

Alberta Section

Section webpage at (URL):

<http://abphysicsteachers.wordpress.com/>

Number of section meetings held this past year Two

Officers elected: Yes

Officers updated on AAPT website: Yes

Meetings Held:

1. Wed April 16, 2014 5:00 PM at Physics Department, University of Alberta. Approximately 20 in attendance. Dr. Brian Martin, King's College presented:

Seeing Red (as well as blue, green and other colours) or - Adventures in Low-Cost Spectroscopy

In this talk, Dr. Martin explored some of the amazing things that can be done with very modest equipment and applications to both senior high and introductory physics classes.

2. Physics Teachers Day: Friday Dec 5 2014 at Physics Department, University of Alberta. Approximately 62 in attendance.

Program: We started the day with a annual general meeting and followed it with four speakers, a breakout session and lunch.

Dr. Claire Currie, University of Alberta (Building the Andes, the Rockies and Cordillera Mountain Ranges- From the Sea to the Clouds) talked about the origins of mountain belts in western North and South America and the relationship between the dynamics of the deep mountain roots and surface observations, such as topography, earthquakes, volcanism and erosion.

Our second speaker Dr. Moritz Heimpel, University of Alberta (Bands, Spots and the Internal Dynamics of Jupiter and Saturn) discussed observations of cloud-layer atmospheric flow and global magnetic fields, and present three dimensional numerical simulations based on interior models of the Giant Planets.

Two breakouts were held including a 'Make and Take Workshop' led by Laura Pankratz, Jeff Goldie, Pina Chiarello and Dr. Zoltan Berkes on making and tuning pan flutes. A second roundtable workshop was for college instructors on changes in curricula.

After lunch Dr. Bruce Sutherland, University of Alberta (Clouds in my Coffee and Tempests in a Teapot) described a DVD that was created by his research group for use by high school teachers to illustrate basic mathematical principles of waves through laboratory experiments of water waves and observations of the SE Asia tsunami of December 2004. Segments of the DVD program were shown along with table-top experiments that reveal counter-intuitive behaviour in fluid dynamics which has real-world applications.

Our final speaker of the day was Ross Lockwood, University of Alberta (Real Life on Fake Mars) described his four-month stay in the Mars Simulation Project in Hawaii, which was designed to simulate as closely as possible the living conditions of the first astronauts to Mars.

Upcoming: We are currently assisting in the planning of a High School Physics Teachers Day in conjunction with the Canadian Association of Physicists Congress to be held in Edmonton June 15-19 2015.

—J Terry Singleton, Section Representative

Arkansas and Oklahoma Section

We had 35 people registered. Of those, 2 were our PTRA presenters, 1 was our NextGeneration Science Standards presenter, 8 were college students from 4 schools, 9 were high school teachers, and 15 were college professors.

The schedule went as follows: Friday, September 26th –

5:00-6:00pm: Registration in Garrison Student Center Banquet Room (2nd Floor)
Poster presentations available in Garrison Student Center Caba Room (2nd floor) at this time.

6:00-7:30pm: Dinner in Garrison Student Center Banquet Room

7:30-8:30pm: Presentation by keynote speaker Dr. Lynn Cominsky, Sonoma State University Learning by Making – Rockets, Satellites, and More

The presentation was made via Skype and moved to our physics department room 127 after technical difficulties in the banquet room.

Saturday, September 27th –

8:00-9:00am: Registration available in Garrison Student Center outside the Caba room (2nd floor)
Poster presentations available in Garrison Student Center Caba Room

During the first morning sessions, students went to the physics department to work with a holographic kit and build mouse-bots. They returned to participate in the PTRA session.



9:00-10:00am: Next Generation Science Standards, presented by Ms. Betty Ramsey from the STEM center at Henderson State University in the Garrison Student Center Lecture Hall (1st Floor)

10:00-10:10: Brief Break

10:10-12:00: Physics Teacher Resource Agents (PTRA) workshop led by Paul Wolf and Mari Hayes

We have already received feedback that 2 of the high school teachers who attend have used the activities presented in their classrooms with much success!

12:00-1:00: Lunch – Caddo Cafeteria

1:00-3:30: Research presentations in the Garrison Student Center Lecture Hall (1st floor)

This included a Google Hangout presentation from Dan Pfeifer of Plotly demonstrating the software.

3:30-4:00: AAPT section business meeting and elections

4:00 Optional Planetarium show and tour of the physics department for those interested in the Reynolds Science Center

Learning by Making – Rockets, Satellites, and More
Dr. Lynn Cominsky, Sonoma State University

Assessment in Junior Physics Laboratory Karen Williams, East Central University

Improving College Physics for Our Life Science Students
Al Adams, University of Arkansas at Little Rock

KeplerBot: A Computer-driven Orrery for the Simulation of Exoplanet Light Curves
Jack Waddell, Arkansas School for Math, Science and the Arts
The OK PhysTec Project
Steven Maier, Northwestern Oklahoma State University

Dispositions Document for Undergraduate Physics Students
Karen Williams, East Central University

High School Physics Outreach
Heather Voss, Oklahoma School of Science and
Mathematics

Physics Simulations (almost) Anywhere with Easy
Javascript Simulations
Bruce Mason, University of Oklahoma

