AAPT PHYSICS EDUCATION

Section News

December 2009

Published by the American Association of Physics Teachers as a service to AAPT Sections

Alabama Section

The weather didn't stop the Alabama Section of Physics Teachers and the Annual Section Meeting was held on Saturday, 2/28/09 at the University of Montevallo. About 30 teachers attended, and presentations were held in parallel due to the large number of submissions.

Presenters:

Chris McDuffie, *Implementing Inquiry in the Physics Classroom*
Doreen Brisendine, *Celebrating Einstein and Pi Day*
Mark Maddox, *Projectile Motion Made Easy*
Christina Steele, *Using Clickers in the Physics Classroom*
Dan O'Halloran, *Exploring the PhET Simulations*
Dawn Williams, *Opportunities for High School Connections in Particle Physics and Astrophysics*
Mark Rupright, *Measuring Systematic Errors with Curve Fits (in introductory labs)*
Paul Helminger & Justin Sanders, *Physics Demonstrations on the Cheap*
Bob Bauman, *Global Warming: How Much is Demonstrable*
Explaining How Energy Relates to Force and Rate of Change of Momentum
Marllin Simon & Cathy Miller, *A New Vision for the Alabama Section of AAPT/Physics Fantasy ? What Were You Thinking?*
Julie Covin, *Great Online Resources for Teachers and How to Organize Them*

Reports:

Stan Jones – Section representative Report. There is grant money for training teachers who are not physics majors that are teaching physics. The section should try to submit an application and plan to conduct a workshop for new teachers in 2010.
Marllin Simon – Proposed starting and supporting a "Best Robotics" like competition, or maybe a "Lego Robotics" Competition to generate interest in math, physics and technology in middle school. This generated some discussion and plans for further action.

Silent Auction

A silent auction of items donated by members was held during lunchtime. A large and eclectic variety of donations brought a tidy sum to add to the section treasury.

AAPT business meeting:

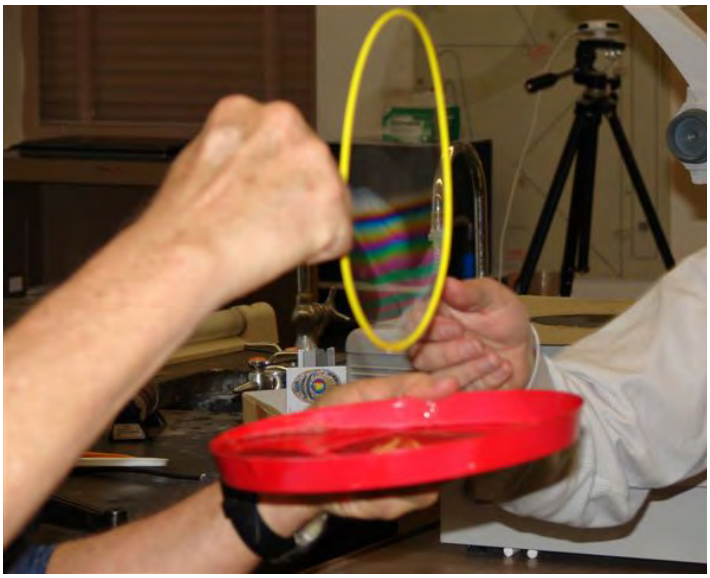
Marllin Simon (Auburn) was elected AL Section AAPT president for 2009-2010.
Duane Pontius (Birmingham Southern) was elected AL Section AAPT president-elect and president for 2010-2011.
Tommi Holsenbeck (Alabama State) was elected secretary/treasurer for 2009-2010.
Stan Jones (Univ. of Alabama) continues as section rep.

We have a little over $1000 in the treasury. This includes some $600 transferred to us from the Alabama Junior College AAPT organization.

We approved setting up a $300 grant named for Barry Walker (a very popular high school teacher whose untimely passing occurred shortly before the meeting) to go to an Alabama Section member teacher to help with the cost of attending the summer AAPT meeting. Stan Jones is the awards chair and will work on a process and form to help select the individual who gets the grant.

A "file-box" interferometer

Paul Helminger about to soak somebody (himself?) with a rotating wash bottle.



Soap bubble interference

These items were up for auction.

—Stanley Jones, Section Representative

Arizona Section

October 24, 2009
Executive Committee
Next meeting – March 27, 2010 at NAU
Tentative – September 25, 2010 – Paradise Valley Community College
Very Tentative – March 26, 2011 – south – Karie will seek a site

Suggestion – get list from Jane Jackson so we (officers) can contact individual teachers.
Flyer at AAPT booth at NSTA convention about our local section.
Direct contact in addition to TCHRS listserve to inform teachers about meeting.

Current Officers
President – Karie Meyers
Vice President – Tom Vining
Sec/Treas – Buzz Dillinger
Section Rep – David Weaver
4 Year College – Bob Culbertson
2 Year College – John Griffith
High School North – no nominees
High School South – Fritz Fisher
High School Central – Ann Hammersly

Business Meeting
Nominees
President – Tom Vining (Desert Mountain HS)
Vice President – Ann Hammersly (Chaparral HS)
Sec/Treas – Buzz Dillinger (NAU)
Section Rep – David Weaver (Chandler-Gilbert CC)
4 Year College – Bob Culbertson (ASU)
2 Year College – John Griffith (Mesa CC)
High School North – Darya Marakova (Holbrook HS)
High School South – Fritz Fisher (Casa Grande HS)
High School Central – Minakshi Jindal (Camelback HS)

VP job – web site hosting – Meister book award, schedules of meetings, agendas, notes of past meetings

Treasurer – $1560 in account

National Report – Last meeting at Ann Arbor, MI
Membership drive – new (not a member for 3 years) full national member (college or pre-college) in a state gives 25% of membership fees to state
Associate membership – $36/year – gives annual bundle of articles, allows searching and purchasing of articles from The Physics Teacher and American Journal of Physics
Next meeting in February 13-17 in Washington DC, last joint meeting with APS

Next summer in Portland OR – July 17-21

General Meeting
Karie Meyers – Quest Online Homework System - $100 per high school; $350 per college per year – University of Texas

Kevin Healy –Planetarium

Brainstorming the Future of AZ AAPT
Working well –
- opportunity to get together
- networking
- good content & programs – useful in classroom

What could be changed –
- encourage less experienced/younger teachers to come and network;
- a "cornerstone" topic or presentation – thematic, maybe, highly interesting, certainly
- presentations on current/local research
- be "out in front" in terms of scheduling
- increase hands-on workshops
- training in systems other than modeling
- increased and regular communication (different mode than TCHRS?)
- bigger participation
- directed plea to larger departments for participation
- Send out dates in AUGUST for school year planning
- Carpool system/extra room offers

What ONE thing would you NOT change –
- breakfast /food
- scheduling in terms of day of week and times of year
- moving location to different parts of state

First thing you would change –
- publicity
- cornerstone research talk each meeting
- time of year? Summer meeting?

