AAPT PHYSICS EDUCATION

Section News

July 2012

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Alabama Section

Annual Meeting

The 2012 annual meeting of the AL section of AAPT was held at the beautiful Heritage Conference Center on Lay Lake, in Childersburg AL. Our hosts were Jefferson State Community College and Central Alabama Community College. Our hosts and their spouses provided meals and snacks, and we are greatly appreciative of this wonderful hospitality. Many section members came Friday night for fellowship, a look at the entries for the Physics Commercial Contest (see below), and a show and tell presentation. Oh, and dinner. The meeting continued on Saturday. About 30 teachers and students were in attendance.

Talks presented Saturday included:

- The CACC Science Team (sponsored by Nick Nickerson)
- Pythagorean Triplets and Quartets (Duane Pontius)
- Demonstrating Simple Harmonic Motion with a cell phone (Alan Hargrave)
- Physics Misconceptions (Justin Sanders)
- Simulating Peak Oil (Mark Rupright)
- Photoelectric Effect demo/lab (Chuck Hanke)
- Fun Fly Stick (Dan O'Halloran)
- A Brief History of Electromagnetism and Light on Stamps (Ali Yazdi).

During the Business Meeting that followed, Justin Sanders was elected to the position of section President-Elect.

Physics Commercial Contest

With outstanding leadership by Tommi Holsenbeck, the section co-sponsored a video competition for high school students. The Alabama Section of the American Association of Physics Teachers, Alabama Science Teachers Association, The Frederick and Florence Bauder Endowment for the Support of Physics Teaching, Huntingdon College and AMSTI/Science in Motion sponsored this competition in 2012. The hope of all these organizations is that sharing the love, excitement, fun and importance of physics, these talented students will influence their peers to select physics in high school.

Participants were invited to create a video of up to 2 minutes duration that would convince other students to take physics. Ten entries were received, and these were reviewed by judges at the annual section meeting. Winners, who received a cash award, were

1st Guntersville HS
2nd Carroll HS
3rd E. Limestone HS

The winning videos have been copied onto DVD and distributed to all public high schools in the state.).

—Stanley Jones, Section Representative

Central Pennsylvania Section

March 11-12, 2011
Penn State – Schuylkill Campus, Schuylkill Haven, PA
CPS Section Meeting – 40 attendees
PTRA Workshop w/ Section meeting – 16 attendees
PTRA Workshop w/ Fall Officers meeting – 8 attendees

59th Conference Report

The 59th Annual Conference of the American Association of Physics Teachers, Central Pennsylvania Section (AAPT-CPS) was held Friday the 11th and Saturday the 12th of March 2011 at Penn State Schuylkill. Dr. Mike Gallis, from Penn State Schuylkill, was responsible for organizing the conference.

There was an all day workshop on Friday run by the Physics Teachers Resource Agents (PRTA) for physics teachers. The workshop, entitled Using Engineering to Teach Physics Concepts, provided an opportunity to share ideas for using engineering projects to learn basic Physics concepts. Dave McCachren of Indian Valley High School in Lewistown, PA and Pat Callahan of Delaware Valley Regional High School in Frenchtown, NJ conducted the workshop.

The poster session was held Friday afternoon followed by the conference reception and banquet at the Hidden Streams Café of Penn State Schuylkill. After the banquet dinner, Dr. Stephen Couch, Director of Academic Affairs of Penn State Schuylkill, gave a welcoming address. The public keynote address was held in the Morgan Auditorium at Penn State Mont Alto. The address, From Scopes to Kitzmiller: The Legal Battle Regarding Teaching Evolution in Public Schools, was presented The Honorable Judge John E. Jones III, perhaps best known for his landmark ruling in the intelligent design case, Kitzmiller v. Dover Area School District in which the teaching of intelligent design in public school science classes was ruled to be unconstitutional. His talk traced the legal cases starting with the Scopes trial in Tennessee up to today, including

Kitzmiller, and highlight the reasons for the jurisprudential progression.

Morning and afternoon plenary sessions were held on Saturday. There were 10 oral presentations (each 20 minutes plus 5 minutes for questions and discussion). The presentations were well attended, and covered a variety of topics pertaining to physics and physics education.

The General Business meeting was held before lunch. After the afternoon plenary session, there was a Demo Show (an idea picked up from the joint meeting with SEPA section the previous year), presentation of award certificates to student presenters and drawing for door prizes.

More information at http://www.aaptcps.org

—Lynn Aldrich, Section Representative

Chesapeake Section

The CSAAPT Spring Meeting was held March 13-April 1, 2012 in conjunction with the Washington Academy of Sciences/Capitol Science 2012 Meeting in Arlingotn, VA. More information at http://www.udel.edu/physics/csaapt/

—Craig Jensen, Section Representative

Hawaii Section

The Spring Meeting of the Hawaii Section of AAPT was held April 7, 2012 in IFA, MANOA, Hawaii
Guest Speaker: Viacheslav Li, from Russia, currently a graduate student teaching E&M labs at UH Manoa. Gave a lecture and slide show on neutrinos and solar neutrinos, summary as follows:

Graduated from high school in Virkus (?), near the Mongolian boarder. His teacher brought in a guest speaker once a week, who introduced him to neutrinos. From this professor, he learned the basics of neutrino behavior (or, rather, non-behavior, non-interactions) and about Cherennkov Radiation Effect and the detection of neutrinos.

The key to discovering the neutrino was the observation that energy did not seem to be conserved at the microscopic level when particles decay. The missing energy, of course, was held by the neutrino.

Cross section "the physics quantity of units of area that shows how likely particles interact." If the cross section is high and you collide 2 particles, then the likelihood of detection is high. But, any interactions involving neutrinos has a very low cross section, so possibility of detection is also low.

Neutrinos have a mass that is between that of a photon and an electron. They are very light – we don't know how much mass they have. They travel at almost the speed of light, or perhaps even faster (??) A recently-published study with neutrinos claimed that Einstein's theory of relativity was not correct, but analysis of the procedure revealed that there were electronic glitches; the data do not, in fact, refute the theory.

There are 3 generation of matter in our universe (fermions).

