

Alabama Section

Our spring meeting at Auburn University was profitable for everyone that attended. All physics teachers (with online access available) were introduced in the morning session to a new resource and inquiry activity they could use on Monday morning.

Dr. Raj Chaudhury from Auburn University's Biggio Center led us to the TELS website (wise.berkeley.edu). WISE is a simple yet powerful learning environment where students examine real world evidence and analyze current scientific controversies.

TELS (Technology Enhanced Learning of Science) is an innovative set of curriculum modules designed by science education researchers to help students learn abstract concepts in science through the use of modeling and simulation tools embedded in an inquiry learning environment. TELS Center online projects, each of which takes about a week to do with students, are widely tested, research-based modules that set learning objectives in the context of an engaging narrative.

During the morning part of the meeting we worked on the module Airbags: Too Fast, Too Furious?.

After a wonderful lunch we continued with a sharing session and business meeting.

- Nick Nicholson shared his proposal for a Science Team at the college and university level on scholarship to reach out and influence science in young students. Learn more at: http://caccphysics.cacc.cc.al.us/cacc_general/2009_2010/sciproposalweb/Science%20Team%20Proposal%201-26-10.pdf
- Tommi Holsenbeck showed high speed video taken by \$300 cameras, not \$30,000 ones, and also how to analyze these clips using video analysis.
- Stan Jones shared the VPython program he uses with his Honors Physics classes. VPython makes it easy to create navigable 3D displays and animations, even for those with limited programming experience. Find information at: <http://vpython.org/>
- Marlin Simon introduced his grant, "Online Homework for Physics Classes." Contact him for more information about involvement: msimon@physics.auburn.edu

Business Meeting

The new president is Duane Pontius from Birmingham

Southern College. He was congratulated on winning the Alabama Professor of the Year.

And congratulations to a new member, Jeff Johnson, for winning the Siemens National AP Teacher of the Year.

The newly elected President Elect is Ali Yazdi from Jeff State.

Stan Jones, Section Representative, shared with us the advantages and assistance the Section members can get from National AAPT.

—Stanley Jones, Section Representative

Alberta Section

Annual Physics Teachers Day

Despite the first blizzard of the winter, over 60 Physics Teachers from Northern Alberta gathered for a full day of talks and workshops at the University of Alberta on Friday, December 4 2009. The day began with a talk by Dr. Roger Moore (University of Alberta) on "Breaking the Standard Model". Roger described some of the highlights and puzzles of the Standard Model, the latest news from the CERN LHC project and applied them to the Alberta Physics 30 curriculum. Local teachers Brent McDonough (Holy Trinity Catholic School) and Allen Lineville (WP Wagner High School) presented a Perimeter Institute Explorations workshop on the "The Challenge of Quantum Reality." At the end of the workshop, teachers were each given a copy of the PI teaching resource to take back to their classroom.



After lunch, teachers gathered in the teaching labs of the Physics Department for workshops presented by Bill

Konrad of Pasco Canada (with Vlad Pasek and Michael Garipey of Ecole Maurice Lavallee) (see photo) and Glenn Mitchell of VWR Education on their latest products and applications to the Physics curriculum.

The day concluded with a joint Colloquium with the Physics Department given by Dr. Gordon Rostocker (University of Alberta) on “Sunspots: History of Galileo’s Discovery and Applications to Aurora and Climate” which looked at the history of our study of the sun and how changes in solar activity may influence Earth’s climate.

Our thanks to our sponsors, Pasco Canada and VWR Educational for door prizes and handouts; To VWR Educational for sponsoring our morning Refreshment Break; To Perimeter Institute for providing the DVD resources; To the University of Alberta Physics Department for providing organizational resources; To Our Presenters: And to our Volunteer Organizers: Laura Pankratz (Section President) Vlad Pasek (Section Past President), Wytze Brouwer, Dave Austen, Isaac Isaac, Brent McDonough, Allen Lineville, Cliff Sosnowski, Jeff Goldie, Chris Fensky, Pina Chiarello, and Zoltan Berkes.

—Terry Singleton, Section Representative

British Columbia Section

On May 8, 2010, the British Columbia Section of the AAPT held its annual general meeting. The meeting was organized by BCAPT Executive Board under the leadership of the BCAPT President - Dan Phelps. The Department of Physics and Astronomy at Langara College hosted the Conference under the leadership of Don Hunter, Terry Coates, and the Department Chair - Robin Macqueen.



Peter Hopkinson presents Leigh Palmer with a very special birthday cake.

It was a great opportunity for us to visit a beautiful campus of Langara College on a wonderful spring day. More than 35 physics educators from the Lower Mainland attended the meeting. The event was dedicated to exploring Quantum

Computing. Two invited presentations by UBC Department of Physics and Astronomy faculty member, Dr. Tzu-Chieh Wei, and by the research scientist from the Vancouver company D-Wave Systems Inc., Dr. Mohammad Amin, helped the attendees to find out what is happening in the world of quantum computing. The talks were very well received and followed by a number of questions. This was a very special meeting for our section as we had a great reason to celebrate: Our own “Curmudgeon in Residence” (see photo), Professor Emeritus of Physics from Simon Fraser University, Dr. Leigh Palmer had his 75th birthday. We all celebrated Leigh’s birthday by having a very special cake presented to Leigh by another star of our section – Mr. Peter Hopkinson. Both Leigh and Peter have been with the BC APT since its inception in 1984 (Leigh Palmer was one among the key physics teachers who helped establish our section) and Peter who has been an active section member for many years has also been a section representative. Leigh Palmer’s contributions to the section are numerous and even during his birthday celebration he agreed to present a very exciting talk titled “Birefringence, sereopsis, and ‘Avatar’ – physics at the movies.” At the end of the talk he gave gifts to the audience – 3-D glasses. Leigh’s way of presenting is always engaging and interesting. With his many years of experience of teaching physics and doing physics research (his area of expertise is Low Temperature experimental physics), Leigh’s knowledge is unlimited, like his enthusiasm for physics and passion for physics teaching. He always contributes to the BC-APT listserv and is ready to help every new and experienced teacher.



Peter Hopkinson shows a demonstration of circular motion using a drill, a partially cut two liter coke bottle and Bert from Sesame Street.

During the Conference we held an Annual General Meeting and voted for the new BC APT Executive Board. The list of the New Executive Board members will be listed on the BCAPT and AAPT web sites.

All photos were taken by Marina Milner-Bolotin and Edgar Nelson.

—Marina Milner-Bolotin, Section Representative

Chesapeake Section

Spring Meeting

March 6-7, Lord Fairfax Community College, Middletown, VA. Approximate attendance: 25

Fall Meeting

October 9-10, George Mason University, Fairfax, VA.
Approximate attendance: 25

Our major challenge is probably increasing our numbers. Our meetings tend to be relatively small, with very few High School teachers. AAPT has offered to give us lists of AAPT members in our section and we plan to take advantage of that.