John Griffith – Using Clickers in Physics – demonstrated Qwizdom system

Don't get infrared system, use radio only
Collects individual response; displays group information
Requires participation
Allows for data-driven individual follow-up
Students pick up the same transmitter each day throughout the semester
Teacher provides question, answer, and time allotted
Examples of multiple choice, numerical response, multiple response, ranking questions

David Weaver – SmartPen by Livescribe, V Python and Excel

The SmartPen records what is written AND what is said – teachers can upload the pages with audio to the Livescribe web site and place the URL on the class web site – requires special notebook as well

Modeling the accelerating cop/constant velocity speeder problem using Excel to get an easy first approximation – can find position, time and cop velocity when the officer catches up.

Same problem modeled with V Python (free download at vpython.org) was shown

Planning for Spring Meeting March 27, 2010 NAU
- idea for "theme" – sustainability or green physics
  - » wind energy
  - » nuclear from Idaho Falls
  - » Science Olympiad teachers bring students project on wind energy

—David Weaver, Section Representative

Arkansas-Oklahoma-Kansas Section

http://web.phys.ksu.edu/AOK/aok-minutes-09.pdf

Minutes Oct 10, 2009
Submitted by Dr. Todd R. Leif
Cloud County CC
AOK Section Representative
The annual AOK section meeting was hosted by Kansas State University at Manhattan Kansas on Oct. 9-10th. Friday evening highlights included facility and laboratory tours as listed below.
Sorensen Laboratory
James R. Macdonald Atomic Physics Laboratory & Laser Labs
Soft & Biological Matter Physics Laboratory
This was followed by the "A-O-K Banquet–Mexican Fiesta Buffet"
During the Banquet the following people spoke and made welcoming presentations.
Official A-O-K Welcome from President, Sytil Murphy
Official Welcome from Dean Zollman, Head of K-State Physics Department
Introduction of Kansas Outstanding High School Teacher Award by Tim Bolton, K-State Physics Professor.

Penny Blue of Lyons High School was honored as the 2009 Kansas Science Teacher of the Year at the annual Arkansas- Oklahoma-Kansas section meeting of the American Association of Physics Teachers. Ms. Blue was presented with the award at the conference banquet held on Friday, October 9, 2009, at Kansas State University in Manhattan. In addition to the award, she will receive a $100 honorarium. Ms. Blue was selected for this award by the Kansas area physics teachers of the A-O-K section.

Ms. Blue is an active member of the KSU Quarknet group which is sponsored by Dr. Tim Bolton at Kansas State University as well as a rural PTRA- Physics Teachers Resource agent. Kansas State Quarknet is a scientific outreach program that exposes high school teachers to contemporary topics in physics research. It is supported by the National Science Foundation and the US Department of Energy. The PTRA project has been sponsored by the American Association of Physics Teachers and the National Science foundation for nearly 20 years and they contribute significantly in the training and assistance of under qualified physics teachers in rural areas of Kansas.

Following the Banquet the dinner speaker was Corinne Manogue, Oregon State University Physics Department. Her topic was The Magic of Teaching. Nearly 45 people were in attendance for the evening events. The Banquet was followed by a brief executive meeting to find a list of potential section officer candidates.

Saturday's AOK meeting began with three available workshops for participants. Presenters and the topic of the workshops are listed below. During the Saturday events, approximately 50 participants were in attendance. The mix of participants included members from all three states, and the various instructional levels of high school, community colleges, four year colleges, and R1 universities.

The workshops included:
Physics Pathway by Chris Nakamura & Dean Zollman, KSU Physics Department
Scientific Methods: Spaghetti Bridge, Pendulum Simulation & Graphic Software by Charles Mamolo – Manhattan, KS High School
Web Resources & Building Your Courses with ComPADRE.org by Bruce Mason University of Oklahoma, and AAPT

Following the excellent workshop session there was a contributed talks session with the following presentations being delivered.
Pathway Active Learning Environment: An Integrated Teaching and Research Tool
Chris Nakamura, Kansas State University, Physics Department, 116 Cardwell Hall, Manhattan, KS 66506, cnakamur@phys.ksu.edu Sytil K. Murphy, Nasser M. Juma, Dean A. Zollman, Kansas State University
Apparatus to Investigate a Current Carrying Wire's Magnetic Field
Joshua Gross, Kansas State University, Physics Department, 116 Cardwell Hall, Manhattan, KS 66506, jgross@phys.ksu.edu Sytil K. Murphy & Dean A. Zollman, Kansas State University
Using the Galileoscope in Introductory Astronomy
Carl Rutledge, East Central University, Department of Physics, East Central University, Ada, OK 74820, crutledge@mac.com
Exploring Benefits of Physical and Virtual Manipulatives in Simple Machines
Jacquelyn J. Chini, Kansas State University, 116 Cardwell Hall, Manhattan, KS 66506, haynicz@phys.ksu.edu Adrian Carmichael & N. Sanjay Rebello, Kansas State University
Experimental Proof of Malus' Law using Photoelectric Current
Karen Williams, East Central University, 1100 E. 14th St., Ada, OK 74820, kwillims@mac.com
Morgan Sennett, East Central University, OSU
Integrating Experimentation and Instrumentation in an Electronics Course Using LabVIEW and NI Elvis
Nasser Juma, Kansas State University, Physics Department, 116 Cardwell Hall, Manhattan, KS 66506 mhuninas@phys.ksu.edu N. Sanjay Rebello, Kristan Corwin & Brian Washburn, Kansas State University

This session was concluded with a break out session for contributed posters included the following presenters and their topic and a light refreshment was provided.
Visualizing Quantum Mechanics - Solids and Light
Penny Blue, Lyons High School, 601 E American Rd, Lyons, Ks 67554, pblue@usd405.com
Teaching Physics in America. Outsider's View
Elena Gregg, Oral Roberts University, 7777 S Lewis Ave, Tulsa, OK 74171, egregg@oru.edu
Videos in Introductory Astronomy: Student Opinions
Carl Rutledge, East Central University, 1100 East 14th Street, Ada, OK 74820, crutledge@mac.com
Protocol for Analysis of Content Questions
Mojgan Matloob Haghanikar, Kansas State Univeristy, Physics Department, 116 Cardwell Hall, Manhattan, KS 66506, mojgan@phys.ksu.edu Sytil Murphy & Dean Zollman, Kansas State University
Probing Students' Understanding of Resonance
Sytil Murphy, Kansas State University, 116 Cardwell Hall, Manhattan, KS 66506, smurphy@phys.ksu.edu
Dyan McBride (currently at Mercyhurst College, PA) & Josh Gross, Kansas State University