The Hunt for Neutrinos began with the advent of particle detectors: in 1956 (C. Cown), then Lederman in 1962, then R. Davis in the same decade (the aim was to detect solar neutrinos), and CERN detected WEAK interactions in the 1970's.
Where neutrinos come from:

- Cool image of a nuclear explosion: the explosion creates a huge flux of neutrinos. But instead, scientists use nuclear power reactors are the experimental source of neutrinos. Billions of solar neutrinos pass through 1 square cm (a fingernail's worth) every second.
- Image of LHC and CERN – particle accelerators are the current source of neutrinos. The detector used to detect neutrinos from CERN (in Switzerland) is located 700 km away in Italy.
- Neutrinos come form the atmosphere, the product of collisions between the particles of the atmosphere and incoming particles from space
- They also come from the Earth's interior – super cool image of the caldera on the Big Island, I think.
- Also they come from supernovae – 99% of the energy of such an explosion is carried by neutrinos (first detected in 1997 in Japan, Russia, and USA).
- And from the Big Bang – still not detected – a Nobel Prize up for grabs for anyone who can detect them.

Energy spectrum of Neutrinos: sorry, I didn't follow this part very well . . . .

- There are two groups of neutrinos, low energy, below 10-8 MeV (relict neutrinos and antineutrinos), and then the rest of them grouped together at about 10-2 MeV and 102 MeV.
- Almost all solar neutrinos come from the core of the sun.

Then there were some slides about the production of neutrinos from the decay of various atoms, and the CNO Cycles I and II, but that's all I can tell you about this.

Using a water Cherenkov detector, what is detected is not the neutrinos themselves, but light that is produced from secondary particle interactions from neutrino events. The pattern of light that emerges is a cone shape, or multiple nested cone shapes that create a diffuse ring of light in the detector array. Neat photo of the inside of one of these really huge detectors lined with photomultipliers and then a colorized image of the data collected showing an obvious light ring (colors show time of sequence). Super-Kamiokande, Homestake, Sudbury, SAGE, Gallex, Icharus, and one other name are the neutrino detectors that are on-line today.

And then there was something about discrepancies and neutrino oscillations, the comparison between theoretical expectations and observed results – pretty big differences.

3 Nobel Prizes awarded for neutrinos – Raymond Davis Jr, Masatoshi Koshiba and Ricardo Giacconi (spelling might be wrong on the last one).

Applications: can predict the short-term future behavior of the sun (impending solar flares) and can better understand the evolution of the Universe and stars. There are military applications (avoid nuclear proliferation by detecting the presence of nuclear facilities such as those detected in North Korea and the Middle East), commercial applications (monitor fuel components in real time), nuclear submarine detection (still in development), exploration of the Earth's interior, specifically to detect the location of Uranium and oil, perhaps to use neutrino beams as a novel form of data transmission and communication, and of course to further scientific research, an end in itself.

And onto the meeting business . . .

Current officers: Pres – Roger Kwok; VP – Stacy Stender; Sec – Liz King; Treasurer – Mike Weber; Section Rep, Jim Redmond.

Next year's officers:

Usually, the VP automatically becomes Pres, but Stacy will be relocating to Virgina. So, we need a new President, hopefully from the HS level to continue our tradition of alternating University/High School leadership. Joe Lazlo (retired) was nominated and he accepted, and he agreed to be nominated. No further nominations were put forward. Eric Dodson from Chaminade is nominated for VP, Liz King from Midpac was nominated for Secretary, and Mike Webber from BYU was nominated for Treasurer. For section rep, to go to the winter meeting (it costs some, because the whole trip isn't subsidized) – Jim Redmond from the UH Lab School is nominated. All nominations were seconded. We moved to vote on the slate – motion passed. We voted by a show of hands, there was a unanimous vote for the slate. Congratulations to the all new officers!

Upcoming events of note – check the AAPT Hawaii website for updates (www.phys.hapawii.edu/~aapt):

June 9 and 10 – Future Flight family exploration event at UH Manoa

August – our next meeting! Aug 11 at Mid-pacific Institute

Sept 8 or 13 – HaSTA Fall Conference at Punahou

Feb 23rd Physics Olympics – usually held at KCC, need to verify. Mary Kadaaoka asks, shouldn't we get ourselves registered with Enovi, an organization that awards money to schools that get involved in STEM stuffs? Schools that participate in Enovi-listed events earn points and the top point getters get cash. YES, we agree, we should do this. Contact: Lynn Fujioka 988-1931 or lynnfukioka@gmail.com We are looking for volunteers to help with the set up and organization. Also, even tho we have a lot of teams, we have very few schools participating – only 7 schools this year. We need to get more schools to participate.

Jim Redmond, report from National AAPT Winter Meeting and Conference, Feb 4-8 2012. Go to the site tpe.aapt.org/landing.cfm. This will bring you to AAPT's new The Physics Teacher website – enter the member number on your magazine's address label to get onto the site. Excellent source of HS and college level classrooms, very much up-to-date. It's a blog/newsletter/ journal all in one. Starting 2014, the Conferences will be shortened form 5 to 4 days (they'll cut out one day of the two of workshops) because the first day has little participation anyway. The organization only subsidizes 2 days, so many reps can't stay the whole time. The next meeting (Summer) will be in Philadelphia and the Winter meeting will be in Orlando. The have a special teaching assistant or lab assistant membership deal going on. Still looking for an editor for The Physics Teacher magazine. Will have a joint meeting with APS (American Physical Society) during the winter meeting (Orlando).

Old Business: State Science Fair Hewitt Award presented by AAPT – by the way, Paul says "Hi" to all of us, reports Jim, who ran into him at the Winter meeting. We need to raise the public awareness of this award. Paul Hewitt is going to draw the award himself.

Treasurer's Report – presented by Takeshi Nakata for Mike Webber who is away today: Showed a graph, fairly linear with a disheartening downward trend. But the trend for the last two years looks a bit brighter. Also showed the costs for the Physics Olympics, which goes up and down. Please don't hesitate to ask for reimbursements for anything you spend on the Olympics. Mike thinks that the lack of reimbursements causes the flux in cost, but Mary points out that we have had pot-luck lunches some years, which would considerably lower the cost of the event.

New Business – none.