<http://www.udel.edu/physics/csapt>

—David Shaw Wright, Section Representative

Colorado/Wyoming Section

The spring meeting of the Colorado/Wyoming Section was held on Saturday, May 1, 2010 at Red Rocks Community College in Lakewood, CO. Approximately 60 people attended throughout the day, and several members of the Colorado School of Mines SPS chapter volunteered at the meeting. Listed below are some of the program highlights:

Poster Sessions

Ten posters were on display for an hour and a half in the morning. Authors included undergraduates, graduates, and faculty from several institutions. The titles and authors are:

- Colorado School of Mines Society of Physics Students, Shirley Moore and Andrea Yocum
- Fascinating Facts of Nature: concepts in astronomy, Anne Martha Andrew
- Can Rotation Measures be used as a Black Hole Mass Diagnostic in AGNs? Russell Deitrick and Grant Denn
- Economical magnetic field sensors for introductory physics, Timothy Lim, Eric Weisgerber, Vince Kuo, Pat Kohl
- Direct and Indirect Approaches to Increasing Conceptual Survey Gains, Charles Pearl, Pat Kohl, Vince Kuo
- Energizing Middle School Mathematics and Science, Christine Anne O'Hara
- Connecting Motion and Math for the 7th Grade Students, Joseph Schneiderwind
- Electrochemical Analysis of Single Source Sputtered PtRu, Sean Studer
- The Science Forrest, Sage Andorka and Rebecca Orcutt
- Developing Classroom Modules on Sustainability – the Green App Approach, Barbra Maher and Rick Reeves

Morning Talks and Workshops

Four 15-minute talks followed the poster session. The titles and authors are:

- Kinesthetic Astronomy - Be the Earth, see the Stars, Don Cameron
- Undergraduate Research in Renewable Energy at Colorado School of Mines, Chuck Stone
- The Science Forrest, Sage Andorka and Rebecca Orcutt
- A Superlab for Physics Students, STEM Educators & Small Businesses, Randall Tagg

The morning came to a completion with The Little Shop of Physics workshop by Brian Jones of Colorado State University – Fort Collins. Brian provided everyone with an overview of his science outreach program, and then led a workshop for all who wished to learn more about hands-on science education outreach. This workshop featured numerous make-and-take activities that provided attendees with ready-to-use demonstrations for their classes.

Keynote Speaker

The afternoon started off with a talk by Bob Beichner, Alumni Distinguished Professor of Physics at North Carolina State University. Bob was invited to provide an overview of his SCALE-UP Project (The Student-Centered Active Learning Environment for Undergraduate Program). All participants were thoroughly engaged during his talk, and many expressed genuine interest as evident by the level of questioning that followed.

Afternoon Workshops

The afternoon workshops started with the Renewable Energy Activities: Designed for the K-12 Classroom and Budget, by Barbara Moskal, Jennifer Strong, Michael Asheim, Alex Probst, Catherine Skokan, and then broke into two concurrent hour-long sessions with the following four workshops:

- The Mystery of Dark Matter with a hint of Quantum Reality, Christine Nichols
- Green Apps: Sustainability in the Classroom, Barbra Maher
- Box Store Physics, Margaret Brinker and Curt Miller
- Making Science Relevant to Non-science Majors, Lynnette Hoerner

Business Meeting

The section business meeting was held after dinner. The agenda included approval of previous minutes, constitution/bylaws issues, values that the CO/WY Section offer, and discussion of possible recruitment efforts to expand future membership and solicit participation. Officers' reports were followed by the election of new officers; President Elect, Vice President, Member At Large. The election results are:

- President Elect: Sage Andorka
- Vice President: Randall Tagg
- Member At Large: Barbra Maher

The new VP, Randall Tagg, agreed to host our next CO/WY Section AAPT meeting, in the spring of 2011, on the campus of University of Colorado – Denver, in Denver, CO.

Due to extenuating circumstances, Vince Kuo was elected as the new Section Representative during the spring 2009 section meeting. Since the Section Constitution states that such a position is up for election during even-numbered years, a special vote was called by the President Chuck Stone. Vince Kuo was re-elected as the Section Representative.

The Executive Board of the CO/WY Section of the AAPT now is as follows:

- President: Adam Pearlstein
- President Elect: Sage Andorka
- Vice President: Randall Tagg
- Past President: Chuck Stone
- Secretary/Treasurer: Richard Krantz
- Members At Large: Barbra Maher, Steve Iona
- Section Representative: Vince Kuo

Invited Speaker

The meeting ended with an invited talk by astrophysicist Jeffrey Bennett, from the University of Colorado, Boulder. He is the author of best-selling college textbooks in astronomy, astrobiology, mathematics, and statistics, as well as author of two books for the general public (On the Cosmic Horizon and Beyond UFOs) and of the award-winning children's books Max Goes to the Moon, Max Goes to Mars, and Max Goes to Jupiter.

Acknowledgements

The Section would like to thank the Department of Physics at the Red Rocks Community College for hosting the meeting, and the outgoing vice president Barbra Maher for putting together the program. A special thanks, once again, goes to the SPS Chapter at CSM for helping to make this a very successful meeting.

—Vince Kuo, Section Representative

Hawaii Section

Spring meeting 5-20-2010

Mike Webber, BYUH (outgoing Pres)
Mike Jones, UH Manoa
Roger Kwok, LCC
Tash Dalde, LCC
Ron Fligel, Sacred Hearts
Jim Redmond, UH (outgoing section rep)
Forrest Luke, retired
Liz King, MPI (secretary)
Hanno Adams, Punahou
Karl Achiu, Moanalua
Katie Brown, Damien
Nathan Paddle, Sacred Hearts
Mike Nassar, UH
Mary Kadaoka, IFA
Joe Lazlo, Dr. Gadget (retired?)
Jeannine Nakakura, Rosevelt

Gerry White, US Army (incoming President)
Pui Lam, UH
Celine Cadirao, Kahuku

Calendar of Events

Highlights – check www.phys.hawaii.edu/~aapt for updates and more complete info.

September: Next AAPT meeting (at MPI, September 11, 2011), UH Manoa Engineering Day www.eng.hawaii.edu/events

October: Manoa Experience at UH Manoa, Lacy Veach Day at Punahou

November: UH Manoa Engineering Day, UH Manoa Phys and Astronomy Open House www.phys.hawaii.edu

December: FIRST Lego League at McKinley High www.hawaiiifl.org

January: FIRST Robotics kick-off, Physic Sharing Workshop

Discussed the possibility of a Physics Section presentation after HaSTA meeting, or a workshop/sharing session at HaSTA. Forrest recalled the first AAPT meeting he attended, in which he received a “box of junk” that was his salvation – bits and pieces that he could use right away in the classroom. Hanno recalled the mentorship program that Jeannine started, and how that was so helpful for new teachers. Derek Minakami did a similar thing years ago that was very successful. We need to reach out to new teachers, develop friendships and networks to support them. HaSTA is probably the best avenue for this, since there is such a wide audience there. Kaite Brown voiced the need for support for experienced teachers, as well. Mary Kadaoka voiced the need to have more meetings that have non-business foci.

Sept 11 Meeting Volunteers (at MPI)

Forrest Luke
Jim Redmond
Katie Brown
Mary Kadaoka
Gerry White – coordinator
Roger Kwok
Mike Webber
Tash Dalde

HaSTA Meeting (Oct. 2 at Punahou) Workshop

Volunteers:

Liz King
Jim Redmond - coordinator
Jeannine
Karl Achiu
Katie Brown
Roger Kwok
Mary Kadaoka
Joe Lazlo

Also, Jim Webber encouraged us all to join the national AAPT organization AND attend the national meeting. Great experience every time.

New Business

Pui Lam – fundraising. Air force association of Hawaii (www.afahawaii.org) wants to give us money! President Nora Ruebrook (Presedent@afahawaii.org) wants to fund educational programs, such as Physics Olympics. Go to Website and find Support Request link. The other branches of the military have similar groups that give money, the SEED group at UH also gives money (minority students is their focus). AAPT also gives grants.

Maybe we need a new position: fundraising coordinator. Mary Kadaoka has a lot of knowledge about who to go to, will support the coordinator with contact info. Jerry White will be our coordinator – thank you Jerry! And will be asking for help and support from: Katie Brown, Mary Kadaoka.

Treasurer’s report: We have \$1413.25, largely due to Paul Hewett. (Thanks, Dr. Hewett!) Please pay dues, \$15.00.

Elections

Nominees for President-elect (from university rank), Secretary, Treasurer, Section Rep (high school rank, ideally). Section rep must be willing to go to the winter meeting, also turns in annual report to national AAPT.

Nominations and Elections

President elect: Mike Nassar (declined), Erik Dotson from UH (absent, unable to decline), Roger Kwok, Jim Redmond, Tash Dalde (declined). Roger Kwok is elected. Secretary: Liz King – only nominee, is elected. Treasurer: Mike Webber – only nominee, is elected. Section Rep: Karl Achiu (declined), Jeannine (declined), Katie Brown. Katie Brown is elected.

