors, followed by welcoming remarks by NCSSM Chancellor Dr. Todd Roberts and dinner. After dinner, Dr. Katie Mack of North Carolina State University gave a public lecture supported by the Broyhill Endowment Fund. Dr. Mack's talk, "Death of the Universe," described what modern astrophysics tells us about the fate of the cosmos, and what the catastrophic destruction of all reality would look like to anyone still around to see it.

On Saturday, the day started with breakfast followed by two parallel Contributed Paper sessions, a break and two parallel workshops: "Interactive Web Physics" led by Taylor Brockman of Brain Power Software and Jonathan Bennett, Andy Wang, and Benjamin Wu of NCSSM and "Computational Modeling in Physics" led by Dr. Robert M. Panoff of the National Computational Science Institute.



After the workshops was the poster session followed by lunch. After lunch was a second pair of parallel Contributed Paper sessions, a break, and same two parallel workshops offered in the morning. In total, there were 14 contributed talks and 18 posters.



Joshua Gregory of Appalachian State University and received the Best Undergraduate Student Paper award for his poster, "The Physics of Exploding Pumpkins."

In addition, Alexander Tong of NCSSM and Zhou Conghao and Michael Troxel of Duke University also received the Best Undergraduate Student Paper award for their poster, "Measuring Intrinsic Alignments of Galaxies in Clusters." Benjamin Levy of UNC Chapel Hill received the Best Graduate Student Paper for his talk, "Active Learning Approach for Teaching the Guide to the Expression of Uncertainty in Measurement (GUM)." Finally, Kyle Altmann of Elon University received the Best Pedagogical Paper Award for his talk, "Tiered Homework Assignments in Introductory Physics."

The North Carolina Section Business Meeting was held Saturday afternoon.

—*Mario Belloni, Section Representative*

### Ontario Section Report

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The current report features the 2019 calendar year news, events and activities. The Ontario Section of AAPT (Ontario Association of Physics Teachers) enjoyed yet another very busy and successful year.

Ontario Section maintains a very active website at <http://www.oapt.ca>. 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/>.

OAPT's 41st Annual Conference took place May 2-4, 2019. It was hosted by the Institute for Quantum Computing (IQC), Waterloo, Ontario. Reflecting the specialization of our hosts, the theme of the conference was Entangling Learning. The attendees enjoyed the workshop offerings focused on teaching about quantum world, student learning, and innovative teaching practices. The offerings also included sessions dedicated to class demonstrations. The conference opened with much-anticipated panel discussion on transition between high school and university designed to further the dialog between the high school and university systems. As usual, the OAPT membership meeting took place during the conference.

In November members of OAPT participated in the fifth Schrödinger's Class teachers' workshop on quantum mechanics offered by the Institute for Quantum Computing (IQC).

Future Events:

Every year OAPT offers and administers Grade 11 Physics Contest for Ontario <https://oapt.wildapricot.org/contest/>. This year contest will take place in May.

Plans are currently well underway for the 42nd annual OAPT conference. It will take place May 2-4, 2020 at Micheal DeGroot Centre for Learning and Discovery, McMaster University and hosted by the McMaster Department of Physics.

The Ontario Section 2019 report is submitted by Ontario Section representative Tetyana Antimirova.

—*Tetyana Antimirova, Section Representative*

## Central Pennsylvania Section

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### 67th Annual Conference

The 67th annual Conference of the Central Pennsylvania Section (CPS) of the American Association of Physics Teachers was held on Friday April 29 and Saturday April 30, 2019, at Wilkes University in Wilkes-Barre, PA. The conference was organized by section Vice President Debbie French. Lunch was provided by PASCO, during which they demonstrated their Wireless Smart Cart.

The conference begins on Friday evening with student poster presentations and the conference banquet. Dr. Tim Spuck of Associated Universities, Inc. gave the plenary presentation “STEM Learning for All Through Authentic Engagement”.

The main conference took place on Saturday. There were two invited presentations and 17 contributed presentations. The section's general business meeting was held after lunch. The section executive board held their meeting during lunch. After the afternoon sessions certificates were given to the student presenters and the conference was closed.

The institution hosting the section conference always hosts a day-long PTRAs workshop on the Friday. The workshop was given by Alice Flarend of Bellwood-Antis High School, Dave McCachren of Mifflin County High School in Lewistown, PA (retired), and Pat Callahan of Delaware Valley Regional High School in Frenchtown, NJ PA (retired). The workshop was entitled “PIRA: An Introduction. Evaluating Science “NEWS”. There were ten participants, six of whom were first-timers.