Sharing of teaching ideas and demos –

Jeannine Nakakura (science resource teacher, DOE) – The new Hawaii State Standards will nix the term "scientific method" and will replace it with the term "scientific and engineering practices" to acknowledge the fact that there is no one scientific way. Engineering is going to be part of the new standards. So, she passed around some binder clips for us to play with – the clips are all the same size but the arms are from a variety of sizes, so the only difference is the lever arm. And the question is, which is the easiest to operate? The answer, of course, is that the long ones are easiest. So, why don't all the clips have long arms? Because of cost – engineers face real economic constraints. The, she showed us some pool floaties and gave a brief description about that inquiry that I missed, sorry. Download the free app "Decible 10" that is a decibel meter. ProTuner (another free app) will measure frequency. Both of these have better versions that you can pay for. And from the Exploratorium,

Color Uncovered. She showed those cute little plastic tapes that you attach to a cup that you run your fingernail across and it says something, like "happy birthday" or "physics is fun." There is a patent for this, actually, owned by Thomas Edison (the company, presumably). She's trying to make her own using staples and tape or something – if anybody has ideas, please let her know. There's an ad that shows a car running across a section of road that has been specially constructed so that the road noise the emanates is the William Tell Overture – look it up on Youtube, perhaps.

Dr. Joe Lazlo retired teacher and future president of AAPT Hawaii – the genesis of both heart attacks and strokes is a blood clot that gets caught up somewhere in the circulatory system. Joe had a stroke on Jan 21 and told us what his felt like. He got to the hospital very quickly and got TCA (a drug) that possibly saved his life and definitely saved his physical function. Sleep apnea is also something that he suffers from, in which the CO2 receptors in the blood override the O2 receptors and cause suffocation. Half of people who get heart attacks are non-drinkers, non-smokers, do exercise, etc. So, the cause?? But anyway, he also has artrial fibrulation (heart flutters), so he got a pacemaker during an outpatient appointment!! Dr. Pui Lam suggests that someone should make an app that monitors the activity of pacemakers, since they do have a limited lifespan and many people can't tell whether it's working or not.

Dr. Takeshi Nakata (BYU Hawaii) – Perimeter Institute in Canada has great outreach material, especially for modern physics topics, quantum mechanics and relativity, etc. He showed us the website q2cfestival.com which has a video that asks, why is it dark at night? And has a great a lot of good info and a very erudite conversation between two little cartoon kids. This was part of the "Alice and Bob in Wonderland" series of videos for high school students, and we saw a different video which is a storyline about the double slit phenomenon. The videos come complete with worksheets and everything. All of these are available from the PI website http://www.perimeterinstitute.ca/ (the q2c is part of the PI site). PI has excellent packages (free!) for teachers, both traditional (hard copy, cd) and downloadable. Check out the Alice and Bob video on "how does a flashlight work?" to get an idea of electric and magnetic fields conferring energy to the bulb through space, not through the wires. Ohhhh, cooooooooool…

Dr. Roger Kwok (Leeward CC) – shared 3D images – the old red-and-blue images as compared with the new polarized images. He has a set of polarizing glasses and a piece of calcite, a naturally-occurring polarizing material. Put the calcite on a 3D image, then position a pair of 3D glasses above and view the image through the two lenses separately (glasses held above the crystal, not placed on the nose, so you can see both lenses with both eyes at the same time). Also spoke briefly about the sterophotography technique used to make those 3D images you can see without any special lenses. And finally, Dr. Kwok's first-day activity – in pairs, students solve puzzles, each of which uses a specific problem-solving process (such as trial and error, or chunking, pattern recognition, and so forth). The idea is to get students to understand that there are many different problem-solving methods that one can employ when faced with challenges.

Door prizes, provided, as always, by the absolutely awesome Dr. Roger Kwok, a National Treasure – maybe the powers that be haven't yet given you the appropriate recognition, but we know who you are!!!

—Jim Redmond, Section Representative

Idaho-Utah Section

The Idaho-Utah Section of the AAPT held its annual meeting, March 9-10, 2012, at Brigham Young University – Idaho, Rexburg, Idaho. Brian Pyper, section president elect, organized the meeting. Many thanks to Brian for a very successful event! This meeting was held jointly with the zone SPS meeting.

There were 58 attendees (those who paid the registration fee). These included 34 students, 3 high-school teachers, and 21 college and university faculty and staff.

Friday evening, following dinner, we gathered for an invited talk by Steven Wasserbaech (UVU/CERN), followed by a physics demonstration show.

On Saturday, we heard 16 oral presentations given in two sessions.

During the lunch hour, 4 poster presentations were on display.

Business Meeting

We conducted our business meeting following lunch

We held elections of section officers. The officers of our section are now constituted as follows:

President: Brian Pyper, Brigham Young University – Idaho (former president elect, automatically succeeded our former president, Farhang Amiri.)

President-Elect: Phil Matheson, Utah Valley University (former Vice President. He will organize our annual section meeting in 2012.)

Vice President: We did not elect a vice president but voted to hold our meeting at Boise State University next year and to allow the AAPT members there to decide who will be vice-president. (No one from Boise State University attended our meeting this year.)

Treasurer: Adam Beehler, University of Utah (re-elected)

Section Representive: Brian Pyper, Brigham Young University – Idaho (elected for a three-year term).

More information at idahoutah.aaptsections.org

—Harold Stokes, Section Representative

Illinois Section

The Illinois section held two successful meetings in 2011. Our spring meeting at Eastern Illinois University featured workshops and talks in addition to invited speakers with all activities being centered on the theme the "Year of the Solar System". The fall meeting was held at the Tinley Park Conference Center jointly with the Illinois Science Teachers Association (ISTA), the Chicago Section of the American Association of Physics Teachers (CSAAPT), the Illinois Association of Chemistry Teachers (IACT), the Illinois Association of Biology Teachers (IABT), and the Environmental Education Association of Illinois (EEAI) with the theme "Science Teaching and Learning in America's Heartland."

Our next section meeting is scheduled for March 30 and 31 at the University of Illinois Urbana-Champaign. More information about this meeting as well as all previous meetings and much more is available at our section website www.isaapt.org.