Sharing of teaching ideas and demos

Joe Lazlo: Bicycle Tire “Galileo’s Paradox” device. Flip it over and guess which ball will fall to bottom first. Joe showed us how to make the same with a wire hanger, wire, and plastic beads – easy to make en masse for a classroomful of kids. Can also experiment with different shapes, bead sizes, etc. He also supplied us with a handout. Thanks, Joe!

Mary Kadaoka: raw egg balanced on paper towel cardboard tube or rolled up piece of paper, which is on a manila folder, which is over a cup of water. Pull the folder; egg falls into cup.

Jeannine Nakakua: student task: find a quote from a famous scientist, and also a quote, and make a little poster of it. Came up with some great quotes! Another activity: Lighten Up! Student task is to find a joke (about light or about any physics topic) and make a little poster with an image. (where does bad light end up? In a prism. And, what did the male magnet say to the female magnet? “When I saw you from the back, I thought you were repulsive. But now that I see you from the front, I’m pretty attracted to you!”) Also, Star Bulletin has an Asimov Daily Quiz having to do with science facts, good way to start class.

And, NSTA Reports puts out a great monthly newsletter. And, with 2 polarizing filters on the overhead, you can put different materials (plastic cup, plastic spoon, cellophane tape, etc) to see neat colors and also stress testing. Also can put on top of an LCD (wristwatch, etc).

Hanno Adams: Knudt’s Tube. Attach speaker/woofer to a boom box, fill tube (about 6 feet long, at least 3 inches in diameter) with very light filler, if you can get a tone generator it’s perfect; turn on the sound and the beads will fall into the nodes.

Note: you can do the same kind of thing with a microwave; take out the rotating tray, replace w/chocolate or marshmallows, see what melts/burns. You can use the frequency (printed on back of microwave) to find speed of light.

Roger Kwok: little plastic box filled with iron filings can illustrate magnetic fields nicely; tape tiny neodymium magnets onto index cards in various positions and put the little plastic box over. Also fun to use with “buzz magnets,” which have their poles on the sides, not on the ends.

Tash Dalde showed us excerpt from a physics books he’s writing that uses a comic book format to teach higher-level physics.

Katie Brown, iPhone apps: Screecher is a tone generator to find threshold of hearing. Also, Skywalk App gives a view of the sky (stars, etc) based on where you are and what direction you are pointing the phone. Very accurate.

Door prizes!!

Finally, a word from our incoming president, Gerry White: a call for more stuff like this, with hands-on demos for hands-on activities. Please email ideas to Gerry, also ideas for meeting places and meeting themes. We could also look into field trips for teachers, as he has military contacts (works for the Army and is retired Navy). Would also like to compile a list of Web-based resources for physics teachers.

—Katie Brown, Section Representative

Idaho-Utah Section

The annual meeting of the Idaho-Utah Section was held April 30 May 1, 2010, at Idaho State University, Pocatello, Idaho. Steve Shropshire from ISU hosted the meeting. There were 38 registered attendees.

We began the meeting Friday evening with a dinner, followed by a demonstration show. On Saturday, 12 oral presentations were given in three sessions. We conducted our business meeting following lunch on Saturday. We elected as vice president, Bryan Pyper (Brigham Young University Idaho). We also re elected Adam Beehler as section treasurer.

The meeting was concluded with a drawing for door prizes which included various physics “toys”, books, etc.

We thank Vernier, Education Innovations, PASCO, Arbor Scientific, and AAPT for generously providing some of the door prizes. The grand prize was an all expense paid trip to the national AAPT meeting in Portland, Oregon, July 17-21, 2010. The donor providing this prize specified that it be awarded to a high school teacher who has never attended a national AAPT meeting. The winner was Adrienne Shilling, a teacher at the Idaho Virtual Academy.

You can find out more details about the meeting, including photos and videos, at <http://aapt.byu.edu>.

—Harold T. Stokes, Section Representative

Michigan Section

Almost 50 physics educators met at Hope College for the Spring MIAAPT Section Meeting. President Drew Isola and Cathy Mader organized a great meeting with 5 workshops and 8 paper presentations. Mark Greenman, NSF Einstein Fellow, was our Keynote Speaker as well as presenter of a Standard Model Workshop. After the Welcome by Moses Lee, Dean of Natural Sciences.

The following talks were presented:

Observation and Theoretical Approach to the Concept of Image, David Shuster and students Rex Taibu, Chaiphath Plybour and Bill Mamudi, Western Michigan University
Multiplying Resources Through Partnerships, Zach Constan of the NSCL, Michigan State University
Preparing Physics Teachers for High Needs Schools, Mark Olsen, Oakland University
Weekly Online Checklist – Keeping Everyone on Task, Phil Kaldon, Western Michigan University
ComPADRE.org: Where Educators and Scientist Join to Support Learning, Beth Kubinski, Eastern Michigan University;

Teaching Relativistic Acceleration Without (much) Mathematics – An Intuitive Approach, Robert Hipple, Lansing Community College

An Astronomical Misconceptions Survey, Michael LoPresto, Henry Ford Community College
Use of Google Earth in Teaching Physical Geology Laboratories, Brian Kirchner, Henry Ford Community College

Introductory Physics: Is our Success Their Success?, Michael Tanoff, Kalamazoo College
Solar Irradiance, Bala Balachandran, Kalamazoo Valley Community College

Our Keynote Speaker, Mark Greenman, NSF Einstein Fellow followed the talks. Mark's talk focused on lessons learned in his study of 50 teachers in his "Physics Boot Camp for Teachers".

In our business meeting, Jim Gell of Plymouth Canton High School was elected as our new Vice President and a discussion of the advantages of AAPT membership

we spread out to attend workshops including, building Galileoscopes, adding Dark Matter to intro physics classes, examining Astronomical Misconceptions, Standard Models Workshop, and a Laser Light Workshop by APS guests Monica Plish and Heide Doss. To conclude a very active and busy day, Cathy Mader took the group on a tour of the Hope College Accelerator.

Abstracts of all talks and workshops may be found at miaapt.org

—Alan M. Gibson, Section Representative

New Jersey Section

The New Jersey AAPT Section Report, September 2009–February 2010.

The First of 5 major events on the NJAAPT Calendar was the NJ Science Convention – during this two day extravaganza the NJAAPT manned a table in the vendor area, several members presented workshops on a wide variety of topics, and with enthusiastic member volunteers also presented four spectacular "Demo Dens"

New Jersey Science Convention, October 2009



Demo Den #1 - Linear Kinematics



Demo Den #2 - Rotational Kinematics



Demo Den #3 - "A Demo a Day"



Demo Den #4 - Modern Physics & Astronomy

For a handout from the demo dens visit

www.njaapt.org

Nuclear Accelerator – Make-and-Take November 2009

Led by Joseph Spaccavento (North Arlington High School) and Tiberiu Dragoiu-Luca (Hillsborough High school)

where the workshop was held. Twelve teachers were able to build their very own Particle Accelerator for their classroom. For information on the accelerator and learning nuclear science with marbles, visit the web page <http://www.jinaweb.org/outreach/marble/>. There are lessons and hands-on activities, including teacher's guide, and games with nuclear physics (Isotope Bingo, Nucleosynthesis with dice, and the fragmentation box). "Playing" with the fragmentation box was a lot of fun, it is a device that simulates a nuclear collision. Upon return, we decided to organize a "Make-and-Take" workshop for the physics teachers in New Jersey. It is scheduled for Saturday, Nov 14 at Hillsborough High School between 9am-1pm.

We strongly recommend the PAN program; visit for the site below for information on the program planned for next:

<http://www.nsl.msu.edu/teachersstudents/programs/pan>.

The 22nd Annual NJAAPT Physics Holiday Treats, December 2009

The NJAAPT Physics Olympics" January 2010

1st Place – Ridge High School

The annual [Physics Olympics](#) was held at Monmouth Re-

gional High School on January 16, 2010. Thirty six-member teams from 22 High Schools participated!