Powerful Online Graphing and Collaboration with
Plotly
Dan Pfeifer, Plotly Education Specialist

Earth as a Transiting Exoplanet
Caprice Phillips, University of Arkansas at Little Rock

Fourier Analysis and Synthesis of Sound via Matlab
Charles Wilson and Al Adams, University of Arkansas
at Little Rock

Engineering Team Project Based Learning
Khalil Sharif, Melody Thomas, C. Dianne Phillips,
and Alex Stratigakis
Northwest Arkansas Community College

Designing and Building a Low-Cost, Laminar Flow
Wind Tunnel Shannon Clardy, Henderson State
University clardys@hsu.edu

—Todd R. Leif, Section Representative

British Columbia Section

The Annual General Meeting of the British Columbia Section of the AAPT (BCAPT) was held on May 10, 2014 at the Surrey campus of Simon Fraser University (SFU). It was a very successful event that included a lecture from a representative of General Fusion (<http://www.generalfusion.com/>), a physics teaching discussion led by Andy Sellwood and sharing of physics teaching ideas. We also voted to elect new Executive Committee members and changed the constitution to create a BCAPT Advisory Board. The 2014-15 BCAPT Executive Committee is:

President: Louay El Halabi
Vice-President: Andy Sellwood
Past President: Edel Vo Treasurer: Susan Hunter-
Jivung Secretary: Terry Coates
AAPT Section Representative: Sarah Johnson
BCAPT Web Designer: Marina Milner-Bolotin

Congratulations to everybody for such a successful event and many thanks to Sarah Johnson from SFU who led the organization of the meeting. We are also grateful to SFU Department of Physics for sponsoring us.

On October 24, 2014, more than 40 physics teachers, student-teachers and college instructors from all over BC gathered at TRIUMF (Canada's National Laboratory for Particle and Nuclear Physics) to learn about new advances in physics and brainstorm together about how we can share them with our students. This Professional Development Day was aptly called "Einstein's Legacy" and was a collaborative effort between the BCAPT Executive Committee, the UBC Department of Physics and Astronomy, and TRIUMF (many thanks to Dr. Stan Yen for being a key person in the event organization).



It featured a tour of TRIUMF, talks by UBC physicists, such as Prof. Bill Unruh - who is a world-renowned expert on gravity and quantum gravity, workshops and many Q&A by BC Physics teachers. Lectures and hands-on workshops gave the attendees an opportunity to experience physics, brainstorm new pedagogies, and get to know each other. We also presented a Panorama Ridge



Secondary School physics teacher and a member of BCAPT Executive Board, Ms. Susan Hunter-Jivung with her CAP (Canadian Association of Physicists) BC Excellence in Physics Teaching award. Congratulations Susan! We all are very proud of you! We also would like to congratulate BCAPT Executive Board members, especially BCAPT President, Mr. Louay El-Halabi, for their leadership in organizing another successful event.

—Sarah D. Johnson, Section Representative

Central Pennsylvania Section

The 62nd Annual Conference of the American Association of Physics Teachers, Central Pennsylvania Section (CPS) was held Friday March 21, and Saturday March 22, 2014 at Misericordia University, in Dallas, Pennsylvania. The conference was organized by the Acting Past President Dr. Lynn Aldrich.

On Friday Dave McCachren of Mifflin County High School in Lewistown, PA (retired) and Pat Callahan of Delaware Valley Regional High School in Frenchtown, NJ led an all day workshop entitled “Using APPS in the Physics Classroom”. The workshop was part of the Physics Teachers Resource Agents (PTRA) program. The poster session was held Friday afternoon followed by the conference reception and banquet. The meeting welcome address was given by Thomas Botzman, Ph.D., President of Misericordia University.

Dr. Robert C. Hilborn, Associate Executive Officer of the American Association of Physics Teachers, gave the Plenary entitled “The Revised Medical College Admission Test and the Next Generation Science Standards: Implications for Science Education”.

Plenary sessions were held on Saturday. There were 10 presentations, and the talks were well attended. The General Business meeting was conducted before the lunch break. After the afternoon sessions there was a presentation of award certificates to student presenters followed by the closing of the meeting.

2014 CPS Executive Board Meeting and Fall PTRA Workshop

On Friday November 14, 2014 CPS hosted another day long PTRA workshop entitled “Perimeter Institute for Theoretical Physics.” at Millersville University of Pennsylvania. Once again, the workshop was led by Dave McCachren and Pat Callahan. The following day the CPS executive board met on campus, in part to finalize plans for the 63rd Annual Conference, which will be held Friday and Saturday, March 27 and 28, 2015 at Messiah College in Mechanicsburg. Other Activities:

Members of the CPS-AAPT manned the AAPT information table at the inaugural meeting of the Mid-Atlantic Section of the American Physical Society’s Inaugural meeting held October 3-5 at Penn State University, State College, PA.

—Michael R. Gallis, Section Representative

Chesapeake Section

Major challenge faced by the section:
Attendance continues to be our largest challenge. We have discovered that our attendance is best when our meetings occurs near the Richmond, Washington, DC and Baltimore, MD areas. In fact, our fall 2014 meeting at Loyola University in Baltimore had our largest gathering of physics teachers in quite some time. We had good representation from high school, 2-year, and 4-year colleges. It has been our practice to move our fall and spring meeting sites throughout our region. However, we have seen that some locations do not produce good attendance numbers. This is something that we as a section need to explore.