—Zak A. Knott, Section Representative

Montana Section

Meeting held October 20, 2011 at Sentinel High School, Missoula, Montana.
Most of those in attendance (10) shared a demo or use of technology. Discussion of the state of physics education in Montana took the majority of the time. Members were encouraged to keep pressing on and to keep coming. The use of monies to scholarship someone to attend national convention was discussed favorably. Weakness of meeting attendance was attributed to many school districts allowing an opt out option for annual Montana teacher convention. More information at https://sites.google.com/site/mt-physicsteachers

—Rich McFate, Section Representative

New England Section

AAPT-NES: New England Section 2011 Report/Review
Spring Meeting 2011
Friday, April 8 and Saturday, April 9, 2011.
at the University of Massachusetts – Lowell, Lowell, MA
Joint Fall Meeting with APS-New England Section, and SPS
Approximately 120 in attendance.
Program: *Materials: The Foundation of Our Future*
Banquet speaker Eric Mazur anchored the meeting with an excellent talk on his work at Harvard. Invited speakers included Richard Averitt (Boston University), Nader Engheta (Penn), Alain Karma (Northeastern), Viktor Podolskiy (UMass-Lowell), Zhifeng Ren (Boston College), Michael Rubner (MIT), and Mark Silverman (Trinity College). Details are at http://www.uml.edu/sciences/Physics/APS-AAPT/default.html. Planning at this meeting led to an intriguing proposal that we operate Physics Day at the NSTA Regional later in 2011. That report follows.
Physics Day at NSTA 2011 Regional Hartford
Friday, October 28, 2011.
at the Conference Center, Hartford, CT
Organized and presented by the AAPT-New England Section
Approximately 180 in attendance through the day, at least 60 every session.
Program: *Physics Day Demonstrations and Talks* with 3 invited speakers interlaced with 3 demo sessions.

The day began with a thermo demo session provided by Sam Sampere (Syracuse) and David Sturm (UMaine), both demonstration specialists in their physics departments, and both former presidents of PIRA, the Physics Instructional Resource Association (http://www.pira-online.org). After filming the audience with a FLIR Infrared Camera, a modern Stirling engine was demonstrated, experiments with liquid nitrogen and even solid nitrogen was made by lowering the pressure of LN2 in a bell jar. Two balloons inside of each other with a Green He-Ne laser bursting the red latex balloon inside of a transparent whitish balloon. The extra aspect was projecting all the demos through the FLIR IR camera. Of course, "there were no shooting projectiles or open flames!" Participants left excited for the next workshop, and many people signed up for the local section. With the crowd 'warmed' up, Larry Gould (Hartford) shared an interesting talk on Anthropogenic Global Warming, surprising the audience with his skeptic's view. Most were intrigued by his stance, but left having a respect for his point of view and plenty of handouts to inform discussions with evidence supporting the view.

Sam and David returned with another great demo workshop, Sam driving in on a CO2 fire extinguisher powered tricycle to speed across the conference hall. This time, they used strobe photography to capture amazing things. Several teacher volunteers found themselves dizzy as they were spun on rotating platforms. With everything at 'high speed' from the demo hour, next came Fred Myers presenting on using photography to capture great moments in physics. Many of his photos would be sure winners for the AAPT Physics Photo Content if he were a high school student! Favorites include the melting of snow on porch railings and the NO SPARKPLUG car sign outside of the radio telescopes in Green Bank.

Next, Gary Garber discussed his trip on a NASA Reduced Gravity Airplane ride. On the parabolic flight, he used Vernier Wireless accelerometers to track the motion of a simple pendulum in different levels of simulated gravity including Lunar, Martian, and hyper (2g) gravity. He also discussed opportunities for students with NASA. The day ended with a standing room only final demo session

with Sam and David. Our local section collected over 40 names of prospective AAPT members. As attendees entered and left the room, yet another IR camera gave the opportunity for more self-directed "play." Attendees of other neighboring workshops were even drawn in by the outside display!

Many pictures and more details are at http://aapt-nes.org/fall-physics-day-at-nsta-hartford-regional-meeting/

Fall Meeting 2011

Friday, November 18 and Saturday, November 19
at the University of Massachusetts, Amherst, MA
Joint Fall Meeting with APS-New England Section, and SPS
Approximately 150 in attendance.
Program: *Climate Change and the Future of Nuclear Power*

The Department of Physics at UMass hosted a wonderful meeting marking the 100th anniversary of Rutherford's discovery of the nucleus. Rutherford thought it "moonshine" to think we would ever extract energy from the nucleus. Nuclear power now plants provide 20% of the electricity in the U.S. without emitting climate changing greenhouse gas. Considering the Fukushima disaster, and Germany's decision to drop nuclear power after 2022, what is the future of nuclear power? Are there new designs and procedures that ensure safe operation? These were among questions this meeting addressed. Invited speakers included:

Edward Calabrese (UMass Amherst) When Sciences Fails Society: Toxicology's 20th Century Legacy
Robert Deconto (UMass Amherst) Climate Change and Sea Level Rise, Lessons from the Past and Models of the Future
Tyler Ellis (TerraPower, Bellevue, WA) TerraPower's Traveling Wave Reactor
Michael Golay (MIT) The Fukushima Nuclear Event and its Implications for Nuclear Power
Klaus Lackner (Earth Institute, Columbia University) Carbon Cycling with Nuclear Power
Richard Lindzen (MIT) Climate v. Climate Alarm
Regis Matzie (Westinghouse Electric Company LLC) The Fundamentals and Status of Nuclear Power
Robert L. Park (University of Maryland) The Only Way Of Knowing
Cavan Stone (Dartmouth) The Liquid Fluoride Thorium Reactor: Energy Cheaper Than Coal

A short lunchtime demonstration session was led by a few of the AAPT section officers on Saturday, followed by workshops, including David Sturm (UMaine) with Introductory Experiments on Electricity and Magnetism that offered free apparatus to a number of high school teachers.

See http://blogs.umass.edu/nes2011/ for further details on talks, workshops, and other notes.