After a delicious sandwich lunch the keynote speech was given by Professor Corinne Manogue,
Department of Physics – Oregon State University Bridging the Gap between Mathematics & Physics. Professor Manogue gave an actively engaging presentation about the work that she has been doing at Oregon State.
Following her talk the afternoon session included another set of excellent contributed talks These speakers included the following and their topics.
Exploring Students' Patterns of Reasoning
Mojgan Matloob Haghanikar, Kansas State University, 116 Cardwell Hall, Manhattan, KS 66506, mojgan@phys.ksu.edu Sytil Murphy & Dean Zollman, Kansas State University
Facilitating Student Transfer of Problem Solving in Introductory Mechanics
Dong-Hai Nguyen, Kansas State University, 116 Cardwell Hall, Manhattan, Kansas 66506, donghai@phys.ksu.edu N. Sanjay Rebello, Kansas State University
Study on How College Science Courses Influence Elementary School Teachers
Sytil Murphy, Kansas State University, 116 Cardwell Hall, Manhattan, KS 66056, smurphy@phys.ksu.edu Mojgan Matloob Haghanikar & Dean A. Zollman, Kansas State University
High School Physics in Oklahoma: A Status Report & Implications
Steven Maier, Northwestern Oklahoma State University (NWOSU), 709 Oklahoma Blvd., Alva, OK 73717, sjmaier@nwosu.edu
Helping Physics Majors Prepare for Teaching Careers
Elizabeth Gire, Kansas State University, Physics Department, 116 Cardwell Hall, Manhattan, KS 66506, egire@phys.ksu.edu Corinne Manogue, Oregon State University

At the conclusion of the paper sessions members were invited to participate in a quick shot "Share-A-Thon" where people just presented some things that were interesting and not a "formal paper" presentation. This session provide a number of new and interesting things for our physics society members to think about. The pre-enrolled presenters included the following.

- Penny Blue, Lyons High School, 601 E American Rd, Lyons, KS 67554, 620-257-5114, pblue@usd405.com
- Steven Maier, Northwestern Oklahoma State University, 709 Oklahoma Blvd., Alva, OK 73717, 580- 327- 8562, sjmaier@nwosu.edu
- Bruce Mason, University of Oklahoma, 440 W. Brooks Street, Norman, OK 73019, 405-325-396, bmason@ou.edu
- Adebanjo Oriade, Bethany College, 335 East Swensson Avenue, Lindsborg, KS 67456, Lindsborg, KS 67456, 785-227-3380 ext. 8149, banjo@bethanylb.edu

The AOK business meeting was then held with past president Jim Gilbert reading a proclamation about the excellent facilities, meeting organization, and contributions from the KSU physics department, staff, etc. He thanked them for providing such an excellent meeting and passed the gavel on to the host Sytil Murphy for next year's meeting which will be held somewhere in Arkansas.
The election of officers occurred and the great gift giveaway & wrap-followed. Drawings were held for items from the following vendors. Catalogs and flyers were also available from these vendors at the registration table.
The AOK section would like to thank them for their contributions. The vendors and there gifts are listed below.

Pasco Scientific – www.pasco.com
Structure System – Truss Set
Vernier – www.vernier.com
$50 Gift Certificate
Physics with Video Analysis Book
Physics with Vernier Book
Ztek Co. – www.ztek.com
Bicycle Physics CD
Color Images of Physical Phenomena CD
Physics InfoMall CD

This concluded the meeting of the AOK section for calender year 2009. The officers will be updated on the AAPT and AOK web site when official verification of addresses and contact information is made.

—Todd Leif, Section Representative

British Columbia Section

Teacher's Pro-D in celebration of the International Year of Astronomy, October 23, 2009 at the Herzberg Institute of Astrophysics, Victoria, BC. Over 30 people attended this meeting.

Officers:
PAST PRESIDENT - Sarah Johnson
PRESIDENT - Dan Phelps
VICE PRESIDENT - Philip Freeman
TREASURER - Mike Coombes
SECRETARY - Terry Coates
AAPT SECTION REP - Rachel Moll
MEMBERS AT LARGE - Takashi Sato, Joss Ives, Paul Cheng, Don Mathewson, Peter Hopkinson, Ken Tanner, Michael Jackson, Mike Hasinoff

Details of the October 23, 2009 meeting—The meeting was organized by the BC Section executive and hosted by the Herzberg Institute of Astrophysics

(A) The keynote speaker was Dr J.J. Kavelaars from the Herzberg Institute of Astrophysics. His presentation was titled "Postcards from the edge of the Solar System". Some of the important points included

(1) Comets are like postcards from the outer solar system sent to say hello to the inner solar system and tell us about what is going on out there. But comets are short-lived objects and so we know there must be a source of these messengers.
(2) Knowing the answer is not as important as showing how you got that answer.
As a scientist I now know that my answer might be right, or wrong and just showing just the answer I got doesn't really make clear if the answer is correct. Science, and I guess the rest of work too, is a dialogue about what we are doing. If we can't communicate that then were not participating in the society, in research, in community. We need to be able to explain to others so that they can know how to do that too. And,
(3) Check your math... really. There are not really that many points for working quickly. It took me a long time learn what check you math means. It means, see if the numbers make sense. Use your brain to decide if that's the right answer... does a 1000 kg horse make sense... of course, as teachers you need to make sure that you do these things too.

Mike Coombes presented a morning and repeat afternoon session titled "The Electromagnetic Spectrum". Some important points included:

(1) Plastic diffraction sheet film is easier for students to use than prisms. and
(2) A low cost video camera attached to a computer is a good way to show "light" emitted by both a near infrared and a near ultraviolet source.

Jennifer Kirkey presented a morning and repeat afternoon session titled "The scale of the solar system". (1) Each participant was given a set of low cost Styrofoam and wooden spheres and a small tube of glitter to use in representing the relative diameters of planets and smaller objects in the solar system. And (2) a roll of toilet paper with suitably scaled locations shown is a very useful and effective way to represent the relative size of the orbits of planets and smaller objects in the solar system.

—Rachel Moll, Section Representative

Chicago Section

The Chicago Section met on Saturday, April 18th at Glenbrook South High School in north suburban Glenview, Illinois. Almost forty high school and physics teachers were in attendance. Our keynote speaker was Tom Henderson of Glenbrook South High School who gave us a history of the Glenbrook South Physics web site, including the Physics Classroom http://www.physicsclassroom.com/.