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

We have been receiving email updates on new members. Thanks! Please keep that up. We have added them to our list-serv and will continue to correspond with them.

On a different subject, I attended the 2014 Physics Chairs Conference and was introduced to some items for the first time: J-TUPP and Career Toolbox. I took this information to our fall section meeting and learned that they too were not aware of these two items. We are inundated with information internally

and externally and sometimes things get lost in the shuffle. Is there some short communication, maybe just to section reps, that could be a “Dashboard” look at some important items that then we can share with our section members? Just a thought.

—Deonna Faye Woolard, *Section Representative*

Chicago Section

The fall meeting of the Chicago section was held on Saturday, November 8, 2014 at Lewis University in Romeoville, IL. The morning session consisted of a diversity of talks, while the lunch and business meeting was held afterwards. The program consisted of the following:

Gordon Ramsey, AAPT Initiatives

John Milton, What is “Average” Temperature?

Brandon Schabell (student), Use of Semiconductor Incorporated Nanocomposites for the Absorbance of Green Laser Light

Joseph Westrich (student), EEG Fractal Dimension and Its Relation to Depression and Physical Health

Hans Muehsler, DuPage County Regional Office of Education, Physics Exam: An overview and psychometric assessment

Rich DeCoster, Consider a Cylindrical Curlew

John Parker, Diversity of the Physics Degree (Plenary 1)

Akshar Kumar, Matthew, Development of a 3D Projection Demonstration

Schmidt and Robert Polak

Jaime Millan, Using Direct Measurement Videos for teaching Newtonian mechanics: a beginner’s experience

Jason Keleher, Big Opportunities for Small Science: The Value of Nanoscience in the High School and Undergraduate Experience (Plenary 2)

Lunch and a business meeting followed the talks, where we discussed how to interact more effectively with national AAPT. Discussion will be continued by e-mail exchanges. This was followed by elections with the following results:

President: Dan Cahill, Vice President: Ted Gotis,
Section Representative: Gordon Ramsey, University Representative: Gordon Ramsey, HS representative: John Lewis, Secretary: Paul Dolan and Treasurer:

Debbie Lojkutz. Martha Lietz will continue with the section mailings.

Our next meeting will be on Saturday, April 11, 2015 at Glenbrook South HS in Glenview, IL.

—Gordon P Ramsey, *Section Representative*

Colorado Wyoming Section

Spring Section Meeting

April 12, 2014 This year’s spring meeting was hosted at CU Boulder in the new JILA Building by Section Vice President Bethany Wilcox, along with Katie Hinko and Prof. Steve Pollock. There were approximately 40 people in attendance and the keynote address was given by Nobel Laureate, Eric Cornell. Meeting highlights include:

Invited Talks

- Eric Cornell, How Symmetric is the Electron?
- Steve Pollock, PER@C: Physics Education Research at Colorado State University

Workshops and Presentations

- Mike Dubs on’s Demo Show
- Hank Weigel and Jared Kruger, Project Based Inquiry Workshop
- Stream line to Mastery
- Workshop, Emily Knapp and Shelly Belleau
- Private tour of the newly remodeled Fiske Planetarium by Director Doug Duncan

Contributed Talks

- Jeff Loats, Metropolitan State University Denver, Being a Scholarly Teacher
- Chuck Stone, Colorado School of Mines, Effective Activities Just Before Class
- Adrian Madsen, American Association of Physics Teachers, New Resources on the PER User’s Guide
- Scott Schankweiler, Mountain Range High School, The Flipped Classroom
- Brian Huang, SparkFun, Beyond Ohm’s Law: Arduino/Physics /Maker Movement

—H. Vincent Kuo, *Section Representative*

Long Island

LIPTA has been working hard to provide support for our local Physics teacher is the form of professional

development, social gatherings, and activities for Long Island students. Our thirtieth annual Physics Olympics took place at Farmingdale State College on March 28, 2014. Farmingdale's Physics and Astronomy department generously provides the space to allow 15 schools from all over Long Island to compete in Physics fun. Physics Bowl and Fermi Questions are two traditional contests, but the Marshmallow Tower, Pendulum of Doom, and Collision Course are events that are subject to change.

Organized by our able Second Vice President, Dr. Gillian Winters from Smithtown High School, the competition once crowned Mepham High School as victors. Five person teams enjoy the competition, breakfast and a pizza lunch, included in the registration fee.

The Spring Conference was hosted by member Tony Mangiacapre at St. Mary's High School in Manhasset on April 5 from 8:30-12:00, starting with a breakfast buffet. We have been trying to hold conferences at different high schools to allow our members to see what the facilities offer their students. Tony's classroom was spacious and modern, a comfortable setting for our thirty five attendees. Tony has mastered many aspects of technology, so that the presentation on use of video capture in lab was valuable, especially since he gave participants an opportunity to use the software.