2012 Section Officers and Board Members

President: Gary Garber, Boston University and BU Academy
Previous Past President: Don Donovan, Thayer Academy
Immediate Past President: Zenobia Lojewska, Springfield College
Recording Secretary: Karl Martini, Western New England University
Treasurer and Archivist: Frederick Wolf, Keene State University
Membership Secretary: Arthur Mittler, University of Massachusetts, Lowell
HS Representative, Representative for VT: Ed Hasenohr, Mill River Union High School
TYC Representative: Jack Owens, Community College of Rhode Island
4YC Representative, and at-large Representatives for CT, MA: vacant
Representative for ME: Michael Efron, Cape Elisabeth High School
Representative for NH: David Kasok, Manchester Central High School
Representative for RI: Hanna Rudnicki, Lincoln School
Section Representative: David Sturm, University of Maine, and New England School of Communications

Scheduled 2012 Activities around the Section

New England Section:
Spring Section Meeting 2012: Friday, April 27 and Saturday, April 28 at Thayer Academy, Braintree, MA.
Fall Section Meeting 2012: TBD

Other Events:

Maine Statewide Meeting 2012: Friday, March 9, 2012 at the University of Maine
Physics Days at Funtown/Splashtown Amusement Park: Thursday, May 17 and Friday, May 18, 2012, Saco, ME
Other news:
Be sure to check the new webpage location http://aapt-nes.org

This differs from the previous similar address which put the NES before AAPT. We thought it is better to go with AAPT first! Our presenting Physics Day at the NSTA meeting was a tremendous success and led to 40 teachers in the region signing up for one year's section membership. If you're reading this and are a teacher in the New England region, please reach out as we want to have you involved!

—David Sturm, Section Representative

New Jersey Section

The theme of the spring meeting of the New Jersey Section of the American Association of Physics Teachers on 23-24, March 2012 at Princeton University might be called "Physics in Our Lives." Four speakers addressing the meeting spoke on energy issues, and a fifth described the elevation of the roadway of a bridge.

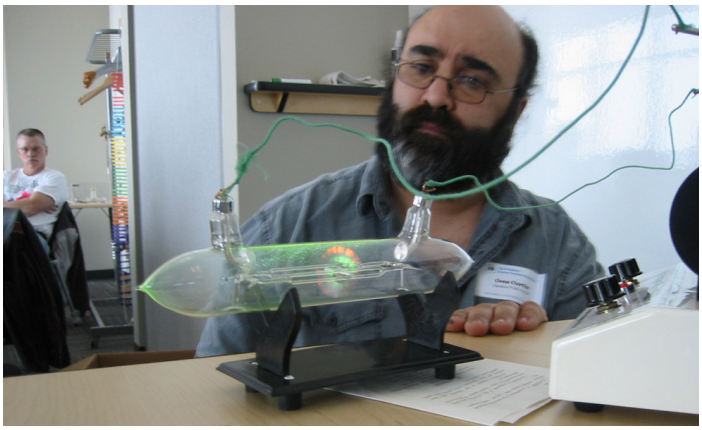
The first speaker was electrical contractor Jim Krutzler.

See http://www.njaapt.org/ for more information.

—Joseph Spaccavento, Section Representative

North Dakota Section

The North Dakota Section of the AAPT held its spring meeting on the campus of Bismarck State College in Bismarck, ND, 24-25 Feb. 2012, in conjunction with the North Dakota Science Teachers Association (NDSTA) Conference. Members and science educators (K-12) shared demonstrations, labs, and teaching techniques followed by a business meeting, discussion on how to increase membership, and election of officers.



The officers for 2012-13 are:

Larry Cook - President
Tony Musumba - Vice President
Donna L Knutson - Secretary
Rick Henry - Treasurer
Donald L. Hoff - Section Representative

—Donald Hoff, Section Representative

Quebec Section

QcAPT Section Officers:
President: Nathaniel Lasry – John Abbott College
Vice President: Jesus Vazquez-Abad – Université de Montréal
Secretary-Treasurer: Calvin Kalman – Concordia University
Section Representative: Chris Whittaker – Dawson College
Webmaster: Michael Dugdale – John Abbott College

2011 Special Events and Activities:

• Montreal-Area Cegep & University Physics Teacher Meeting and Workshop:

Building on the success of a similar even in June of 2010, the QcAPT worked in collaboration with John Abbott College to realize a day-long workshop for English-speaking, Montreal-area CEGEP (college) and university physics teachers. The purpose of the event was to align the CEGEP level pre-university science programs with university science programs and look at ways to improve the success rate of students at both levels. Over 45 teachers took part in the meeting and workshop which included a review of data collected from the first cohort of high school graduates from the newly revised Quebec high school curriculum and small discussion groups. It was agreed that this event should continue as a yearly event.

• Meetings of QcAPT members in Physics Education Research (PER):

Several meetings of QcAPT members who are involved in PER projects were organized in order to share stories, ideas and to explore opportunities to collaborate.

• Montreal Local Collaboration Community in Math & Science (MASCI) Event:

The QcAPT was pleased to participate in a special meeting of MASCI in which Robert Thirsk (Canadian Astronaut) spoke and in which educators in the fields of science and mathematics came together to explore and share effective learning strategies.

• Programme de collaboration universités - collèges Concours 2011-2012:

The QcAPT is pleased to be a participant in the multi-institutional project L'appel à la technologie et à l'innovation pour parfaire l'enseignement des sciences (translation: Using Technology and Innovation for the Improvement of Science Education). This initiative involves three Montreal-area colleges and McGill University. It represents a unique opportunity to examine the effective use of technology in the teaching and learning of science in general and physics in particular.

Plans for 2012

Important initiatives aimed at expanding the active membership of the QcAPT are planned for 2012. After an initial interest in the QcAPT when it was formed several years ago, the activities and active membership in the association has dropped so several initiatives are planned for 2012. Our goal is to host several activities and have a community of 50 physics teachers regularly involved in the QcAPT by the end of 2012. The initiatives that are being developed include:

- A workshop for high school physics teachers on using technology (clickers, ILD, SmartBoards etc.) to effectively improve student learning.
- Sponsoring a internationally known Speaker aimed at the general population.
- Strengthening the link between college physics teachers through a series of workshops and activities.