Contributed papers:

- "Building a supportive, sustainable, Science Teaching Community in the Urban Environment" - Mel Sabella and Andrea Gay- Chicago State
- "The Next 'New' Physics" - Scott Beutlich - Crystal Lake South H.S.
- "What Einstein Did Not See: Redefining Time to Understand Space" - Thomas W. Sills - Wright College Chicago
- "An Introduction to the Physics of Cell Phone" - Rebecca Vierya - Cary Grove
- "Phenomenological Physics Using PowerPoint" John W. Milton De Paul University
- "Participating in a Design, Build, and Test Competition for grades 9-12" - Neil Schmidgall - Glenbrook South High School
- "The Use of Lecture-Tutorials in Astronomy 101" - Joe Kabbes - Harper College
- "The Gravity in Light" - Ted Erikson - R/E Unltd (Research/Education)
- "Mass-Energy Equation Should Include Rotational and Vibrational as Well
- as Linear Kinetic Energy Factors." - Stewart E Brekke Chicago Public Schools (Retired)
- "Investigation of factors affecting the dynamics of a precessing gyroscope" - Basit Hussain, Joseph Schneider and Joseph Tasic – Loyola University Chicago - *Faculty Advisors: Asim Gangopadhyaya and Thomas Ruubel*
- "An Acoustic Analysis of Hybrid Chimes" - Tamara Koritarov, Stephanie Miller and Cari Rutherford - Loyola University Chicago - *Faculty Advisor: Gordon Ramsey, Loyola University Chicago*
- "Making Classrooms Interactive: Using Mathematica for Explaining Scientific Concept" - Michael Morrison - Wolfram Research, Inc.

Rebecca Vieyra of Cary-Grove H.S. presented a workshop entitled "The Physics of Cell Phones" after the lunch and business meeting.

At the business meeting, plans were made for the fall meeting at Lewis University in Romeoville, Illinois. Scott Beutlich mentioned that he had secured Dr. Tung Jeong to give a talk on holograms, and possibly a workshop. Paul Dolan made a call for nominations for officers in advance of the elections at the fall meeting. Debby Lojkutz presented the Treasurers' report. Gordon Ramsey presented the AAPT Executive Officers report from the National Meeting held here in Chicago in February.

Chicago Section (continued)

The Chicago Section met on Saturday, October 24th at Lewis University in south suburban Romeoville, Illinois. The meeting was hosted by Dr. Joe Kozminski and his colleagues at Lewis. Over thirty high school and college physics teachers were in attendance, including sixteen new members. Our keynote speaker was Dr. Tung Jeong, professor emeritus from Lake Forest College. He spoke about "Using Holograms to Teach Advanced Physical and Mathematical Concepts."

Contributed Papers:

- "PASS ON THOSE ELECTRONS: An interactive exercise for understanding the qualitative aspects of parallel & series circuits involving resistors and capacitors." – Paul Dolan – Northeastern Illinois University
- "Photography and Diffraction: Exploring low aperture effects in photography" - Leah Welty-Rieger.
- "Evaluating Collaboration in Introductory Physics Courses" – Geraldine Cochran and Mel Sabella – Chicago State University
- "Energy Analysis of a Bouncing Ball using Logger Pro Video" – Martha Lietz – Niles West High School
- "Physics of a Toddler's Toy" – Ann Brandon and Debby Lojkutz – Joliet West High School
- "Gambler's Ruin" – Porter Johnson - Illinois Institute of Technology
- "AAPT Executive Summary" – Gordon Ramsey – Loyola University Chicago

Take-Five Demonstrations

- Scott Beutlich – Adaptation of the speaker connection for the low-cost Rubens tube.
- Len Wiesenthal – Make 'n Take motors for the whole audience with AAA batteries and ceramic magnets and wires.

A business meeting was held during lunch, and officers for the next year were elected.

Officers (November 2009-October 2010)

President – Mel Sabella – Chicago State University
President Elect – John Miller – New Trier High School
Secretary – Paul Dolan – Northeastern Illinois University
Treasurer – Debby Lojkutz – Joliet West High School
Section Representative – Martha Lietz – Niles West High School
Two-Year College Representative – Theodore Gotis – Oakton Community College
High School Representative – John Lewis – Glenbrook South High School

Mel Sabella informed us of the ongoing plans with regard to a join grant shared with the Illinois Section to present a workshop to new teachers. Plans were discussed with regard to locating a local PTRA to present the "Teaching Physics for the First Time" workshop in the fall of 2010. Plans were discussed for a joint meeting with the ISAAPT in the fall of 2011 at Joliet Junior College. The spring meeting is planned for Chicago State University on Saturday, April 24, 2010. Ann Brandon gave the report from the national High School Committee. She encouraged all of us (even the veteran teachers) to purchase the new AAPT book "Teaching Physics for the First Time", indicating there was something there for even 30-year teachers to learn. Paul Dolan brought a request for sessions ideas and talks from the Pre-High School Committee. Mel Sabella informed us of the unique opportunity to be held in Washinton, DC this spring when four organizations will meet at the same time: the National Society of Black Physicists, the National Society of Hispanic Physicists, the AAPT and APS. Several members touted the efficiency of the Washington Metro and encouraged all to attend. There was some discussion of how wonderful the Topical Conference on Advanced Labs was at the Summer Meeting at the University of Michigan. Scenarios were discussed regarding how we could facilitate more sharing of advanced lab materials among the colleges and universities in the Chicago area. Several ideas were entertained.

After lunch, Dr. Jeong hosted a workshop about holograms for participants. Participants made their own holograms and Dr. Jeong gave a brief talk while the holograms dried. A great time was had by all.

—Martha Lietz, Section Representative

Florida Section

FL-AAPT Meeting Nov. 6-7, 2009
Dinner: 16
Show at Seminole State Planetarium by Derek Demeter and Mike McConville: The History of Astronomy from Antiquity to the Modern Age
Saturday: 18
Greetings from Seminole State Physical Science Department Chair Stephen Summers

Presentations: See Agenda
Meisel: shared Promise program information, gave examples of examples of activities for K-12 students – colored ping-pong ball conserved mass chemical reactions
Ken Shacter: Related the challenges of teaching AP Physics to under-prepared, challenged students, 20-40% under standards. Using Active Learning Guide by VanHeuvelan and Etkina.
Charles Lee: reported on summer workshop for in-service high school science and math teachers; shared how they use LabView in their workshops
Thor Garber: shared a number of demonstrations and hands

on visualization techniques for magnetism in College Physics

George Bourov: Student response systems; demonstrated and gave examples of his students' results

Jane Nelson: clarifying the difference between mass and weight, use of field strength 9.8 N/kg instead of 9.8 m/s^2 to emphasize the difference;

Sherry Savrda: SCCAdvance project

Business Meeting; Jane Nelson
Jim Nelson: Treasurer's report
Karim Diff: Reported on web site; suggested that website be moved to commercial host.
Section Rep Report
Possible session for Jacksonville winter meeting.