"The NJAAPT's Dave's Dazzling Demos at Rutgers University" - January 2010

For a complete slideshow of Dave's Dazzling Demos click [HERE!](#)

—Joseph Spaccavento, Section Representative

North Dakota Section

The North Dakota Section of the AAPT held its spring meeting at Bismarck State College, Bismarck, ND, 26 Feb 10, in conjunction with the North Dakota Science Teachers Association (NDSTA) Conference.



Members attended a session consisting of identification of unknown equipment/apparatus, sharing of demonstrations, labs, and teaching techniques (see photo), followed by a section business meeting.

—Donald L. Hoff, Section Representative

Ohio Section

The theme of the 2009 Fall Meeting was *Physics and Medicine* and was held at the MetroHealth Medical Center (MHMC) in Cleveland, OH on Saturday, October 10, 2009. The speakers included: Mark Rzeszutarski, Radiation Physicist and Steve Tamarkin, M.D., Radiologist, *Inside Radiology*; Ken Laurita, Cardiologist, *The Physics of Cardiac Electrophysiology*; and Robert Dempsey, NASA, *How Do You Throw a Refrigerator Away in Space?* The attendees were given a tour of the radiology department of the hospital.

The 2010 Spring meeting was held at John Carroll University on Saturday, March 27, 2010. Douglas Oliver, University of Toledo, provided the plenary talk entitled *Using Open-Ended Design as Pedagogy for Teaching Physics*. Dr. Oliver also led a workshop utilizing the techniques in his talk while participants worked through portions of the experiments *Designing a Voltage Divider* and *Using Voltage Dividers to Design a Photo-Sensitive LED Circuit*.

The How-I-Do-It session included the following presentations: Ken Kane, *PHAT Car Competition*; Steve

Majoros, *Theraband® Stretching and Induction Coils for Sound Transmission*; Bill Reitz, *How I Did It and How They Do It*; Bob Sledz, Cleveland Astronomical Society, and Gordon Aubrecht, *The Thermohaline Circulation*.

During the business meeting, Larry Badar presented a tribute to Karl Casper, one of the founding members of the Section who died the previous year. Elections were held with the newly elected and continuing officers as follows: President, Chas Deremer; Past-President, Greg DiLisi; President-Elect, Myra West; Treasurer, Charlie Reno; Recording Secretary, Ken Kane; Veep for 4-year Colleges & Universities, Sue Ramlo; Veep for 2-year Colleges, Steve Majoros; Veep for High Schools, Tim Battista; Newsletter Editor, Myra West; and Section Representative, Myra West. The meeting concluded with a drawing for prizes.

—Myra West, Section Representative

Ontario Section

32nd Annual Conference 2010

This year Ontario Association of Physics Teachers (Ontario Section of AAPT) annual Conference took place on April 29 – May 1, 2010. It was hosted by the Department of Physics, University of Toronto. Once again the Program Organizing Committee put together an exciting and very vibrant program. This year's theme was "Research into Practice", and both the content and the interactive delivery of many presentations were inspired by the results of Physics Education Research.

Our delegates received a warm welcome from our hosts – members of the Department of Physics at U of T. This year's feature was the new state-of-the art Undergraduate Physics Laboratories at U of T designed specifically for active learning. Several conference sessions (including some workshops) took place at that location, and the delegates had a chance to experience this learning environment firsthand.

The pre-conference event included two Welsh Lecture series talks by professors Lyman Page and Maria Zuber. Then the conference opened with the traditional barbeque. After the welcoming address by the Section President Dave Doucette, the delegates attended the session on University of Toronto Labs and Tutorials held at the newly redesigned undergraduate lab space. This session was presented by one of the hosts Dr. Jason Harlow (UofT) who teaches and coordinates the related laboratory course. Later in the evening Dr. Stephen Morris (U of T) gave a highly engaging talk titled "Icicles, washboard road and meandering syrup". As it turned out, this intriguing title rather accurately reflects the research work in physics of non-linear phenomena done by Professor Morris. It is quite amazing how much serious physics can be done with everyday objects! After the lecture, the delegates had a chance to visit Stephen's

research laboratory where we found even more peculiar objects!

Friday program included a keynote address by Dr. David Harrison who was instrumental in conceiving, planning and implementing the new Undergraduate Laboratories at U of T. The remaining part of the conference on Friday and Saturday consisted of breakout concurrent sessions featuring a broad variety of interactive workshops. As always, this conference presented a great opportunity to reconnect with old friends and meet new ones. This year, the conference featured a record attendance of well over 100 participants.

You can learn more about this year conference and its program and see the conference photos by visiting <http://www.oapt.ca/conference/2010/index.html>.

—Marina Milner-Bolotin (mmilner@ryerson.ca)
OAPT Section Representative, Toronto, ON, Canada

St. Louis Section

A summary of meetings and workshops of the Saint Louis Area Physics Teachers (Saint Louis Section of the AAPT) is listed below and more detail is available at these two links: <http://www.slapt.org/> and <http://www.slapt.org/events/index.html>

September 12, 2009: Fun High Speed Video Clips and Curriculum Sharing, Hosts: Jim Cibulka & Joe Bartin, Place: Kirkwood High School

September 12, 2009: High Speed Video Clips and Curriculum Sharing

We had a great workshop with lots of great video shot. Getting the videos burned to discs will take a bit more time than we could manage before people left on Saturday, but we'll send out a note soon that lets you know how to get the videos.

Hosts: Jim Cibulka jacibulka@gmail.com & Joe Bartin bartinj@gw.kirkwood.k12.mo.us

Place: Kirkwood High School

Part 1: Building a Video Clip Library using high-speed cameras and an infrared camera. We shared some ideas and provided a CD of video clips to take home. This was a "working meeting" and anyone interested could email suggestions and/or bring equipment and demos to be filmed. Generally, we had lots of fun with some really neat toys! For those interested, one-on-one tutorials on basic video analysis were available. Also note that our December workshop is dedicated to video analysis techniques.

Part 2: Lunch, Curriculum Sharing, and Book Giveaway. Over a picnic style lunch, participants discussed curriculum ideas further with individual teachers. Everyone was invited to bring a beginning of the year activity or handout or share some physics books to help build a colleague's resource library. Teachers new to teaching physics were highly encouraged to attend! We also presented our annual Gene Fuchs Award.

October 3, 2009: Six Flags Workshop for Teachers

Location and Host: Six Flags St. Louis

Presenters: Rex Rice, Bill Brinkhorst, Mark Schober

Physics Day at Six Flags is better than ever! Six Flags has supported SLAPT's development of a comprehensive educational component for Physics Day and has now made Physics Day separate from Math and Science Day, giving students more time on the rides and reducing lines. In fact, the staff at Six Flags St. Louis received recognition from their corporate office for their exemplary promotion and management of Physics Day. Physics Day 2010 occurred April 30, 2010.

September 22, 2009: PTR A Workshop - Beats

What: PTR A Workshop – “Beats”

Where: Parkway Central High School

Cost: \$15 PTR A Continuation Fund, \$6 Make ‘N Take

At Central High Tom Senior designed a device that demonstrates the concept of beats very visually. Attendees brought a Phillips head screw driver and some patience.

We further spent time doing labs with pendulums and keyboards to demonstrate ideas about beats as well as model the behavior on a graphing calculator. We provided a snack to help the lagging blood sugar level.

October 24, 2009: MAPT-SLAPT Joint Meeting

The fall meeting of MAPT and October meeting of SLAPT was a joint meeting held Saturday, October 24, at Washington University.

We had a few talks of 12 to 20 minutes duration. The meeting began with a continental breakfast at 8:30 a.m. at the Department of Physics at Washington University, Crow and Compton Halls.

After a morning of talks and discussions, we continued our conversations over a sandwich lunch. The conversations touched on what preparation college physics teachers hope their students have, what students who took high-school physics will likely expect in college physics courses, and how colleges use AP physics scores now.

The talks included a plenary presentation of a description of Washington University's popular alternative general physics course, based on the textbook *Six Ideas that Shaped Physics*, that is much more an active-learning course than general physics usually is. Assistant Dean Victoria May welcomed the group to Washington University. She is the Director of Science Outreach, and described their work on professional development for science teachers across all grade levels K-16. Jack Wiegers and I described changes coming in the AP physics exams, timescale 7 years.