Quebec Section website: http://www.qcapt.ca/

—Chris Whittaker, Section Representative

South Dakota Section

The South Dakota Section of AAPT had its annual meeting on February 3, 2012 in conjunction with SDSTA (South Dakota Science Teachers Association). Activities were as follows:

- Eight members were present and the 2012 photo contest sponsored by the chapter was judged and

winner prizes awarded.
- Officer elections – all current officers were returned to their positions for another year
- The chapters budget was reported to be healthy enough that there was no call for voluntary dues at this meeting
- A 3M donation for the SD Physical Science Teacher of the Year Award was announced. The AAPT chapter coordinates the choosing of the winner of the award
- Ideas for publicizing the photo contest were discussed and a few will be implemented for next year
- Discussion of local Summer 2012 professional development opportunities for state physical science teachers were publicized

South Dakota Section website is http://sdaapt.sdsta.org/

—Joel Rauber, Section Representative

Southern Atlantic Coast Section

The fall SACS-AAPT meeting was held on November 18-19, 2011 as a joint meeting with the NCS-AAPT at UNC-Asheville in Asheville, NC.

The spring 2012 Meeting was held on April 20-21, 2012 at the University of Georgia in Athens, Georgia. The organizer was Dr. Craig Wiegert. A banquet was held on Friday evening, April 20, 2012 in the Georgia Center. The Keynote talk was given by Dr. Chad Fertig on "Einstein in your GPS: How atoms in space get you from here to there." Afterwards, the Observatory was opened for participants to observe Saturn and other celestial objects.

On Saturday, April 21, about 40 attendees listened to contributed papers, saw posters, and had the opportunity to participate in workshops.

During the section business meeting, the following were elected to offices:

President: Varsha Kulkarni - The University of South Carolina

Vice-President: Paige Ouzts- Lander University

Past President: Craig Wiegert - The University of Georgia

Secretary/Treasurer: J.B. Sharma - Gainesville State College

AAPT Section Representative: Bob Powell - University of West Georgia

Executive Board members: Frank Lock, retired high school physics teacher and Rob Spencer -T.L. Hannah H.S, Anderson SC

Webmaster: Taha Mzoughi - Kennesaw State University

Additional information about the 2012 spring meeting and other archived information may be found at http://sacs-aapt.org/

The fall, 2012 meeting will be held at the University of South Carolina at a date to be announced later.

—Bob Powell, Section Representative

Southern California Section

The Spring Meeting of the Southern California Section was held Saturday, April 21st at California State University San Marcos. Attendees were welcomed to the meeting by SCAAPT president Jeff Phillips. Special thanks are due to local host Charles De Leone for arranging the meeting site and to the physics department's PhysTEC grant for providing morning refreshments. About 45 people attended.

The meeting began with a morning workshop "ClassAction: A Powerful Tool for Active-Learning Sequences" http://astro.unl.edu/ classaction led by Rica Sirbaugh French, rfrench@miracosta.edu, from MiraCosta College. After an introduction to the ClassAction suite, participants were given the opportunity to design and implement interactively engaging learning sequences tailored to their own classroom needs.

Drs. Charles De Leone <cdeleone@csusm.edu> and Edward Price, eprice@csusm.edu, from CSU San Marcos gave the morning invited talk "The Happy Marriage of Pedagogy and Technology in the Physics Classroom." Drs. De Leone and Price described how the CSUSM Physics Department has utilized the extensive innovation in physics pedagogy and classroom technology that has occurred in the last 20 years. They described how the department's introductory physics course for life science majors features non-traditional content sequences and pedagogy; a model-based approach introduces energy before force, and most class time is spent on small group work and whole class discussions. The Department has also employed innovative classroom technology such as clickers, tablet PCs, screencasts, and photo-sharing websites. These two efforts have informed each other leading to results that would not have been possible with either alone. The talk described both strands of their work and highlighted interesting and unexpected interactions arising from using classroom technology to facilitate innovative pedagogy. Drs. De Leone and Price discussed what worked well and what needed to be modified or abandoned.

Dr. Vivek Sharma http://hepweb.ucsd.edu/~vsharma/aboutme.php from UC San Diego gave the afternoon invited talk: "The Hunt for the Higgs Boson." Dr. Sharma began his talk with a brief description of the Standard Model and need for the elusive Higgs Boson, the quantum particle associated with an all-pervading Higgs field hypothesized to explain the origin of mass in our universe. He then described the LHC collider and the CMS detector at CERN. Dr. Sharma was part of the team that built the CMS and he showed photos of its construction, assembly, and insertion. During 2011, the LHC provided more than 400 trillion proton-on-proton collisions at a center-of-mass energy of seven trillion electron volts. Dr. Sharma showed a simulation of the collisions. He then focused on the hunt for the Higgs and the signature of possible events. He predicted