With all the worry about how the new AP B course will be implemented, our next speakers, Matt Sckalor, from Great Neck South High School and Bill Leacock, from Mepham HS and Lipta's first Vice President, distilled the information that many of our teachers were craving. Matt used his background as a grader for AP B, to provide important contrasts between the present curriculum and the new one. Bill Leacock, gave a tutorial on rotational dynamics for the group, bringing homemade tracks and materials to illustrate his information. Teachers agreed that this was an important review because it new to the AP B curriculum. The conference ended with a surprise make and take generously provided by Tony Mangiacapre, an prop for helping students understand the right hand rules for magnetism.

The AP exam review took place on May 20, 7:00-9:00 at Deer Park BOCES. Bill Leacock led the AP B

exam portion, while Dr. Gillian Winters discussed the AP C exam.

The annual Lipta Barbeque at Lipta's President, Ed McDaniels' home has become a relaxing way to end the year. The June 25 date allows everyone a chance to talk about the Physics Regents exam and the year's successes and failures. Ed does the cooking and organization and things went so well, that an August 19 Barbeque is planned at Bill Leacock's home. The plan is to offer our members who have attended a summer workshop to share their experiences with their fellow teachers.

Our wonderful newsletter editor, Terese Keogh from Manhasset High School, keeps our members informed about our events with at least three publications a year. Our monthly breakfast meetings (during the school year) allow our board to get together for planning and brainstorming. Harry Stuckey, retired from Garden City High School and Bill Lynch, retired from East Islip High School, provide web- expertise and jack-of- all trades assistance. We all thoroughly enjoyed taking our significant others out for a thank you dinner at local restaurant to end the year.

—Tania Entwistle, Section Representative

Iowa Section

The Iowa Section of AAPT held its annual fall meeting jointly with the Illinois Section on October 24-25, 2013 at Bettendorf High School in Bettendorf, IA.

Friday morning featured workshops on the life of Robert Millikan (born in Illinois and schooled in Iowa), using Plotly to visualize data, and using Arduinos in physics classes. In the early afternoon the Millikan workshop was repeated and a second Plotly workshop dug deeper into the use of this tool.

The meeting formally opened Friday afternoon with a welcome from Jimmy Casas, principal of Bettendorf High School, followed by contributed talks on a wide range of topics. After a break, an invited talk, "Neutrino Physics Using Liquid Argon Time Projection Chambers," was presented by Fermilab Postdoctoral Researcher Jason St. John. More contributed talks and 'take fives' completed the afternoon. The evening continued with a banquet and several items open to

the public. Craig Kletzing of the University of Iowa presented “Stormy (Space) Weather: An EMFISIS on the Van Allen Probes” [EMFISIS = Electric and magnetic field instrumentation suite and integrated science]. Dale Stille, also from the University of Iowa, put on a physics demonstration show. Peter Bruecken of Bettendorf High School used the school’s planetarium to put on a planetarium show and Karl Adlon of the Quad Cities Astronomical Society hosted viewing on the football field.

Saturday morning started with more contributed talks and ‘take fives.’ Following a mid-morning break Tom Rossing (Stanford University Professor Emeritus of Physics, Northern Illinois University) presented “Teaching the Physics of Music on Four Continents.”



After a lunch which included section business meetings, “Ed Camp” was held. Participants entered subjects of interest in physics and STEM, which were projected. As the topics evolved, groups for discussion were formed. Bettendorf HS physics teacher Christopher Like organized this interesting session. Peter Bruecken repeated his planetarium show.

At the Iowa Section business meeting (chaired by President Sara Karbeling) officers were elected. Kristin Thompson of Loras College is now President-Elect. Ian Spangenberg of Pleasant Valley High School is Treasurer. Matt Harding of West High School in Iowa City is VP for High Schools.

Retiring Treasurer Jay Cutler gave the financial report. We currently have \$3775 in a CD and \$450 in savings and checking. Jay was warmly thanked for his many years of service as Treasurer.

Future directions for the section were discussed. Topics included the addition of workshops to our meetings, hosting a social media group for Iowa teacher to share ideas and to get them more involved with our section. Sara Karbeling volunteered her school to host next fall’s meeting which was approved. Jay Cutler proposed ideas to use some of our funds to promote physics. Peter Bruecken and Chris Like were commended by both the Illinois and Iowa Sections for the tremendous job they did in hosting the meeting.

—John Zwart, Section Representative

Montana Section

On Thursday October 16th, 2014 at 1:00 pm the Montana Section of AAPT held its annual meeting in Missoula

Montana during the MEAMFT Educators Conference. Over 15 members and friends were in attendance.

It was decided to extend the term of all current section officers through the next annual meeting.

President David Hembroff led a physics share-a-thon that allowed for group participation and was very much appreciated by those seeking support in physics education. Those in attendance were encouraged to attend one of the future national AAPT meetings for an even greater experience. The summer meeting was especially recommended for the middle and high school teachers. We are pleased to have received notification of several new college faculty members members to AAPT. We desire to have more participation again from our post secondary membership in the future.

Retired former section officer, Glen Govertsen, continues to remain an active ambassador for physics through his ever popular “Mr. G’s Physics Show.” His presentation earlier in the day was packed wall-to wall with many young teachers gleaning valuable demonstration insights from the master educator. Glen’s is greatly appreciated by all. We wish him full recovery from surgery that occurred shortly after our annual meeting.

Section officers are communicating through email as needed outside of the annual meeting. President, David Hembroff will be presenting at the Winter

AAPT meeting as well as well as representing our section as substitute section representative. Our next meeting will be at the MEAMFT Educator conference next fall.