January 23, 2010: Energy Sources with Emphasis on Nuclear Energy

What: Energy Sources with Emphasis on Nuclear Energy

Where: Parkway Central High School

This presentation was by Linda Kralina who attended a weeklong session at Idaho National Laboratory, summer

2009. She shared information presented and told us about her experience at this historic and world class research facility. Plus she had two Geiger counters to give away to two lucky attendees!! She also had books and other items to give away.

November 21, 2009: Uniform Circular Motion Apparatus Make and Take

Hosts: Mike Johns mjohns@chaminade-stl.com and Rex Rice RiceR@clayton.k12.mo.us

Place: Chaminade College Prep; 425 S. Lindbergh Blvd; St. Louis – room 301

The uniform circular motion apparatus can be used to quantitatively investigate the effects of changing speed, mass, and radius on the net radial (centripetal) force required to keep an object moving in a circular path. The apparatus includes a motor driven spinning track that holds a small cart in a circular path. The apparatus can be used in a high tech mode with a force probe and a photogate, or in a low tech mode using a spring scale and a stopwatch. In addition to the apparatus that was built, teachers needed a variable dc power supply with an output of at least 12 V, a mass set and various lab clamps and rods. Teachers also needed a force probe, photogate, lab interface and appropriate software (in the high tech mode) or a 10-N spring scale and a stopwatch (in the low tech mode.) Specifics for the use of this device with both Vernier's Wireless Dynamics Sensor System and Pasco's Airlink Interface were also be provided. Attendees were provided a cd with various files including lab handouts, detailed construction procedures, and other information regarding Uniform Circular Motion.

February 27, 2010: Joint ACS/SLAPT “Make-n-take” Workshop

When: February 27, 8am-11:30am

Where: John Burroughs School, Science Building

The joint ACS/SLAPT “make-n-take” workshop occurred on February 27 at John Burroughs School. Hal Harris helped us to construct the DVD Periscope Spectrometer that was in his Cost-Effective Teacher feature of the Journal of Chemical Education in June, 2008: J. Chem. Educ., 2008, 85 (6) p. 849. This amazing origami device uses ordinary construction paper or manila folders cut and folded to create a hand-held spectroscope that can be used to illustrate atomic emission lines, the difference between incandescent, fluorescent, or halogen lights, and the Fraunhofer lines in the sun. Combined with a digital camera and freely-available software on a PC or Mac computer, it becomes a spectrometer that can capture and print remarkably high-quality spectra. Materials other than the digital camera were provided.

—Gary E. Taylor, Section Representative

Southeastern Pennsylvania Section

The annual spring meeting of the SEPS was held on April 24-25, 2009, at Villanova University, PA. Philip Maurone from Villanova hosted the meeting. There were about 50 registered attendees. The meeting began with a dinner on Friday evening hosted by Villanova, followed by an invited talk on Energy and Environment given by Ken Lande from University of Pennsylvania.

Dr. Lande talked about what he described as the dominant problem of our society for the coming century: “the generation of enough energy to sustain our mode of living without at the same time creating severe and irreversible climate changes.” He has been teaching a course on this topic at the University of Pennsylvania for the past several years entitled, “Energy, Oil and Global Warming”. The goal of this course is not only to inform the students about issues that will profoundly affect their lives, but also to teach them that they are able to calculate the underlying numbers.

During his talk, he discussed some of the critical issues about our energy utilization and its impact on the environment and used simple calculations to illustrate his examples. Among these calculations were: (1) the amount of CO₂ emitted annually by U.S. power plants, (2) the Earth’s temperature for a simplified Sun – Earth radiation balance model, (3) the maximum amount of corn based ethanol that can be produced in the U.S. and compare that to our annual petroleum consumption, (4) the power output of a wind turbine, (5) the amount of U-235 consumed per year by U.S. power reactors and the mass of the dominant fission products produced, (6) the battery stored electrical energy required for a hybrid or electric vehicle of a given driving range, etc.

On Saturday morning, our invited speaker, Bruce Sherwood, gave a talk titled “Unification and parsimony: Can students learn to think like physicists?” In this talk he described an approach to teaching that introduces students to a modern, unified view of physics in the introductory university-level (calculus based) course, Matter & Interactions, and to avoid the compartmentalization of topics and techniques that usually occurs. This course was developed in response to the major new discoveries in physics during the 20th century, the way practicing physicists think about physics has itself evolved. By reorganizing the introductory curriculum along the lines of 20th century physics, not only is it more authentic to the contemporary view of physics, it also can lead to significant cognitive benefits for students. This course is the only opportunity to convey this unified picture to the many students who will take no further physics courses, and this course is an optimum time to convey a unified view to the small number of potential physics majors who will spend the rest of their college careers studying specialized

topics in significant depth. One way that this course is delivered is by introducing students to computational and physical modeling to explain and predict a broad range of natural phenomena by starting from a very small set of fundamental principles, combined with microscopic models of matter. This technique of computational modeling has become centrally important in all branches of science and engineering.

The plenary session was then followed by eight contributed talks with a general theme of Energy:

Jeff Wetherhold demonstrated Apple’s Keynote as a way to animate presentations for a class.

Barry Feierman demonstrated different types of light bulbs and talked about the “warmth” of the light that each type of bulb emitted as a function of the energy each bulb consumed.

Jeff Goldader presented a cosmic ray detector that he mentored an advanced high school student to build using parts purchased off ebay and at Radio Shack.

Art Zadrozny presented a research project into alternative energy types and sources that he has his student complete and present. He also provided the grading rubric that is used to evaluate this assignment.

Carl Schmiedekamp presented the approach to reporting uncertainty using excel in his Introductory college physics lab course.

Fran Poodry demonstrated the flexibility and utility of VPython, a computational modeling programming language that is highlighted in Matter and Interactions.

Harriet Slogoff talked about how she saved on her energy bills by insulating her home. She introduced the idea of degree days as a tool to normalize the change in her energy bills.

Deborah Goldader demonstrated conservation of energy using a roller coaster made from cardboard and card stock as well as cardboard models of some everyday items.

After the contributed talks, the SEPS business meeting followed. The new officers for 2009-2010 were elected and their names and contact information can be found at <http://www.physics.upenn.edu/~aapt/officers.html>. The business meeting also highlighted some AAPT initiatives including Associate Membership available to section members. During the business meeting, a special award recognizing 50 years of Physics teaching was presented to Tom Foley at Saint Joseph’s University. The business meeting was concluded with a drawing for door prizes.

The meeting recessed for lunch around 1 pm. After the lunch, Oliver H. Perry, the President of the Eastern Electric Vehicle Club of Valley Forge PA, led an Electric Car workshop. About half dozen electric vehicle owners and specialists also made themselves and their vehicles available at the workshop. For a more detailed report on the Electric Car workshop, please visit our website <http://www.physics.upenn.edu/~aapt/>. Any teachers interested in learning more

about electric cars or beginning an electric car project may also contact Mr. Perry at perrydap@aol.com.

SEPS Joint Regional Conference

The SEPS was joined by the New Jersey and the Central PA sections for a regional conference at La Salle University on March 12-13, 2010. Ling Liang from La Salle University hosted the conference. There were about 70-80 registered attendees. The conference theme was “How we teach may be more important than WHAT we teach.”