Sherry Savrda: Student presentations

Karim Diff: use of digital recording pen to support classroom instruction; company provides the server space; link for students to access solutions on Angel

Karim Diff: reported on the ongoing review of requirements for biological scientists and medical professionals; conference for discussions of physics content for life science majors

Anne Cox: finding errors in simultations; challenged participants to find errors in electric field and charged particle interaction simulations she provided

Jim Nelson: using LEDs to make measurement of Plank's constant

—Sherry Savrda, Section Representative

Illinois Section

Brian Davies was awarded the section's 2009 distinguished service citation.

The Illinois Section met October 16th and 17th at Illinois Central College joint with the Illinois Association of Chemistry Teachers (IACT). More than 90 people were in attendance for the two days of workshops, presentations, invited speakers, and more. The keynote speakers for the meeting included Norman Lederman "Using Scientific Inquiry and Nature of Science as Integrative Themes in Teaching Science", Jeanette Madea "Science vs. 'Junk Science': Using the Inquiry Method to Tell and Teach the Difference", and Romualdo de Souza "Teaching Science at the Introductory Level with CALM (Computer Assisted Learning Method)".

Workshops available to participants included "Levels of Scientific Inquiry" (Carl Wenning), "Tasks to Promote

Sense Making in General Physics and Chemistry" (Dave Maloney), "Inquiry Based Activities for Exploring the Physics of Sound and Music" (Andrew Morrison), "Inspire Your Chemistry Class with the TI-Nspire!" (Ray Lesniewski), "The Three Pigs Dilemma: Tearing Down Misconceptions and Building Sturdy Ones" (Larry Kellerman), "Accuracy and Precision Lab with Spectroscopy Demo" (Anthony Nelson), "Tasks to Promote Sense Making in General Physics and Chemistry" (Dave Maloney), "Investigations in Electrostatics with Benjamin Franklin" (Rebecca Vieyra), "Using Vernier LabPro in Introductory and General Chemistry Labs" (Bill Cook & Meral Savas), and "Process Oriented Guided Inquiry Learning" (Mahesh Alur).

In other section news Ken Wester and Carl Wenning worked diligently on establishing local physics alliance zones throughout Illinois. This ambitious project will provide support to teachers throughout the state. The section also received funding joint with the Chicago Section to run workshops for new and crossover physics teachers. The inaugural joint workshop will be held at Joliet Junior College on Saturday, January 16th with Bill Hogan serving as host.

The section will next meet at Blackburn College in Carlinville, IL on March 26th and 27th. The theme of the meeting will be "Green Physics". Much more information about past and future meetings as well as other section news is available at http://www.isaapt.org.

—Zak Knott, Section Representative

Iowa Section

The Iowa Section held its annual fall meeting jointly with the inaugural meeting of the Prairie Section of the American Physical Society, November 12-14 at the University of Iowa. Approximately 180 were in attendance. Highlights of the meeting included a demo show Friday evening, run by Dale Stille and the U of I SPS chapter. Saturday featured a session devoted to Physics Education, chaired by section president Wade Sick of Southwestern Community College. An invited talk, "21st Century Skills and the Physics Classroom" was presented by Sally Rigeman of the Mississippi Bend Area Educational Agency and Peter Bruecken of Bettendorf High School which discussed the changes in learning styles and the needs of the 'net generation.' Following the invited talk were contributed talks "Small Angle Light Scattering from Stretched HDPE: An Experiment for the Advanced Lab" by John Zwart and Matt Vande Burgt of Dordt College, "Interactive Physics Illustrations Using Geometer's Sketchpad" by Dale Yoder-Short of Iowa Mennonite School, "A Freshman Science Cohort Class for Underprepared Students" by Nathan Moore and John Deming of Winona State University, "The Bernoulli or Coanda Conundrum and Other Classical Demonstration Myths" by Dale Stille of the University of Iowa, and "An Energy First Approach to Introductory Physics" by Christopher White, Daniel Meyer, and Kimberly Fluet of the Illinois Institute of Technology. Approximately 60 attended the education section talks.

The section business meeting was held earlier in the day. Section Rep John Zwart presented information on national AAPT, including the new Associate Member category. Cliff Chancey, chair of UNI physics department, volunteered that UNI will fund 10 such memberships for high school teachers (thank you Cliff!). Next fall's meeting will be at UNI and the 2011 fall meeting location is tentatively planned for Dowling HS in Des Moines. Diane May of Beckman HS was voted in as President-Elect for 2010, with Wade Sick becoming past president and Cliff Chancey becoming president. Todd Pedlar of Luther College was re-elected at Vice President for Four Year Colleges. Some difficulties in communications for the meeting were noted. Apparently high school spam filters now reject mailings with more than 5 recipients, blocking the notice for many. Members are asked to provide Dale Stille with a non-school alternative e-mail address. A special thank you to Dale for handling all of the on-site details and for coordinating with the APS Prairie Section.

After a lunch at a local restaurant, section members followed Dale Stille to the physics lecture hall to enjoy hands-on time with many of the large scale lecture demonstrations used at the University of Iowa which concluded our meeting.

—John Zwart, Section Representative

Long Island Section

In 2009, the Long Island Section of AAPT sponsored six events:

The March 13th, 2009 Physics Olympics had 85 students from 17 high schools competing in the five events. The events were: The Physics Bowl (quick response to physics questions), Fermi Questions (order of magnitude estimation), "Hit the Mark" (a projectile based calculation and shooting exercise), The "Constant Acceleration" race (students attempt to maintain a given acceleration over a given distance) and the "Soap Bubble Relay" (students transfer a soap bubble between members of their team as quickly as possible—they could build and bring apparatus to help them perform this task). Trophies were awarded to the top 4 teams and also to the top scoring team in each event.

On Saturday, March 28th, 2009 our spring conference was held at Massapequa HS. We had three speakers in the morning, and after lunch, some of the participants

constructed a battery-powered hovercraft. Ed McDaniels spoke about possible changes to the NY State Regents Examination in Physics currently being discussed. Rich Yngstrom spoke about Physics Day at Adventureland (a local amusement park) over they years and then Bill Leacock and Ed McDaniels presented: "Common Misconceptions in Physics". After lunch, those who had preregistered (preregistration was needed to know how many parts to order!) constructed an 18" diameter battery powered hovercraft to use as a classroom demonstration.

On the evening of May 20, 2009 we had 16 participants come together to discuss the 2009 Advanced Placement Physics B and C examinations. The solutions to the free-response questions were presented and the participants then discussed the topics represented on the exam as well as the relative difficulty of each question and its parts.

On Tuesday, June 30, 2009, (the week after high school classes had ended for the year on Long Island), LIPTA held its annual pool party at the home of a member with a big backyard and a pool. The 18 people present discussed common concerns among physics teachers as well as the NY State Regents Examination, which had just been given on Wednesday, June 24, 2009. I believe that New York State is the only state currently giving a statewide exam in physics to high school students. (Texas is developing an end-or-course assessment in physics (and other areas) to become a part of the Texas HS graduation requirements beginning with the freshman class of 2011–2012, and California's current HS exit examination only includes English, language arts and mathematics.)