### 2019 CPS Executive Board Meeting & Fall PTRAs Workshop

On Friday December 6 the second of CPS's twice yearly PTRAs workshops was held. Alice Flarend and Pat Callahan facilitated the “M-87 and Black Holes” workshop. This workshop was hosted by Michael Orleski, Ph.D. of Misericordia University in Dallas, PA.

The following day the CPS executive board met at Misericordia. The board discussed plans for the spring 2020 general section conference, which will be held at Penn State University's Altoona campus in Altoona, PA on Friday and Saturday March 13 and 14, 2020. The associated PTRAs workshop will focus on exoplanets.

—*Michael P. Orleski, Ph.D., Section Representative*

## Southern California Section

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- On Saturday, October 19, 2019, members of the Southern California Section of AAPT gathered at Santa Monica College for an exciting day filled with physics and helpful advice for the classroom.
- The meeting was called to order by SCAAPT President Cliff Gerstman. The local hosts were F0rouzan Faridian, Tram Dang, Steve Paik, Kyle Strohmaier, Peter Morse, and Emin

Menachekanian.

- The SCAAPT officers presented the inaugural Bill Layton Award for Outstanding Contributions to Physics Teaching in Southern California to Bill Layton in recognition of his long-time service to AAPT and his students. Throughout his career, Bill has mentored countless students, helped develop the New Physics Teachers Workshop, and served as an SCAAPT officer in several roles. SCAAPT thanks Bill for his continual inspiration and service.
- The meeting included several interesting invited presentations:
- Laura Tucker (UC Irvine) gave an invited presentation on resonance in peer mentoring circles. This new program at UC Irvine uses small group peer mentoring led by two upper-class physics majors to provide better support for new university physics students.
- Patrick Lincoln (ScientistsWarning.org) presented on positive feedback loops that affect climate change. He provided a call for SCAAPT members to raise awareness of climate change in their classrooms and to advocate for change.
- Chuhee Kwon (CSU Long Beach) gave a workshop on Get The Facts Out. The workshop included data on the need for high school physics teachers, job satisfaction and salary of teachers, and robust discussion.
- Several other SCAAPT members also gave engaging contributed presentations:
- Shawn Kirby, Palm Spring High School, Physics Phriday – Usage of Morning Announcements to Grow Physics Engagement
- Steve Paik, Santa Monica College, Roll Models
- Robert Baker, Wildwood School, Digital Signal Processing in Radio Astronomy
- Zahary Thomas, Tooichi Brown, Steven Gomez, and Jose Wise, Wildwood School, Exploring New Worlds
- Forouzan Faridian, Santa Monica College, Making the Classroom More Active
- James Lincoln, The Physics Teacher, Highlights from the Technology Column of “The Physics Teacher”
- Peanut McCoy, Azusa Pacific University, More Writing Practice in Lab with Less Grading
- The ever-popular Show ‘n’ Tell featured demonstrations by several SCAAPT members
- 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 the local hosts and Santa Monica College for hosting the meeting and providing refreshments for the networking break. Thanks also to Chad Kishimoto, for serving as Program Chair of the meeting. We also thank our sponsors and donors: CPO Science, Home Scientific, Carolina Science, Flinn Scientific, and Educational Innovations.
- The Southern California Section will hold its next meeting on April 4, 2020 at Citrus College. Please bookmark the SCAAPT homepage <<http://www.scaapt.org/>> and check for more information in the summer.

—Bradley K. McCoy, Section Representative

## St. Louis Section

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- September 2019 - Nuclear Workshop from Wash U. Departments of Chemistry and Physics
- The workshop will consist of three sessions. The first session will be a lecture/discussion with a continental breakfast covering nuclear science basics such as binding energies, alpha, beta and gamma decay, fusion and fission. The second session will consist of a “make and take” where you can build a scintillation radiation detector from recycled PET (positron emission tomography) parts and electronics that are built in the Radiochemistry lab. The final session, over lunch, will consist of a second lecture/discussion about nuclear science in Saint Louis, from the Manhattan Project to PET to proton therapy.
- The meals and all materials to construct the detectors are provided by Washington University in St. Louis, Departments of Chemistry and Physics. Campus parking is available free of charge.
- October 2019 - Six Flags for Teachers
- Six Flags has supported SLAPT’s development of a comprehensive educational component for Physics Day. To learn more about how to include amusement park physics into your classroom, join us (and bring a guest) for a free workshop at Six Flags. We’ll begin with a behind-the-scenes tour of the engineering that makes the rides work. Next, we’ll provide an overview of the resources

available to use with students in preparation for Physics Day and to use at Physics Day. Finally, we'll strap on our wireless data collection devices and ride, ride, ride!