Friday, March 12: The pre-conference PRTA workshop (9am – 4 pm) on Physics with Video Analysis was led by Pat Callahan and Dave McCachren, followed by dinner/poster session, and an invited lecture (titled “The (Universal) Matrix Reloaded”) by Derrick Pitts of the Franklin Institute. Through the lecture, Pitts brought us up to speed on what he called the “New Universe,” highlighting the most significant advances that alter how we think about the cosmos, its origins and ourselves. The poster titles and presenters were as follows:

Poster 1: “Animations for Introductory Physics and Astronomy Project,” Michael R. Gallis, Faculty, Penn State University

Poster 2: “Middle School Students’ Force and Motion Misconceptions,” Justin Nafziger-Kolb, Student, Lock Haven University

Poster 3: “Classifying Two Qubit States by Subsystem Information,” Laura Snyder, Student, Lebanon Valley College

Poster 4: “Preliminary study of Cosmic Ray Showers,” Ryan Michael Hemm, Student, Lock Haven University

Poster 5: “Segregation of Granular Materials in a Viscous Medium,” Benjamin Sofka, Student, Moravian College

Poster 6: “Flow Profile of the Radial Hydraulic Jump,” Matthew Bross, Student, Moravian College

Saturday, March 13: On Saturday, our invited speaker, Warren Hein of AAPT, gave an update on the PhysTEC Project and talked about the physics department’s role in the preparation of pre-college physics teachers, followed by an invited lecture on modeling instruction with Vpython by Matt Greenwolfe, the President-Elect of the American Modeling Teachers Association.

After the two invited lectures, two parallel sessions of contributed talks followed. The titles of the talks and contributors were as follows:

Session A:

- Anne Tabor-Morris, Georgian Court, N.J., “Physics Education: City of Physics-exploring the limits”
- Stan Semones, Educational Technology Consultant for Ti, “‘Nspired’ Way of Looking at Simple Harmonic Motion”
- Carolyn Sealfon, West Chester University, “Service-Learning Physics Labs with Elementary-School Outreach”

- Mark Liff, Philadelphia University, “Experiment in Polymer Physics in General Physics”
- Gregory Dolise, Harrisburg Area Community College, “Writing Exam Questions”
- Mary Ann Klassen, Swarthmore College, PA, “Make Your Own Comet”

Session B:

- Tiberiu Dagoru-Luca, Hillsborough H.S., N.J., and Joe Spacavento, North Arlington, H.S. “Shhh... We Built a Nuclear Accelerator”
- Fran Poodry, West Chester East High School, “Rotational Kinematics Video Analysis”
- Jeffrey Wetherhold, Parkland High School, “Gravity is Behaving Normally”
- Barry Feierman, Westtown School, “Audio Spectra of Home-Made Musical Instruments”
- Gary Gordon, Comsap and Intelsap (retired), “50th Anniversary of TIROS I”
- Liz Chesick, Baldwin School (retired), “Newton’s 2nd Law: Spirit of Modeling”
- Tom Gordon, Bronx HS of Science (retired), “Factors Associated with Friction”

The meeting recessed for lunch around noon. After the lunch, the SEPS business meeting was held and the new officers for 2010-2011 were elected. The new officers’ names and contact information can be found here: <http://www.physics.upenn.edu/~aapt/officers.html>.

The joint conference concluded with a great demo show conducted by Bill Berner from University of Pennsylvania and a drawing for door prizes. A summary of the meeting in photos can be found here: <http://www.physics.upenn.edu/~aapt/spring2010.html>.

—Ling Liang, Section Representative

Southern Atlantic Coast Section

The Southern Atlantic Coast Section of AAPT held its spring meeting on March 19-20, 2010 at the University of South Carolina Aiken with Neil Miller as the host.

On Friday, March 19, at 6:30 pm the section assembled in the university’s Business and Education Center where it was greeted and welcome to USC by Dr. Thomas L. Hallman the University Chancellor. A banquet followed immediately at the end of which Dr. Neil Miller introduced Dr. Carlton W. Ulbrich, Emeritus Professor of Physics at Clemson University, to deliver the keynote address on global climate change.

On Saturday, March 20, 2010 the section gathered in the Science Building for presentations, a business meeting, and workshops according to the following schedule:

Presentations – Session 1

8:00 – 8:20 a.m., Developing and deploying computational exercises in introductory mechanics, Marcos Caballero and Michael F Schatz, Georgia Institute of Technology and

Matthew A Kohlmyer, North Carolina State University.
8:20 – 8:40 a.m., Using a Hybrid Teaching Model to Promote Increased Student Engagement, Taha Mzoughi, Kennesaw State

8:40 – 9:00 a.m., Nature of sound propagation: Naïve, scientific and experimental, Zdeslav Hrepic, Columbus State University and Chelsea Bonilla, Fort Hays State University

9:00 – 9:20 a.m., The effect of noise on neurons - a computational approach, Corey Edward Klein, Nicole Sztokman and Sorinel A Oprisan, College of Charleston

9:20 – 9:40 a.m., Remote Sensing as a Tool for Environmental Physics, J.B. Sharma, Gainesville State
9:40 – 9:50am The Inaugural USA Science & Engineering Festival, Frank Lock, retired high school physics teacher
9:50 – 10:00 a.m. - Break

Presentations – Session 2

10:00 – 10:20 a.m., Using Quasars as Flashlights to Trace Galaxy Evolution, Varsha Kulkarni, University of South Carolina

10:20 – 10:40 a.m., Pre-Service Elementary School Teachers and Their Use of Representations in Science and Mathematics, David Rosengrant and Amy Hillen, Kennesaw State University

10:40 – 11:00 a.m., Determine RC time constant with a charge sensor, Ana Oprisan and Sorinel A. Oprisan, College of Charleston

11:00 – 11:20 a.m. The ballistic acceleration of a supercurrent in a superconductor, Milind N. Kunchur, University of South Carolina

11:20 – 11:40 a.m., Physics in Portraits of Great Physicists—A Mnemonic device, Mikhail M. Agrest, College of Charleston

11:40 – 12 p.m., The Lorentz Transformations, Stelios Kapranidis, University South Carolina at

12 – 12:30 p.m. - Lunch & Posters Posters

1. Element Abundances in Galaxies >10 Billion Years Ago, Debopam Som, University of South Carolina
2. Free flux vortex dynamics in MoGe, Manlai Liang, University of South Carolina

Presentations – Session 3

12:30 – 12:50 p.m., Determination of Planck's constant using photoelectric effect with monochromatic light emitting diodes sources

Sorinel A. Oprisan and Ana Oprisan, College of Charleston
12:50 – 1:10 p.m., Soda Bottle Speaker, Matt Marone, Mercer University

1:10 – 1:30 p.m., Understanding How Our Mind Works: More Observations Re Human Perception, Henry Gurr, Professor Emeritus, University South Carolina Aiken

1:30 – 2:30 p.m. - SACS-AAPT business meeting

Workshops

2:30 – 4 p.m. (Room 325)

1. The Kitchen “Radar Oven” Comes Alive For Students:

Hands on Demonstration & Explanation. Henry Gurr, Professor Emeritus, University South Carolina at Aiken
2:30 – 4 p.m. (Room 212)

2. Soda Bottle Speaker, Matt Marone, Mercer University
For complete details of the meeting proceedings go to <http://sacs-aapt.org>

—Ntungwa Maasha, Section Representative

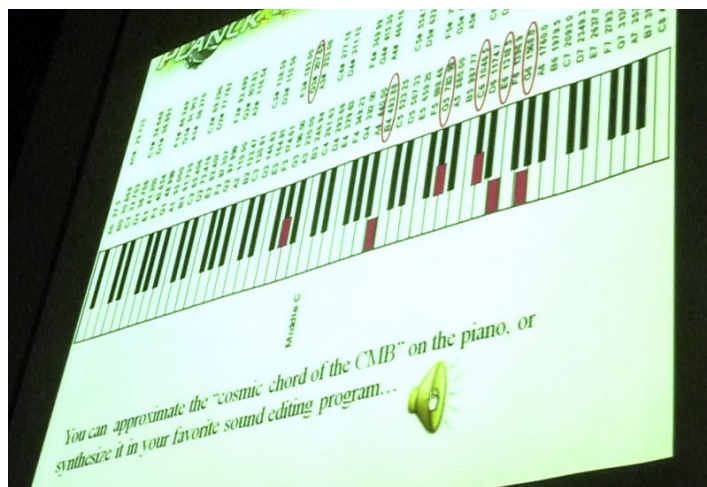
Southern California Section

The Spring Meeting of the Southern California Section was held Saturday, April 24 at Cypress College, Cypress, California. Attendees were welcomed to the meeting by the local host, Ron Armale, and campus President, Michael Kasler. Approximately 50 people attended.