On Tuesday, October 27, 2009, 823 students attended "Physics Day" at Adventureland. Adventureland is a local amusement park that has cooperated with us by having the park engineer present workshops on the behind-the-scenes operation of the rides as well as providing us with the dimensions, rotation rates and other data. Students attending the event make measurements and do calculations as is done at many large amusement parks. Physics teachers can check their student's calculations using the data provided by the park engineer. We're very fortunate to have this amusement park on Long Island that is at most a 45 minute drive from any school in either of the two counties LIPTA serves (Nassau and Suffolk counties).

Closing out 2009 was a conference held at the Cradle of Aviation Museum in Garden City. This Long Island museum celebrates the history of aviation on Long Island (Lindbergh flight in 1927 left from LI, aircraft makers Grumman and Republic were based on LI). The museum has an original Lunar Module, LM-13, intended for the Apollo 18 mission to Copernicus Crater in 1973, which was ultimately cancelled. Also in its collection are military aircraft that saw combat in three wars and a 'sister' ship of the one Lindbergh flew from Long Island to Paris in 1927. The morning presentation was made by Tom Lynch, who spoke about "Using Movie Clips to Teach Physics". After his presentation the 26 physics teachers attending had some time to explore the museum's exhibits. We then saw 4 workshops that the museum can present to local students visiting the museum. They were: Invisible Light (infrared & UV); Force & Motion; Space Toys and Living in Space. (see the photos)

For 2010 LIPTA has planned:
March 19, 2010 - Physics Olympics at Farmingdale University
April 17, 2010 - Spring Conference at Massapequa High School
May 18, 2010 - AP Exam Review at BOCES, Deer Park
Please take a look at our website at http://www.lipta.org

—Bill Lynch, LIPTA Section Representative

Louisiana Section

November 14, 2009: Louisiana AAPT along with Louisiana Tech University and Catholic High School in Baton Rouge hosted a teacher professional development workshop for 15 Baton Rouge area high school teachers. After the workshop the Louisiana AAPT met to introduce the section to the teachers and encourage them to join both the national and state AAPT organizations.

The workshop is titled, ³F.U.E.L. for Thought² and is funded by Shell Oil company. Tabbetha Dobbins of Louisiana Tech University in Ruston, LA lead the workshop. Robert Dalling and Shelly Hynes, Physics Instructors at the Louisiana School for Math, Science and the Arts in Natchitoches, LA assisted Dr. Dobbins with the workshop.

—Rhett S. Allain, Section Representative

New Jersey Section

The NJAAPT had a huge presences at this years NJ Science Convention October 13 and 14 at the Garden State Exhibition Center. See http://njaapt.org/ for more information.

—Joseph Spaccavento, Section Representative

North Carolina Section

North Carolina Section of the American Association of Physics Teachers
14th Annual Fall Meeting, October 23-24, 2009
University of North Carolina Pembroke, Pembroke, NC 28372

Our host, José D'Arruda, welcomed the group to the Friday evening banquet and introduced Dean of the College of Arts and Sciences, Martin Slann; Chairman of the Department of Chemistry and Physics, Tom Dooling; and Dan Reichart of the University of North Carolina Chapel Hill, our banquet speaker. Professor Reichart's talk was entitled, "Birthing Black Holes: PROMPT and the Skynet Robotic Telescope Network". As a part of his very enjoyable and informative talk he allowed attendees to operate one of the telescopes in the Chilean Andes, where he and his students are currently building six robotic telescopes.

Approximately 70 members of the NCS-AAPT met at UNC Pembroke to take part in three workshops and 28 papers/posters.

The Friday afternoon workshop, "Improving the Teaching Laboratory through DIY Apparatus Development" was presented by William Brandon of UNC Pembroke. A Saturday workshop was presented by Robert Ehrlich of George Mason University in two parts on "Renewable Energy Education" as an enhancement to physics courses and as a recruitment effort. The third workshop on Saturday afternoon was presented by Michael Castelaz of the Pisgah Astronomical Research Institute on "PARI Digital Resources".

Papers were spread throughout the day and posters were kept up all day with times set aside for viewing and asking questions of the presenters. Aaron McAlexander started the morning session with "Fifty Years of Teaching Physics," followed by Wolfgang Christian's "Interactive Lecture Models" and Larry Engelhardt's, "Undergraduate Computational Projects Using the Open Source Physics Library." Claudine Moreau's, "The Elon Physics Phenomena Photography Project" led to much discussion at the business meeting that strongly recommended that the Section sponsor a competition within the state similar to that of the national competition. Bill McNairy followed with, "What You Can Learn from a Discarded Microwave Oven." The prize for the best graduate student paper had to be split between Jon Gaffney's, "Imagine the Possibilities: A New Perspective on Physics Student Reasoning" and Zhengang Wang's "Visualizing the Initial Stages of Amorphous Organic Semiconductor Growth," both of which attracted attention. Utilizing computational physics as a tool, Aaron Titus spoke on how he handles getting students to understand, "The role of Theory and Experiment in the Introductory Course." Rather loosely, the theme of the meeting was waves and astronomy. In keeping with that Bill Brandon asked, "What are Matter Waves?," Gabriela Stefan performed a, "Demo on Standing Waves," and Tom Dooling presented, "Stereo (3D) Visualization."

Several astronomy papers were presented: Resources by Ken Brandt, Determining Longitude using the moons of Jupiter by students Michael Everhart and Jason York, a flexible platform for teaching astronomy by Mario Belloni & Todd Timberlake, and NASA's university student launch initiative by Doug Knight. A look at other papers can be gotten from the Web site; special notice should be given to "Fabrication of Ferroelastomeric Microparticles" by Daniel Glass which clearly won the

Best Undergraduate Student Paper Award.

The usual Minutes and reports from the representatives were presented with upcoming meetings set for Elon University (April 16-17, 2010) and Davidson College (Fall 2010).

Note: Our Section Representative is automatically the chairman of the Awards Committee. A nomination for The John L. Hubisz Award for Outstanding Service to the Section was received by the secretary-treasurer for Mario Belloni, our current Section Representative. The Awards Committee considers on an irregular schedule nominations for this award. The secretary-treasurer notified the other members of the committee of the nomination and they met secretly with José D'Arruda as chairman to consider the nomination and José presented the award at the business meeting to Mario. The awardee receives a certificate and a cheque for $500.

We thank our sponsors: PASCO, Cambridge University Press, Prentice-Hall, AAPT, Herb Gottlieb, UNC Pembroke, North Carolina State University, SHODOR, Spectrum Technologies, and Vernier Software which organizations provided us with a very rich supply of door prizes and money for coffee breaks.