that 2012 should be an important year for the Higgs: either it will be found with ~5-sigma significance or its existence will be ruled out.
Results of the section video contest were announced at the business meeting. There were 33 entries, all from high school students. Links to the high achieving entries will be posted on the section website http://www.scaapt.org/. The winner of the $500 prize was Dennis Barahona from Rancho Cucamonga High School. His teacher, Karen Gerdes, will receive a $50 gift certificate.
Attendees were reminded that the section is running three new teacher workshops a year and were encouraged to invite colleagues who might benefit. They were also encouraged to form a local area network (LAN) or learning community and apply for one of the $100 section grants. San Marcos faculty announced that are organizing a LAN to be called North County Physics Educators (NorCoPE) and encouraged local teachers to join. Changes to the new bylaws, which better defined members, were discussed and approved. Elections were held and the following officers were elected:
President: James Lincoln
Vice President for High Schools: Chija Bauer
Vice President for 2-year Colleges: Lee Loveridge
Vice President for Universities: Bradley "Peanut" McCoy
Past President: Jeff Phillips
Treasurer/Secretary: Nuria Rodriguez
Web Manager: Ed Price
Section Representative: Mary Mogge
There was a poster session during the lunch break. The following posters were presented:
The Center for Astronomy Education (CAE) Teaching Excellence Workshops and Regional Teaching Exchanges, Rica French, rfrench@miracosta.edu, MiraCosta College
The Longest Day: A Geometry-based Astronomy Exercise, Tim Heumier, theumier@apu.edu, Azusa Pacific University
Optical Phase Measurement, Ertan Salik, esalik@csupomona.edu, Cal Poly Pomona
Thinking in Physics and Gender Effects, Vincent P. Coletta, Jeffrey A. Phillips, jphillips@lmu.edu, and Raquel Sena, Loyola Marymount University
The ever-popular Show 'n' Tell featured demonstrations by: Rica French, rfrench@miracosta.edu, MiraCosta College, "FREE High-Quality Interactive Resources for Teaching Astronomy"
Tim Heumier, theumier@apu.edu, Azusa Pacific University, "Determining the Age of a Sample of Radioactive Dice"
Stephen Tsui, stsui@csusm.edu, CSU San Marcos, "Evil Simplicity: University of Maryland's Question of the Week Physics Demo Site"
The following contributed talks were presented:
"How Experiments Work" Greg Severn, severn@sandiego.edu, University of San Diego
"How to Build Your Own Computer Cluster (and why you would want to)" John Price, jprice@csudh.edu, CSU Dominguez Hills
"Introducing San Onofre Nuclear Power Plant" Chris Abel, Christopher.Abel@sce.com, Southern California Edison
"Enhancing the Educational Astronomical Experience of Non-Science Majors with the use of an IPad and Telescope" Robert Gill, rgill@csusm.edurgill@csusm.edu, CSU San Marcos
"Bogus Astronomy - Examples for Teaching Scientific Reasoning" Tim Heumier, theumier@apu.edu, Azusa Pacific University
"UCSD Video Project for Conceptual Physics Courses" Michael G. Anderson, mganderson@physics.ucsd.edu, UCSD
"District-wide Physics Teacher Coordination" Bob Rumer, rrumer@callutheran.edu, California Lutheran University
"Optical Phase Shifts and the Nightmare of Conventions" Ertan Salik, esalik@csupomona.edu, Cal Poly Pomona
"Using 'Wordles' to Stimulate Student-Teacher Interactions" Patrick M. Len, pmL@waiferx.com, Cuesta College
"Introductory Gen Ed Science Courses, CATS, and the Center for Astronomy Education (CAE)" Rica Sirbaugh French, rfrench@miracosta.edu, MiraCosta College
The meeting ended with our World Famous "Order of Magnitude Contest." This meeting's question was: "For how long could human population grow at its current rate before it would be standing room only?" Al Siger won with the median answer of 650 years. Michael Anderson, Bill Doerge, and Ertan Salik won water bottles and books donated by AAPT.
We thank our corporate sponsors – WH Freeman http://www.whfreeman.com, Perfection Learning http://www.perfectionlearning.com, and the American Association of Physics Teachers http://www.aapt.org/ – for their support and donation of door prizes.
The Southern California Section will hold its Fall Meeting late October or early November. Please bookmark the SCAAPT URL http://www.scaapt.org/ and check for more information in early fall.

—Mary Mogge, Section Representative

Southern Ohio Section

The Southern Ohio Section of AAPT met on Saturday, April 28, 2012 at Ohio University-Lancaster. Sandy Doty was the host, and 26 members and guests were in attendance. Special guests Dave Maloney (Indiana University, Purdue University – Fort Wayne) and Bill Reitz (retired, Canton Hoover High School) gave talks and workshops. As one might imagine, there were many fabulous teaching insights and groan-inducing jokes. Dave shared his considerable insights on problem solving. Bill showed us how to incorporate children's literature into our

science teaching. Both presented workshops while with us, as well. Dave's was on alternative styles of problem-solving tasks to help introductory physics students develop conceptual understanding, and Bill's was a make-n-take based on the books mentioned in his children's literature talk.

We enjoyed the following contributed presentations:

"What is New About the 'New' International System of Units?" and "Helping Middle and High School Teachers be Informed in Their Pedagogical Approaches to Teaching Scientific Content," Gordon Aubrecht (The Ohio State University – Marion)

"POOLkits: Applying Object Oriented Principles from Software Engineering to Physics Object Oriented Learning – Preliminary Ideas," Tom Kassebaum (Byrd Polar Research Center, The Ohio State University)

"Conducting Large Recitation Sections in College Physics," James F. Sullivan (University of Cincinnati)

"Kinematics: A Dynamic Launch into Useful Physics," Fred Thomas (Math Learning Machines)

re were also two short promotions:

"An Application of the Culture of Science," a book by Byron Hall

"Newsletter for H. S. Physics Teachers," by Folden Burt Stumpf

The following new officers were elected:

President–elect: Lenore Horner, The Seven Hills School

Secretary: Krista Wood, University of Cincinnati – Blue Ash

Vice President for 2-Year Colleges: Darwin Church, University of Cincinnati, Clermont College

The section would like to publicly thank outgoing officers Kathy Koenig and Holly Lavender for their contributions to our sections over the past years.

On Saturday, May 5, 2012, the Southern Ohio Section once again participated in Ohio's State Science day by awarding special physics prizes at both the high school and middle school level. The Ohio Section of APS provides the prize money, and AAPT provides the judges. Our crew of 27 judges from 12 different institutions were ably led by Gordon Aubrecht. The award-winning projects were:

at the high school level: "Determining the Efficiency of the Stirling Engine in Practical Applications," Mr. Thomas R. Ziebro; "Do Infrared Reflective Pigments Absorb and Re-emit Radiant Energy more Efficiently than Conventional Organic Pigments in Tiles of the Same Color?" Mr. Jamie L. Walter; "The Effect of Temperature on the Resonant Frequency of a Musical String," Mr. Reid D. Parsons

at the middle school level: "The Effect of Wing Loading and Angular Velocity on the Terminal Velocity of the Maple (Acer spp.) Samara," Mr. Caleb S. Lehman; "Hair Dryers Today, Hearing Aids Tomorrow?" Ms. Jasmine N. Fujimura; "Understanding the Water Light Bulb by Using Reflection and Refraction Concepts" Mr. Donghan Kim; "Water Flow Through Tubing," Ms. Emily M McDonel; "Can the Strength of an NdFeB, SmCo, AlNiCo, and Ceramic Magnet be Altered with Temperature?" Mr. Matthew F. Rakovec.

—Kathy Harper, Section Representative

Texas Section

The Texas Section of AAPT, the Texas Section of the American Physical Society, and Zone 13 of the Society of Physics Students held a joint meeting March 22-24, 2012 at Angelo State University in San Angelo. Those most responsible for the meeting arrangements were Toni Sauncy, Andy Wallace, David Bixler and Joe Satterfield at ASU, Tom O'Kuma of Lee College, and Suresh Wilhelmus Geerts of Texas State University. There was a total registration of over 200 persons, including over 75 registered as students. The meeting website is: http://tesla.angelo.edu/~spsweb/tsaapt/.