—Richard McFate, Section Representative

Nebraska Section

The meeting was called to order by Shawn Langan.

Minutes from the spring meeting were moved to accept by Thane Lewis and seconded by Shawn Langan. Motion carried.

Treasurers Report was given. We have \$2960.00 after the meeting.

Jerry Arnold was nominated President Elect by Shawn Langan, Seconded by Kendra Sibbernson. Jerry was elected unanimously.

The next Winter/Spring meeting was to be hosted by UNK, but UNK would rather host the next fall meeting. Metro Community College will host the Winter/Spring meeting Date TBA, tentative location will be the “Fort Campus” in North Omaha.

Chris Wentworth suggested we bring a speaker. Kendra Sibbernson said that AAPT CEO would Skype in if asked.

Lee Powell suggested we share resources with APS for speakers for next fall’s meeting.

Kendra Sibbernson will check with AOK, Lee Powell will talk to SPS for a joint meeting. Thane Lewis made a motion to adjourn the meeting, Chris Wentworth seconded, motion carried.

—Tom Brestel, Section Representative

North Carolina Section

The 19th Annual Fall Meeting of the North Carolina Section of the American Association of Physics Teachers was held at the University of North Carolina at Pembroke, in Pembroke, NC. Our local hosts were Bill Brandon, Tom Dooling, Tony Crider, and Aaron Titus.

On Friday afternoon there was a banquet with the keynote speaker Dr. Rhett Allain from Southeastern Louisiana University. His talk, “The Best Estimations and Models from Dot Physics,” described his physics blogging for Wired magazine’s science blog, Dot Physics, over the past 10 years.

On Saturday morning there were two invited talks: Dr. Jennifer Burris of Appalachian State University discussed “Management, Mentoring, Motivation, and Mayhem: Leading large groups of students in research, classrooms, and programs” and Dr. Joaquin Drut of UNC Chapel Hill discussed “From condensed matter to high-energy physics: Introducing quantum Monte Carlo at all levels.” In addition to these two invited talks, there eight contributed demos and posters presented. In between the talks, posters, and demos, there were four computational workshops.



Anna Wade of UNC Pembroke received the Best Undergraduate Paper Award for the poster/demonstration “Simple, Low Cost Wavefront Splitting Refractometer.” Jeff Register of Greensboro Day High School received the Best Pedagogical Paper for the presentation “Building a Bridge Rectifier Using LEDs.”

The John L. Hubisz Award was given to Jose D’Arruda for his significant work to improve physics teaching in North Carolina. The John L. Hubisz Award honors Outstanding Service to the Section. Unfortunately John Hubisz could not attend the meeting, but numerous attendees wore their favorite physics T-shirts as a homage to John.

The North Carolina Section Business Meeting was held Saturday afternoon. Our Spring 2015 Meeting is scheduled for Wake Forest University in Winston-Salem, NC.

—Mario Belloni, Section Representative

Ohio Section

The Fall meeting of the Ohio Section of AAPT Section was held at University School, Hunting Valley, OH on October 11, 2014, hosted by Gayle Hammer, physics teacher at US.

After participants enjoyed a continental breakfast provided by University School, OS President, Steve Majoros of Lorain County Community College, opened the meeting near 9:00 AM by announcing Dr. Oleg D. Lavrentovich from Kent State as our Plenary Speaker today.

Plenary Talk: “Liquid crystals, displays, colloids and bacteria: Wonders of soft matter physics.”

Dr. Oleg D. Lavrentovich, Kent State University Dr. Lavrentovich gave a history of Liquid Crystals and the Kent State’s Liquid Crystal Institute After describing the various types of LC’s he discussed some of their current. Dr. Lavrentovich went on to



discuss some future applications, including colloids and bacteria. Could bacteria be used to “turn ratchets and gears?” or be used to push other particles in front of them as they are steered by Liquid Crystals. This is the kind of experimental study that the Liquid Crystal Institute is exploring

Steve Majoros then presented “Interactive Lecture Demonstrations – Engaging Students Before, During and After Five Demonstrations were provided amid fertile discussion. As the demos unfolded predictions were made and tallied. The results were then discussed. Sample lecture-demonstration published materials were provided for the group to examine Steve observed that we need to make up our own “lecture demonstrations” like them, and that students will take them seriously only if such questions are also used on quizzes and exams that follow.

After Steve’s presentation, we were invited to lunch in the University School dining room. Lunch was provided to participants by University School. During the Lunch break Section Representative Bill Reitz provided his report from the 2014 meeting held in Minneapolis. Besides discussing highlights, plenary and award talks, the report relayed the call from the AAPT for us to advance a local effort for the Advocacy for Science.