Submitted by John Hubisz, Secretary-Treasurer, NCS-AAPT

Oregon Section

Members of the Oregon Section have been busy preparing for the 2010 Summer National Meeting in Portland Oregon. Erik Bodegom and Will Porter from Portland State University have been busy making arrangements for housing, workshops and other important events to take place. Stan Micklavzina and David Sokoloff from the University of Oregon have also been planning events for the national meeting. Several other members have managed to put together an email list of all the physics teachers in Oregon, a challenging task as often as it changes.

Our 2009 Spring meeting was held at Oregon State University on March 14th. Our section president Dedra Demaree put together a meeting filled with a variety of talks, demonstrations and workshops. Dennis Gilbert started the meeting with some insights into ways students view knowledge. David McIntyre, Steve Frankel and David Roundy all presented talks on teaching physics.

The afternoon section included talks by Sissi Li, Ethan Minot and Eric Jensen followed by a workshop on "Bridging the Gap between Mathematics and Physics". The key to bridging the gap between mathematics and physics is geometric reasoning; emphasizing vectors, calculus, and vector calculus.

The 2009 Fall Meeting was held at the University of Oregon on October 16th and 17th. A Friday night Physics Demonstration Show started things off on a high note.

> **Physics, Music, Rock 'n Roll** - Standing waves of flame, sound breaking glass, and infinite harmonics that produce Rock 'n Roll. Dr. Stan from the Department of Physics presents a night of active demonstrations revealing the science behind the sounds. Grab a date, the kids, some friends, or just yourself. A great way to start the weekend!

The Saturday meeting began with a talk by Karen Hunter, from Portland Oregon, on designing an emergency flashlight. Janet Tate, from Oregon State University, then described an in-class coaxial cable experiment to study waves at boundaries. Greg Mulder, from Linn Benton Community College, presented a Workforce Investment Act using underwater ROVs. Sissi Li, from Oregon State University, gave insights into understanding the role of a student's perceived identity in their ability to participate and take advantage of learning opportunities. Dean Livelybrooks ,from The University of Oregon, described efforts in Oregon to growing science, technology, engineering and math majors.

We were honored to have Dr. Eugenia Etkina , from Rutgers University, talk on her *Physics Union Mathematics* project; *a new learning continuum for middle school and high school students.*

The meeting ended with a *Photovoltaic Kit* workshop by Frank Vignola, Mike Taormina, Stanley Micklavzina all from the University of Oregon.

—Patrick Keefe, Section Representative

Ontario Section

Prepared by Tetyana Antimirova, Ontario Section Representative
December 30, 2009
The current report covers period between June and December of 2009. Previous report prepared by Marina Milner-Bolotin in May 2009 contains the overview of the May Meeting of the Ontario Association of Physics Teachers at the Royal Military College in Kingston, ON. Ontario Association of Physics Teachers had an Annual Conference at the Royal Military College in Kingston Ontario from May 28-30, 2009. The Conference was a success. More than 80 Ontario physics teachers attended the conference. A complete program as well as the photographs from the meeting can be found at www.oapt.ca. May 2009 report of our Section can be found at http://www.aapt.org/Sections/upload/Section-News-7-2009.pdf .

New section officers

During our annual meeting in May 2009 John Atherton was elected to become our next Vice-President.

Our section representative Marina Milner-Bolotin is leaving Ryerson to accept a faculty position at the University of British Columbia Faculty of Education. Marina has been an Ontario Section Representative to the AAPT for two years. During her time as an Ontario representative she worked tirelessly to represent our sections at AAPT, recruit new members and further strengthen the ties between Ontario section and our US counterparts. Her shoes are not easy to fill. We are sad to see her go, and wish her all success in her new position. We would like to thank her for the excellent job she had done in this capacity. Happily, she promises to keep in touch. She will Member at Large and our liaison with the Western Canada sections of AAPT. Tetyana Antimirova (Department of Physics, Ryerson University), Member at Large, became the new Ontario Section representative to AAPT in December 2009. For the complete updated list of Ontario section officers please visit http://www.aapt.org/Sections/officers.cfm?section=Ontario.

2009 Awards

1) Our past OAPT president Glenn Wagner (Centre Wellington District High School, Fergus, Ontario) won the prestigious Amgen Award for Science Teaching Excellence for 2009. The citation for his award at http://www.amgen.com/citizenship/aaste_winners_canada_2009.html says: "Whether designing and implementing experiments with toys or cow eyes, for the past 18 years Glenn Wagner has ensured that his students learn - and can explain what they learn. Wagner believes that deep understanding happens when students work with authentic, meaningful problems where they build and share their knowledge within a community of learners. About those cow eyes? To enhance his optics unit in 11th grade physics, Wagner collects the eyes from a local abattoir and invites students to dissect them, remove the lenses and carry out simple optics experiments. Through this highly engaging activity, students learn about the anatomy of the mammalian eye including the location and function of important features like the retina and optic nerve". Our congratulations to Glenn!

2) Patrick Whippey, our Member at Large, webmaster and former section representative, will be presented with AAPT Distinguished Service Citations Award during the Winter AAPT Meeting in Washington, DC in February 2010.The citation for his award says: "Patrick Whippey, the University of Western Ontario physics professor emeritus, is a very knowledgeable and dedicated physics teacher who is a role model to both educators and students. A willing and effective mentor to new and experienced teachers, he is well-respected among all of the OAPT Section members and hundreds of physics teachers and students across the province.

Whippey's service to AAPT, the physics profession, and the physics students and teachers of the Ontario Association of Physics Teachers has spanned over 40 years. He has made significant contributions to the Ontario section as a member of the Executive Board, OAPT section representative, and web master. He has made contributions to numerous activities for physics teachers such as a physics contest; physics photo contest; science shows and h school students; science Olympics; and science fairs. He is an OAPT member at large, organizer of the section and national conferences (one of them was the Canadian Association of Physicists – AAPT joint conference), and contributor to the Science Teachers Association of Ontario events.

Our congratulations to Patrick!

Events

1) The summer 2009 AAPT national meeting took place in Ann Arbor Michigan , July 25-29, followed by PERC2009 Conference on July 29-30. The Physics Education Research Conference (PERC) is designed to provide a format where Physics Education Researchers can share information and discuss a variety of physics education research issues. Poster sessions and breakout groups were utilized to encourage participation and aid in exchange of ideas. This year's program organizing committee consisted of an all-Canadian team: **Nathaniel Lasry, President** of Quebec section, and our own Marina Milner-Bolotin and Tetyana Antimirova. PERC 2009 theme was "Physics Education Research across Paradigms**".** For more information on PERC2009 please visit http://www.compadre.org/per/conferences/2009/.