- Additional Six Flags Physics Day curriculum materials and information can be obtained at: <http://www.slapt.org/resources/sixflags/index.html>
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- November 2019 - Why Electric Vehicles Now?
- First, the talk will cover the basic components of electric vehicles and compare electric vehicle economics to gas powered vehicles.
- Next, an activity in which participants will build a demonstration of Faraday induction. A motor turns a disk magnet at a speed set by a control knob. The magnetic flux is measured by a linear Hall effect sensor inside the box and the induced voltage is picked up by a coil on top of the box. The magnetic flux through the coil and the induced voltage are measured simultaneously. Data can be taken to show that the voltage induced in a coil is proportional to the change in flux with time.
- Wayne Garver will bring his 1971 VW Beetle conversion. It was first converted to electric in 1982. Since then it has been improved with an AC motor, a lithium battery, battery and passenger heaters and a faster charger.

—*Bob Brazzle, Section Representative*

## Washington Section

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Friday, October 25, 2019

As in all recent conferences Friday evening offered a workshop. This year's topic was Think-Pair-Share and Peer Instruction. Attendance was low and the session ended early. Planning around increasing attendance at these workshops is a section Priority.

Saturday, October 26, 2019

The presentations on Saturday included:

Canvas Discussions in Introductory Physics and Astronomy Classes: The rapid proliferation of free educational videos, webcomics, and other resources, has provided an excellent opportunity to expose students to key class concepts in a novel way, and Canvas has provided a straightforward way of integrating such material into interactive online class discussions. We have included Canvas discussions in both fully-online Introductory Physics and web-

enhanced Introductory Astronomy classes. The versatile nature of the discussion design allows for multiple options in terms of grading rubrics, threaded replies, and embedded content. Anthony Smith & Bruce Palmquist, Walla Walla Community College

Physics YouTube videos: a bridge between college and high-school: Some concepts taught in introductory physics courses in college can be non-intuitive, but by practice students can develop skills to satisfactorily solve typical numerical problems without having the concepts totally clear. One educational tool, efficient to settle abstract concepts, is learning by teaching, where students are asked to teach what they have learned to younger students. We incorporate in the syllabus of an introductory physics course the making of an educational video aimed at high school students as a way to deepen the understanding of classical physics and special relativity concepts. Andres Aragonese, Eastern Washington University

Teaching Modeling using Super Mario Maker: ... Matt Geske, Gonzaga University

Using low-credit seminar courses to implement new co-curricular activities in physics: Recommendations for new and/or updated curriculum are frequently published by the physics teaching community, including co-curricular activities not typically found in a traditional undergraduate program. Despite the desire of many faculty to modernize our curriculum as much as possible, implementation of new activities in an inflexible and already credit-heavy major is often impractical. Here I will discuss a potential solution to this problem through a pair of one-credit courses, one taken early and one taken late in the major. Each includes co-curricular activities consistent with recent AAPT guidelines and recommendations regarding career-oriented instruction and increasing diversity, and the early course is deliberately designed to increase retention of at-risk students. To minimize the activity barrier of new course development, both courses employ existing sets of free and modular curriculum that provide a flexible and adaptable framework that any faculty can in principle teach without unreasonable additional workload. This model allows not only for the practical adoption of modern curricular innovations but also provides a low-impact opportunity for all faculty to be exposed to new ways of teaching Nathan J. Kuwada, Central Washington



University

Student-driven high altitude experiments as an alternative to the second-semester physics lab: In 2016 we introduced a project-based laboratory experience that may be taken as an alternative to the traditional second semester introductory physics lab. Teams of three or four students work for the entire semester on a single experimental project exploring some aspect of the stratosphere. Requiring significant student initiative in experimental design, construction, calibration, and analysis, this project provides a more authentic experience in the practice of physics. John Larkin, Whitworth University

Stars, Galaxies and Rotation: In addition to mass, age and initial chemical composition, stellar structure depends on rotation. Unlike star clusters, galaxies are associated with dark matter halos evidenced in their rotation curves and velocity dispersions. Observations and evolutionary models, with and without stellar rotation, are included for the dwarf irregular galaxy Leo A. Robert Ruotsalainen, Eastern Washington University

Business Meeting: Officer reports. Election of officers

Undergraduate Poster session: Three outstanding posters from Gonzaga students were presented.

Magnetic braking in a conducting tube. New device, new opportunities, new questions: Published work on the eddy currents in a conducting tube provide a reasonably comprehensive analysis, much of it accessible to strong introductory students. Playing with a novel set of tubes provided a quick way to see a simple relationship not yet investigated experimentally. Nice! But wait, not so fast. ... Robert Hobbs, Bellevue College

*—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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