Our third presentation was Creating and Using Video Physics Lessons by Dr. Sue Ramlo of the University of Akron. Sue began her talk by providing several answers to the question “Why make videos”. In particular, she discussed why videos are a good help toward implementing the “flipped classroom.” Dr. Ramlo demonstrated how she uses the VisTablet to write on the screen, discussed a number of screen capture software options, provided ways to use videos and listed their advantages for the flipped and online classroom, as well as what is needed for hosting videos. The participants raised a number of issues for discussion

How I Do It session:

1. Gayle Hammer (US)—A Lab for Precision and Accuracy.
2. Bill Reitz –(retired) Pile Driver as an Energy Comparison Source.
3. John Harden (KSU) – Dropped Golf Balls Showing Vertical Acceleration as Independent of Horizontal Motion
4. Mark Carle (US) – Freefall Acceleration as demonstrated by Metal Nuts
5. Mary Kay Patton (Hathaway Brown)— Plotting Height vs. Width of a Given Paragraph.
6. John Shutter -- Challenges on the New AP Physics Test. (AP Physics 1 and AP Physics 2).
7. Fred Jarka (Stark State College) – Pen by LiveScribe –
8. Tom Ramsey (Mentor High School)—“Open Letter to the President of the United States” and a discussion of the Perimeter Institute for Theoretical Physics (Canada)

Give-away Dick Heckathorn, the first drawing winner, offered his prize to Jennifer Agin (youngest member present), who teaches at Cleveland Heights High School.

Following the meeting, Gayle Hammer offered a tour of the facilities at US, including the Lake, Fish Hatchery, Playing Fields and Maple Syrup House.

—Bill Reitz, *Section Representative*

Ontario Section

The Ontario Section of AAPT (Ontario Association of Physics Teachers) enjoyed yet another very busy and successful year. The current report features 2014 calendar year events and activities.

1. OAPT Annual Conference

OAPT Thirty Sixth Annual conference titled “Physics: The Roots of STEM (Science Technology Engineering Mathematics)” took place May 8 -10, 2014. It was hosted by the Department of Electrical and Computer Engineering, University of Toronto. The detailed program of the conference can be found at <http://www.oapt.ca/conference/2014/program.html> . The highlights of the conference can be found in the July 2014 OAPT Newsletter http://www.oapt.ca/newsletter/2014_07.pdf .

2. OAPT Website and Newsletter

Ontario Section maintains very vibrant website <http://www.oapt.ca> . Various teaching resources assembled by OAPT (including but not limited to the conference materials downloads) are posted at <http://www.oapt.ca/resources/index.html>. For example, past OAPT Contest questions collected by topic and ready to use in the classrooms can be found at <http://www.oapt.ca/resources/contestQB.html>, while the page about Concept Questions for Peer Instructions can be found at <http://www.oapt.ca/resources/conceptquestions.html> . Also, all of the Demonstration Corner contributions collected over 26 years are available at <http://www.oapt.ca/resources/democorner.html>.

The list of recent and upcoming events in which the OAPT members are involved can be found <http://www.oapt.ca/events/index.html> . The information about the past events with participation of OAPT members can be found at http://www.oapt.ca/events/Events_Archives.html.

Our Newsletter is published quarterly and can be found at <http://www.oapt.ca/newsletter/index.html>.

The OAPT web site now features OAPT Newsletters dating back to 1979. The most recent newsletter was published in July 2014 and contains the reviews of the selected sessions of the 2014 annual conference. It can be accessed on-line at http://www.oapt.ca/newsletter/2014_07.pdf .

3. 2014 Awards

Congratulations to Diana Hall, winner of the 2014 CAP Award for Excellence in Teaching High School/ CEGEP Physics (Ontario).



Diana Hall has taught Physics at Bell High School in Ottawa since 1993. A student writes: “Ms. Diana Hall is an incredible teacher, and I feel that I was enormously lucky to be her student during the last two years of my high school career. She teaches physics, a subject that is often perceived as one of the most difficult in grades 11 and 12, in a masterful way, and makes sure to keep her students in check with a forceful yet caring tone. We were all happy to stay as late as possible to study, and these educational sessions quickly became coupled to pot luck dinners and remarkable fun. This was an amazing group; we shared ideas, problems, solutions, culture, food, hover-crafts, and friendship. We became incredibly close, and planned physics marathons late into evenings, during the weekends, and even overnight at the school.” Diana Hall has taught in four countries, Canada, Mexico, where classes are given in Spanish and English, the USA and Tanzania. She has been a member of the Ontario Association of Physics Teachers for over 20 years, serving as president for two years, as well as running the Photography Contest and the Grade 11 Physics Test taken by thousands of Ontario Students. In 2010 she climbed Mount Kilimanjaro, a trip that changed her life. She met some local physics teachers who needed help. Diana set up Do Science Tanzania, which now offers four programs: Workshops for

teachers; a lending library of equipment; a scholarship program for students, and a workshops on careers for students. Diana Hall changes lives.

4. Future Events: 2015 OAPT Conference

Our next (37th!) annual conference will take place on May 7-9, 2015 and will be hosted by the University of Guelph. The theme of the conference is “Bridging the Gap:

Strengthening Ties between K-12”. Building on success of previous annual conferences, our 37th annual conference once again will feature an array of exciting presentations and hands-on, activity-based workshops. For more information visit the conference web page at:

<http://www.oapt.ca/conference/Current/index.html> .

The full list of current OAPT executives can be found at <http://www.oapt.ca/aboutus.html>. We are looking forward to refine and further expand our activities by building upon our successes and strengths in 2015 and beyond.

Ontario Section 2014 report is submitted by the Ontario Section Representative Tetyana Antimirova on December 30, 2014.