The program of the meeting contained 10 paper sessions, 3 plenary sessions, 1 poster session, and 9 workshops, making a total of 117 presentations. The breakdown of these papers were as follows: contributed and invited papers - 15 AAPT, 12 SPS, 28 posters, and 49 APS. The 9 workshops had a total attendance of 90 with some attendees attending more than one workshop.

On Thursday evening, the ASU SPS chapter held a welcome barbecue for students and other meeting attendees. Afterwards, there was a planetarium show and star party for those interested. Throughout the meeting, there were additional planetarium shows and the SPS room was available for students to meet and discuss physics. On Friday afternoon, there was a special invited SPS session in which Gary White (SPS Director), Kendra Redmond (SPS Program Coordinator), and George James (NASA scientist) presented.

During the TS AAPT Friday plenary session, Cecile DeWitt-Morette of the University of Texas at Austin discussed "The Pursuit of Quantum Gravity" and Cristina Torres of the University of Texas at Brownsville discussed "Advanced LIGO: The next generation of gravitational wave observatories". The Saturday plenary session had Robert Hilborn, Associate Executive Officer of the American Association of Physics Teachers, presented "Growing Undergraduate Physics Programs : What SPIN-UP Tells Us Works" and Crystal Bailey of the American Physical Society addressing "Physics Careers: To the Bachelor's Degree and Beyond".

Awardees: Katherine Mays Award presented to Evelyn Restivo (center) of Waxahachie Early College High School
Pre-College Teaching Excellence Award presented to Jill Lewis (on right) of Foster High School in Richmond, TX and Brian Lamore (on left) of The Village School in Houston, TX

The Katherine Mays Award for Lifetime Outstanding Contributions to High School Physics Education in Texas was given to Evelyn Restivo of Waxahachie Early College High School in Waxahachie, Texas.
Awards for Excellence for Pre-College Teaching Excellence was presented to Jill Lewis of Foster High School in Richmond, TX and Brian Lamore of The Village School in Houston,TX.
The meeting attendees who attended the Friday evening banquet heard a stimulating after-banquet presentation by Susan Cummins Miller of the University of Arizona discussing "A Funny Thing Happened on the Way to Pair-a-Dice: One Geologist's Curious Journey from Fieldwork into Fiction".
Other meeting activities included a joint AAPT-APS luncheon and business meeting with over 150 persons attending, a reception prior to the banquet, and special activities for SPS chapters.

—Thomas O'Kuma, Section Representative

Washington Section

The fall 2011 meeting of the Wisconsin Association of Physics Teachers was held on October 28-29, 2011 at UW-Stevens Point in Stevens Point, Wisconsin.

The banquet speaker was Ken Menningen from UW - Stevens Point. He presented a talk on: *Hydrogen from Sunlight: A Path to Energy Independence*
http://www.uwec.edu/wapt/Meetings/2011/Banquet.html

Papers presented:

YouTubeNation: Using student-made videos as an assessment tool, Matthew Vonk UW-River Falls

Alternative Energy Experiment and Equipment, Roger Hanke NorthCentral Technical College - Retired

Steaming Physics Colloquia from the University of Wisconsin - Madison, Physics Department. Steve Narf University of Wisconsin-Madison, Physics Department

Resonance: Let's Break Some Glass! Steve Narf University of Wisconsin-Madison, Physics Department

A collaborative variable star observing project for introductory astronomy, Carey Woodward University of Wisconsin--Fond du Lac

Modeling the Changes in Student Understanding, Thomas Scaife University of Wisconsin - Platteville

ALPhA's 'Laboratory Instruction Beyond the First Year' Conference, Lowell McCann UW-River Falls

What's Going on with those Neutrinos? Jim Madsen UWRF

Snakes and Arrows: Vectors and Wave Propagation Larry Stookey Antigo High School

Teaching Physics in China, Steven Sahyun UW-Whitewater

Using Online Homework Data to Assess Student Confidence Andrew Pawl UW-Platteville

Free-Response Administration of a Mechanics Reasoning Inventory, Andrew Pawl UW-Platteville

Assessment of Studio Physics at University of Wisconsin ñ Platteville, Phil Young UW-Platteville

Physics Modeling for Game Programmers, Alan Scott University of Wisconsin-Stout

Electron Mobility in Silicon: Surprising Facts and Determination of Temperature Dependence, Jim Mallmann Milwaukee School of Engineering

A simple astronomy lab: measuring distances using parallax and very simple tools. Seth Ashman Univ. of Wisconsin - Stevens Point

For or Against: the benefits of instructional examples that align with students' pre-existing ideas, Thomas Scaife University of Wisconsin - Platteville

Seeking the Period of a Cepheid Variable: A Lab Exercise for Introductory Astronomy, David Tamres UW-Stevens Point

Building a Tabletop Demo to Model the Induced Magnetic Field of Europa, Erik Hendrickson UW - Eau Claire

SySTEMically Improving Student Academic Achievement in Mathematics and Science: 2011 Summer Academy Mike LeDocq Western Technical College

Livescribe: An alternative to scanning, Matt Evans UW - Eau Claire

Posters presented:

Using Online Homework Data to Assess Student Confidence, Andrew Pawl, UW-Platteville

For or against: the benefits of instructional examples that align with students' pre-existing ideas Thomas Scaife UW-Platteville

Workshops:

Common Difficulties in Intro Physics Classes and AAPT Strategies, Gary Baier Green Bay East High School

Modeling Method of Instruction–An Introduction, Dr. Mark Lattery University of Wisconsin Oshkosh

Physics Classroom Competitions and Challenges Larry Scheckel Tomah, High School retired

Create Animated Graphs using Microsoft Excel! David Tamres, University of Wisconsin - Stevens Point

How data is stored and read from a hard drive, credit card, and compact disc. Brad Hinaus, University of Wisconsin Stevens Point

Current officers of the Wisconsin Section of AAPT:
President: Brad Hinaus - UW-Stevens Point (2011-2012)
Vice-President: Phil Young - UW-Platteville (2011-2012)
Past-President: Matt Vonk – UW- River Falls (2011-2012)
Secretary-Treasurer: Erik Hendrickson (2010-2013)
High School Representative: (2010-2012)
Section Representative: A. James Mallmann (2009–2012)

—A. James Mallmann, Section Representative

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

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