The meeting began with a workshop: “Construction of inexpensive momentum and energy collision carts and track” led by Bill Layton (UCLA) & Bob Baker (University Senior High School).

David Saltzberg from University of California, Los Angeles gave the morning invited talk: “Neutrino Hunting using High-Altitude Balloons in Antarctica.” Dr. Saltzberg described recent advances in astronomy and scientific endeavors at the South Pole. He described his work with the Antarctic Impulse Transient Array (ANITA) neutrino telescope that essentially uses the ice sheet as an objective lens and a detector in a high altitude balloon as the eyepiece. Dr. Saltzberg's scientific expedition to the South Pole was not only scientifically fruitful, it was also the inspiration for a Big Bang Theory episode.

Jatila van der Veen from University of California, Santa Barbara gave the afternoon invited talk: “Planck Visualization Project: Seeing and Hearing the Cosmic Microwave Background.” Her recent work focuses on outreach and teaching that utilizes multidisciplinary methods to reach new audiences. Dr. van der Veen showed recent Planck observations, making analogies with the observed power spectra and those produced by musical instruments.



She played a representation of the “cosmic chord of the cosmic microwave background,” whose actual fundamental frequency is 47 octaves below what is found on a piano.

The following contributed talks were presented:
“Problem Solving without the Problems,” Peanut McCoy, Azusa Pacific University
“Coupled Oscillator Model for the Low Frequency (50 to 250 Hz) Response of Guitars,” John Popp, Retired
“Not the Usual Coupled Oscillators,” Bernard Cleyet, UC Santa Cruz (ret’d)

“iFly Indoor Skydiving – Field Trips,” Cailin Creighton, iFly Indoor Skydiving
“Why Do We Use this Symbol for that?” James Lincoln, Tarbut V’Torah HS
“Novel, Low-Cost, Side-Illuminated, Multi-Point Optical Fiber Sensor,” Claudio Oliveira Egalon, Science and Sensors Technologies and Loyola Marymount University

The always popular Show’n Tell featured demonstrations by Lee Loveridge, James Lincoln, Peter Krumbein, Ron Armale, Roger Moorehouse, Bernard Cleyet, and Mark Helmlinger

The Cypress College physics department set up solar telescopes with hydrogen alpha filters once the morning clouds cleared.

At the business meeting, the membership was informed that, Harvey Leff, a long time supporter of and officer for the SCAAPT and a recent past president of the national AAPT, would be leaving Southern California for a new home in Portland, Oregon. Attendees thanked Harvey for his many years of fine service to the organization with a round of applause.

In addition, the following new and continuing officers were elected:

President: Jeff Phillips, Loyola Marymount University
Vice President for Universities: Eric Page, University of San Diego
Vice President for Community Colleges: Lee Loveridge, Pierce College
Vice President for High Schools: James Lincoln, Tarbut V’Forah High School
Section Representative: Mary Mogge, CSU Pomona
Secretary-Treasurer: Forouzan Faridian, Loyola Marymount University
Web Manager: John Mallinkrodt, CSU Pomona

The meeting ended, as always, with the “World Famous Order of Magnitude Contest.” The question was, “What volume of CO₂ should a resting human produce with each breath?” and the winning (median) answer was 50 ml submitted by Bernard Cleyet.

As the winner, Bernard was entitled to first choice of the door prizes and chose a \$50 Vernier gift certificate. There was a drawing for the remaining doorprizes provided by Vernier Software and Technology, Arbor Scientific,

Mc Graw Hill, Wiley, and AAPT. We thank them for their donations.

The SCAAPT is greatly indebted to Ron Armale for providing a well-appointed meeting site and seamlessly arranging the logistics.

—Jeff Phillips, SCAAPT President
—John Mallinkrodt, SCAAPT Web Manager

Southern Ohio Section

Darwin Church and the University of Cincinnati’s Clermont College hosted the spring meeting of the Southern Ohio Section on Saturday April 10. Approximately 25 people were in attendance.

Two prominent figures were featured presenters at the meeting: Tom Greenslade (retired from Kenyon College) presented “The Adventure of the Reluctant Collector” about his impressive collection of antique physics equipment, and AAPT’s president-elect, David Sokoloff (University of Oregon), led a workshop on “Active Learning in Lab and Lecture Using Microcomputer-Based Tools,” where participants were able to experience first-hand the types of activities developed through the Real-Time Physics Project.

Contributed talks in the afternoon were “Establishing an Expectation of Effort Within Students,” by Larry Reams (Columbus City Schools); “Report on the INTERTECH 2010 Conference,” by Jim Sullivan (University of Cincinnati); “Using Diffraction to Determine the Helical Structure of DNA,” by Gregory Braun (Xavier University); and “Pinochle as a Game of Science,” by Kathy Harper (Denison University).

At the business meeting portion of the program, the following officers were elected:

- President-elect: Eric Towers, Summit Country Day School
- Vice-President for 4-year colleges: Mark Fischer, College of Mt. St. Joseph
- Vice-President for high schools: Kevin McChesney, Pickerington High School Central
- Secretary: Holly Lavender, Liberty Union High School
- Treasurer: Bill Kuhlman, retired, St. Xavier High School

Leaving the board after many years of dedicated service is Fred Reuter of Covington Latin School. The section is indebted to Fred for his contributions.

We are grateful to Vernier Software and Technology and Pasco Scientific for donating door prizes.

State Science Day

On the morning of Saturday May 8, 21 physicists from central and southern Ohio served as judges at Ohio’s State Science Day competition to determine the awarding of physics prizes for students in high school and middle school. As he has for many years, Gordon Aubrecht (The Ohio State University-Marion) coordinated the efforts of judging nearly 140 projects. The prizes are awarded by the Southern Ohio

Section of AAPT, with the generous financial support of the Ohio Section of APS.

Upcoming Meetings

The upcoming fall meeting will be joint with the Appalachian Section and the Ohio Section of APS October 9 at Marietta College, Marietta, OH.

—*Kathy Harper, Section Representative*

Texas Section

Spring 2009 Meeting

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 April 2-4, 2009 at Tarleton State University in Stephenville. Those most responsible for the meeting arrangements were Daniel Marble of Tarleton State University, Toni Sauncy of Angelo State University, Tom O’Kuma of Lee College, and C. A. Quarles of Texas Christian University. There was a total registration of 275 persons, including nearly 100 registered as students. The meeting website is: <http://www.math.tarleton.edu/conference/main.htm>.

The program of the meeting contained 9 paper sessions, 3 plenary sessions, 1 poster session, and 5 workshops, making a total of 136 presentations. The breakdown of these papers were as follows: contributed and invited papers - 28 AAPT, 14 SPS, 11 posters, and 41 APS. The 5 workshops had a total attendance of 46 with some attendees attending more than one workshop. Two special workshops for new teachers were presented as part of our AAPT Mini-Grant with 22 participating.

During the TS AAPT Friday plenary session, Carl Wenning of Illinois State University discussed “Physics Teacher Education – Problems and Solutions”, Bruce Gnade of UT-Dallas then discussed “Materials and Processes for Flexible Electrons”, and John Garza of the Navy Nuclear Power School presented “The Nuclear Navy and the Mission of the Navy Nuclear Power School. The Saturday plenary session had Brad Ambrose of Grand Valley State University addressing “Because physics majors have conceptual difficulties too: Development of a tutorial approach to teaching intermediate mechanics” and Richard Peterson of Bethel College presented “Advanced lab initiatives: building on a rich diversity of programs and experiments”. Peterson’s talk was the plenary address for two sessions on advanced laboratory topics.

The more than 200 people who attended the Friday evening banquet heard a stimulating after-banquet presentation by Todd Barber of the Jet Propulsion Laboratory discussing “Unveiling the Saturnian System: Cassini’s Excellent Adventure at the Ringed Planet”.