—Tetyana Antimirova, Section Representative

Oregon Section

Lane Community College hosted our Spring Meeting on March 8th, 2014. Paul Bunson welcomed members to Eugene Oregon (GO DUCKS). Michael Schatz, from Georgia Tech, started the meeting with the story of a not so mini-MOOC. We learned how to use spreadsheets as a tool to explore significant figures from Tom Smith, Lake Oswego HS. After a nice break to catch up on what our fellow physics teachers have been up to, Dan Roth and Wendy Wampler, Linn-Benton CC, provided a Mini-Workshop on Vpython. After some Mezza pizza and more sharing, David Roundy, OSU, gave a talk on Computational Physics at the Junior Level, followed by another talk by Michael Schatz on flipped classes titled “The Path of Khan, my trek into the universe of the flipped classroom.”

The University of Portland hosted our Fall Meeting on October 18, 2014. Matt Beekman, Oregon Tech, started the meeting with a talk on Nanoscience for

non-majors: An introductory course at Oregon Tech. Next, Fran Poodry, Vernier, told us about the new Vernier fan carts and the motion encoder system. Ahmed Rajabzadeh, Lane CC, gave a talk titled, “How do you know your parabola is parabola?” Ahmed helped answer the question, “Is the M in the McDonald’s sign a double parabola?” Rob Brown, Rockwell Collins, followed this, talk on how diffraction and holography enable very compact wearable displays.

After a lunch break, Bruce Emerson, Central Oregon CC, talked about authentic assessments, which seek to “test” student skills in a setting drawn from “real” physics. Our meeting ended with a fascinating workshop on making holograms with the Litiolo home holography kit. This workshop was organized by Rob Brown who is a Principal Optical Engineer at Rockwell Collins in Wilsonville, OR, a manufacturer of head-up displays and helmet displays for commercial and military aviation.

—Patrick S. Keefe, Section Representative

Southern California Section

On Saturday, November 8, 2014, over fifty members of the Southern California Section of AAPT gathered at University of Southern California for a day full of persuasive presentations and dynamic discussions. SCAAPT thanks Steve Cronin who hosted the meeting and Bradley “Peanut” McCoy, who served as Program Chair of the meeting. The meeting was called to order by SCAAPT President James Lincoln.

Cliff Gerstman and Rand Summy led a morning workshop where they provided participants an overview of Modeling Physics. Teachers were excited by this research-based physics instruction method that focuses on sound pedagogy and content, which is aligned with CGSS and NGSS. The workshop focused heavily on graphing and student-driven learning.

The meeting included several fascinating invited presentations. Brett Sacket (PASCO) shared some of the latest equipment and activities that PASCO has developed for the physics and engineering classrooms.

Chris Lowe (CSU Long Beach) presented work that he has done to understand and prevent barotrauma with deep-water fish. By forcibly submerging caught fish

to deep water, they can survive the catch and release process when they would otherwise die. He has introduced this interdisciplinary project into high school curriculum and taken students fishing trade shows to educate fishers on the problem and solutions of barotrauma.

Given the imminent shift in state science frameworks and assessment, SCAAPT invited several speakers to share their work on implementing the Next Generation Science Standards (NGSS).

- Maria Simani (California Science Project) presented the background and process by which NGSS were developed and adopted by California.
- Jeff Orlinsky (California Science Teacher Association) sought to ease teachers concerns that NGSS will require major revisions. Rather, many of the class activities already being used in physics classes address practices of science and engineering.
- Dean Gilbert (Orange County Department of Education) believed that NGSS will cause a positive shift as it focuses on scientific literacy for all students and will catalyze change in California to require three years of science.

After the three NGSS-related presentations, there was a lively roundtable discussion.

Several other SCAAPT members also gave engaging contributed presentations:

- Roberto Lopez, USC, “USC rocket propulsion laboratory”
- Joshua Sneideman, Department of Energy, “Energy in America— My experience as an Einstein Fellow”
- Chad Kishimoto, UC San Diego, “Flipping the large-lecture introductory physics classroom”

The ever-popular Show ‘n’ Tell featured demonstrations by James Lincoln (new demonstrations from Arbor Scientific), Dean Papadakis (model of earthquake resonances), Pat Healy (student-friendly standing wave experiment) and Bob Baker (Quarknet).

SCAAPT thanks its corporate sponsors –Arbor Scientific and PASCO– for their support and donation of door prizes. 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 2015.

New Physics Teacher Workshop (NPTW)

SCAAPT’s New Physics Teacher Workshop series has now entered its fourth year. Typically, 30 teachers receive training, handouts, and lab equipment all for free at three different workshops each year. The most recent workshop was held at USC in August, where the focus was on mechanics and thermodynamics. SCAAPT would again like to thank the Karl Brown Memorial Scholarship Fund for its continued financial support. Please visit <<http://www.nptw.org>> for more information.

—Jeff Phillips, Section Representative

Southern Ohio Section

The Southern Ohio Section of AAPT met on Saturday, October 11, 2014 at the Seven Hills School. Lenore Horner was host, and we had 23 participants. The day started with a featured presentation from Dwain Desbian (Estrella Mountain Community College) on some rather novel techniques for teaching students to solve one- and two-dimensional kinematics problems.

We enjoyed the following contributed papers:

A Candle at Ten Miles (Terry Toepker, Xavier University), A Problem With Problem Solving Strategies (Sandy Doty, Ohio University – Lancaster), Some Challenges in Working With Middle School Teachers (Gordon Aubrecht, The Ohio State University – Marion), Analyzing Peer Review of Writing Feedback (Kathy Harper, The Ohio State University), and Tools for the Flipped Classroom (Darwin Church, University of Cincinnati – Clermont) Lenore Horner also led a short working session on Hands-on Video and Screencasting. Through our “How I Do It” presentations we also learned about the center of mass of a suspended slinky (Terry Toepker), the videos of the “Slo Mo Guys” (Lenore Horner) and putting astronomy courses online (Shan Huang, Sinclair Community College).

The next meeting of the section will be Saturday, April 18, 2015 at Anna High School in Anna, OH. Vicki Quinter will host, and we will have a theme of NGSS and Engineering by Design.

—Kathy Harper, Section Representative

St. Louis Section

SLAPT President's Welcome

Welcome to the 2014-15 school year! I hope you had a rejuvenating summer and are ready for the challenges and opportunities of the coming school year. During our planning meeting in May, we attempted to honor the feedback you all provided in our online survey. I believe we've put together a terrific portfolio of professional development offerings (summarized in the left column of this newsletter) and that these are highly relevant for novice and veteran alike; I hope you can attend most of these workshops.

The program-level changes I wrote about last year (brought on by the NGSS and the replacement of the AP Physics B course) are in full swing, and several survey responders expressed interest in program-level discussions. Therefore, Jim Cibulka and I will start the year off with a workshop devoted to the “big picture”, such as helping you make curricular and instructional decisions based on Physics Education Research and consideration of the standards. Several of the other workshops during the year are devoted to enriching your course with things like contests, authentic inquiry projects, free online videos, and of course a field trip to Six Flags Physics day. We also will have a workshop specifically designed to address those content topics for which the survey responders expressed the most interest.

You may have heard of the idea of the “educational pendulum” swinging from one “hot approach” to another every few years. In my opinion, the solution is to never follow any pedagogic method exclusively. Teachers must develop a toolbox of diverse approaches to teaching, curriculum and assessment. Active participation in SLAPT generates this type of rich toolbox, because we are a community of professional learners and peer presenters. So I really hope to see big turnouts at all of our workshops this year. Enjoy!!

—Bob Brazzle, Section Representative

Texas Section

The Joint Spring 2014 meeting of the Texas Section AAPT and APS was held at Abilene Christian University March 20-22, 2014. The meeting was

hosted by Jess Dowdy and the physics department and had slightly less than 200 in attendance.

There were three primary themes: The Future of Energy, Physics Education Research for Science Majors, and Future of Optics. Special speakers included: Kirk Sorenson (Liquid Thorium), Peter McIntyre (TX A&M – accelerator energy), Andrew Dessler (TX A&M – Energy and Environment), Jeff Kimble (Cal Tech- Quantum Optics), Michael Loverude (PER at Junior Senior college level), and Robert Hargraves (Dartmouth—famous author).

The board meeting for TSAAPT was held Thursday evening. Items on the agenda included support and submissions for the next state science teacher conference, CAST (Conference for the Advancement of Science Teaching), edits to be done on the new website, and management of the website and other social media such as Facebook and twitter. The Fall meeting site is at Texas A&M University (Oct. 17-29, 2014) and will be testing a new venue using Friday through Sunday as the meeting days instead of the typical Thursday through Saturday. The Spring 2015 meeting will be held at Lee College March 12-14, 2014 and the Fall 2015 meeting will be at Baylor University October 15-17, 2015.

In conjunction with the plenary sessions, posters, and presentations, eleven workshops were held Friday and Saturday for teachers and students over a wide range of topics including: engineering design in the classroom, flipping classrooms, circuits and resistance, photoelectric effect, changes in AP Physics, video analysis, using TIPERS in the classroom, and how to integrate iOS devices in your class. Toni Sauncy also presented a session for the university students on “Careers Toolbox for Physics Students”.

The business meeting for TSAAPT was held Friday during the luncheon. It is at this time that new officers are typically elected, however the board decided to utilize the website and survey monkey to post candidate profiles and conduct voting. A link to the voting site was sent to all members and their votes were tallied using the survey.

Voters were cross-referenced to ensure that all were members and no one voted twice. Winners of the election were declared at the end of May and

included: Dr. Andra Troncalli from Austin College (Vice President) and Dr. Jim Sizemore from Tyler Junior College (Section Council at Large for Two Year College). Prizes were given to high school teachers who were attending for the first time, provided by ACU physics department.

Friday evening entertainment was provided by the ACU Theatre Department before the Award Ceremony. Award recipients included: David Donnelly (Robert N. Little Award), Karen Jo Matsler (Katherine Mays Award; Lifetime Outstanding Contributions to High School Physics Education in Texas), Michael Strange and Stephanie Ingle (Outstanding Pre-College Excellence in Education). The members also decided to create a “Remembrance” page on the website for those that have had significant contributions to TSAAPT and physics education in Texas. That page is under construction but can be found at <http://texas.aaptsections.org/in-remembrance/>.

—Karen Jo Matsler, 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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