Other meeting activities included a joint AAPT-APS luncheon and business meeting with 220 persons attending and special activities for SPS chapters.

Fall 2009 Meeting

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 October 22-24, 2009 hosted by Texas State University in San Marcos. Those most responsible for the meeting arrangements were David Donnelly and Heather Galloway of Texas State University (local chairs), Wilhelmus Geerts of Texas State University, and Thomas O’Kuma of Lee College. This was a large meeting with a total registration of 300 people, almost 100 faculty, 60 graduate students, 120 undergraduates, and 20 other individuals. The meeting website is: <http://www.txstate.edu/physics/fall09conference.html>.

The program of the meeting contained 17 paper and 2 poster sessions, a symposium on women in physics, and 8 workshops, including a total of 177 presentations. The breakdown of these papers were as follows: 5 invited papers; contributed papers - 9 AAPT, 107 APS, 8 SPS, and 40 posters. The 8 workshops had a total attendance of 120 with some attendees attending more than one workshop.

The invited papers consisted of Jerney Levy of the University of Pittsburgh discussing “Etch-a-Sketch Nanoelectronics”; Thomas Myers of the Texas State University discussing “Polarization Electronics—A Path to Multifunctional Materials”; Karl Gebhardt of The University of Texas at Austin discussing “Profiting from the Inflationary Universe with the Hobby-Eberly Telescope Dark Energy Experiment” and Kim Vy-Tran from Texas A&M University discussing “The Observable Universe”.

The 200 people who attended the Friday evening banquet heard a stimulating presentation by Donald Olson of Texas State University on “Van Gogh’s Starry Nights, Lincoln’s Moon, Shakespeare’s Stars, and More: Tales of Astronomy in Art, History, and Literature”.

Other meeting activities included a joint AAPT-APS-SPS luncheon and business meeting with 250 people attending. For the AAPT Mini-Grant that we have, 2 workshops with 17 participants received training for new teachers.

—*Thomas L. O’Kuma, Section Representative*

Washington Section

2009 Fall Meeting

The annual meeting of the Washington Section of AAPT was held on October 10th at the Wild Horse Wind Farm near Vantage, Washington. With a theme of “The Role of Physics in Addressing the Energy Needs of the 21st Century,” the meeting was held at the Wild Horse Wind Farm conference center in the literal shadows of windmills owned and operated by Puget Sound Energy.

Washington Section President Michael Jackson of CWU welcomed the members and shared a few logistical details with assistance from Puget Sound Energy staff. The section expressed its thanks for support services provided

by Michael's family and students of Central Washington University.

Dr. Gregory Bothun of the University of Oregon gave a plenary presentation on "Renewable Energy Generation at the Terawatt Scale." Using fairly simple mathematics, Dr. Bothun was able to elucidate the challenges and possibilities of expanding renewable energy production to the point where it could effectively replace coal-fired power generation. The only renewable power sources that proved capable of that degree of expansion are solar and wind power, but current production and investment levels are insufficient to compete with coal in the next few decades. Dr. Bothun pointed out the need for new forms of energy storage, a better energy grid for power delivery, and a change in the way we approach development of renewable energy.

A means for communicating many of these ideas to a lay audience was explained by Dr. Michael Braunstein of Central Washington University in his talk on, "Energy: A Versatile Interdisciplinary Curriculum for Freshman Science Students." CWU currently offers a two-quarter 4-credit sequence on the subject designed to enhance the success and reduce the attrition of students entering the university with intent to major in the STEM disciplines. The course combines writing, collaboration, information literacy, and the practice of science.

Dr. David Cornell, formerly of Principia College, then spoke on "Energy for the adult consumer: A physicist teaches a continuing education class." In this course Dr. Cornell helps adult learners to understand the physics of solar electricity, wind power, and hybrid cars. The course also emphasizes the importance of science in the making of informed decisions as consumers.

The 50th anniversary of the invention of the laser was commemorated in a presentation by Dale Ingram of LIGO who spoke on "Laserfest 2010." Since laser technology is central to its operation, LIGO is taking the lead in local celebration of Laserfest. The section joined in a general discussion of other ways in which AAPT could contribute to awareness of the physics of lasers.

The second plenary presentation was then given by Dr. David Ginger, of the University of Washington, who spoke on "Plastic Solar Cells: Challenges and Opportunities in Thin Film Photovoltaics." Dr. Ginger echoed the talk by Dr. Bothun in explaining that solar energy is the most abundant renewable resource, but deploying solar power on the terawatt scale will be a massive undertaking. Dr. Ginger showed the section alternatives to conventional silicon photovoltaic technology, with particular emphasis on the emerging field of nanostructured organic photovoltaics.

The lunch break was bracketed with two presentations by Puget Sound Energy on the operation of the Wild Horse Wind Farm. The history and technical specification of Wild Horse were explained in a multimedia presentation inside

the warm and comfortable conference center. After lunch the section made the short walk to one of the windmills and groups of five to eight went inside for a closer look and the windmill technology. Attendees learned firsthand that these windmills are not loud (it was impossible to hear one without standing directly under it). We also learned that the wind farm serves as a sanctuary from hunting and development so local wildlife populations have burgeoned on the ground and in the air (it was difficult to imagine any bird stupid enough to fly into the slow moving rotors). These tours are available to the general public and all attendees would highly recommend them. Prospective visitors should be aware that weather conditions can be severe on these exposed hillsides and early October was surprisingly cold.

Drew Grennell presented the undergraduate research he has done on "Examining Student Understanding of Turnaround Points in One-Dimensional Motion." Along with his advisor, Dr. Andrew Boudreaux, Drew presented results from several written questions given to introductory students to identify areas of reasoning that are incomplete or incorrect. Along with the typical issue of confusing velocity and acceleration, they found difficulties with the turnaround point including "moment of rest" issues as well as misconceptions about what "change" means.

Dr. Andy Piacsek of CWU presented "Suggestions for a Physics of Music course: lose the textbook and free your curriculum." Dr. Piacsek has developed a novel curriculum which features a sequence of topics that is designed to raise and maintain the interest and curiosity of students, the extensive use of PC-based sound analysis tools, simulations, and hands-on activities, and use of the internet as the primary reference, rather than a printed textbook.

Dr. Robert Ruotsalainen, Department of Physics, Eastern Washington University, spoke on physics "Beyond the Main Sequence: Core Helium-burning Stars." As early as 1964, Icko Iben calculated stellar evolutionary models that predicted a core helium-burning sequence, similar to the core hydrogen-burning main sequence of stars, but with higher luminosities. Dr. Ruotsalainen reviewed the identification of such core helium-burning stars in nearby galaxies.

President Jackson then called the Washington Section business meeting to order. Dr. Chitra Solomonson presented the annual secretary-treasurer's report. President-elect Krishna Chowdary then discussed options for the next annual meeting. Dr. Chowdary explained the possibility of a joint or parallel meeting with the Northwest Section of AIP in Walla Walla. After some discussion it was decided to continue to investigate the possibility of future collaborations with AIP but to hold the 2011 annual meeting at The Evergreen State College.

High School Representative Thomas Haff then informed the section about the work that his students have been

doing to compile lists of physics teachers throughout Washington State. Mr. Haff asked the section to provide a small stipend to compensate his students for their work. The motion was seconded and unanimously approved.

Dr. David Cornell asked the section to consider initiation of awards for outstanding high school teachers and possibly at the other levels of AAPT. It was also suggested that awards might be generated to honor outstanding service to the Washington Section of AAPT. The membership authorized the executive officers to pursue creation of such awards.

Dr. Jackson then reminded the membership of the need to choose a new president-elect with the responsibility of hosting the section meeting in the fall of 2012. Tradition has held that meetings in even-numbered years will be held east of the mountains but there were no volunteers from that part of the state. After some discussion President Jackson offered to search for a president and a venue in the Yakima Valley. In the event that he is unable to find a volunteer, Michael volunteered to return as president in 2011 and host the meeting at a local high school or at CWU.

—Keith Clay, Section Representative