2) Our annual Ontario Section executive meeting took place on November 1, 2009. The topics discussed included next annual conference planning, budget and membership reports, and high school contest.

3) Ontario Section was well-represented at Science Teachers Association of Ontario (STAO) annual conferences held in Toronto in November 2009. John Caranci handed out 200 flyers for the OAPT conference of 2010. Our members Dave Doucette, Dave Erb, Roberta Tevlin, John Caranci and Patrick Whippey gave presentations at the conference.

4) The OAPT and AAPT offered free 6-hour Physics Teaching Resource Agent (PTRA) workshop on Laboratory Activities for Physics Teachers in Ontario. It was presented by Diana Hall and Sarah Torrie on November 21, 2009.

Our Next Annual Conference
Our next annual conference will take place on April 29 - May 1, 2010 and will be hosted by the Department of Physics at St. George Campus of the University of Toronto. This will be the thirty second Annual Conference! This year's conference theme is inspired by the results of Physics Education research, and the title "Research into Practice" will reflect the theme. The organizing committee met with the local organizers in early December. This year's conference will be preceded on the April 29th by two public lectures that are part of the 'Welsh Lectures': Cosmic Background Radiation; Dark Matter/Dark Energy; Origin of the Universe by Andrew Lange, and Geology: Earth and Mars by Maria Zuber. To learn more about Welsh public lectures series sponsored by the Department of Physics at U of T please go to http://www.physics.utoronto.ca/lecture-and-seminar-series/welsh/program.

This year's conference program will also showcase the new cutting-edge undergraduate physics laboratory http://faraday.physics.utoronto.ca/Practicals/ that is built to implement the active-learning environment.

Newsletter
Our latest section's newsletter was published in November 2009. It can be accessed on-line at http://www.oapt.ca/newsletter/2009_11_nl.pdf.

Our website: www.oapt.ca

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

Southeastern Pennsylvania Section

The 2009 Fall Demo Night of the Southeastern Pennsylvania Section was held on Friday, October 30th at the Science Leadership Academy in Philadelphia. The hostess is Rosalind Echols. The detailed report with photos can be found at http://www.physics.upenn.edu/~aapt/falldemo2009.html.

SEPS will also be joined by NJ and Central PA sections to host a regional meeting on March 12 13, 2010 at La Salle University, Philadelphia, PA. The theme will be "How we teach may be more important than WHAT we teach..."

- Friday 9 4: pre conference PTRA Workshop on Physics with Video Analysis
- Friday night: dinner, student poster session, & invited lecture (Derrick Pitts).
- Saturday morning: invited speakers (Warren Hein, Matt Greenwolfe), & contributed talks
- Saturday afternoon: business meetings, & great demos.

More details and updates will be posted at http://www.physics.upenn.edu/~aapt/

—Ling Liang, Section Representative

Southern Atlantic Coast Section

The 2009 Fall Meeting of SACS-AAPT was held at Augusta State University, Augusta, Georgia on October 15-16, 2009. The host was Joseph Andrew Hauger, Professor of Physics, Augusta State University.

The meeting started at 5:00 pm on Friday, October 15, 2009 in the Science Hall Atrium with Registration and Student Poster Presentation. A banquet dinner followed at 6:30 pm in the JSAC Ballroom at the end of which Dr. Samuel Sullivan, Professor of Physics & Vice President of Academic welcomed the attendees. Then Joseph Andrew Hauger introduced Dr. David J. Griffiths, Professor of Physics, Reed College who gave the keynote address on his experience as an author of textbooks in physics. The evening concluded with a faculty social at the Maxwell Alumni House from 8:30pm until 10:00 pm.

On Saturday Morning the association assembled in the Science Hall from 8:00 am until 12:00 noon to attend contributed talks delivered in three successive sessions separated by 15-minute breaks at 9:30 am and 11:00 am.

Lunch was served in JSAC Ballroom at 12:00 noon after which the association conducted its business meeting. This was followed by three concurrent workshops from 1:00 pm to 3:15pm. An outline of the program is presented below.

Outline of Program
Friday, October 15, 2009: Student Presentations
1. *Performance of 5000 students in introductory mechanics* by Marcos Caballero, Michael Schatz, School of Physics, Georgia Institute of Technology; Keith Bujak, Richard Catrambone, Jack Marr, School of Psychology, Georgia Institute of Technology; Matthew Kohlmyer, Department of Physics, North Carolina State University
2. *Chaos* by Philip Javernick and Trinanjan Datta from Augusta State University
3. *Motion of magnetotactic bacteria* by Timothy Kurtz and Trinanjan Datta from Augusta State University
4. *Animating motion on Google Earth using Python* byJuan Llanes from Georgia Institute of Technology

Saturday, October 16, 2009: Contributed Talks and Workshops
Contributed Talks – Session I (8:00 a.m.-12:00 noon)
1. *Using physics to teach liberal arts students about climate change, sustainability, energy and the environment* by Hauke Busch, Augusta State University
2. *A Fun Way to Teach the Concept of Tension and Newton's 2nd Law* by K. C. Chan and Arun Saha, Albany State University
3. *Recruiting, Retaining, and Transferring STEM Students Through the MESA Program* by Dr. Kouok Law, Georgia Perimeter College
4. *Using clicker in an algebra-based introductory physics course* by Pengfei Li, Savannah State University
5. *Using Easy Java Simulations (EJS) and Existing*

Simulations to Develop Physics Simulations by Taha Mzoughi, Kennesaw State University

6. *Integrating Lecture and Laboratory in Introductory Physics at the College of Coastal Georgia* by Ntungwa Maasha, College of Coastal Georgia

Contributed Talks – Session II (9:45 a.m.-11;00 a.m.)

1. *Advanced Science Research in the Secondary Classroom* by Dan Funsch, Alleluia School, Augusta, GA
2. *Hit Like a Girl: Physics and Roller Derby* by Teresa Burns, Coastal Carolina University
3. *Temperature Changes in Food—An Upper-Level Project* by Michael Burns-Kaurin, Spelman College
4. *Understanding How Our Mind Works: A Teachers Observations Re Human Perception* by Henry Gurr, Professor Emeritus, University South Carolina Aiken
5. *Paleocontact Hypothesis. Semi Centennial Influence* by Mikhail M. Agrest, College of Charleston, Charleston

Contributed Talks – Session III (11:15 a.m.-12:00 noon)

1. *Lunar Oxygen Production and Metals Extraction* Matt Marone, Mercer University
2. *Planning the Intensity Modulated Radiotherapy (IMRT) to cancer patients in the Introductory Modern Physics Laboratory* by Tatiana A. Krivosheev, Clayton State University
3. *Doped Pre-forms as laser media* by Paige Ouzts, Lander University

Workshop Program (1:00 p.m.–3:15 p.m.)

1. *Real-World Kinematics and Dynamics with Animations on Google Earth* by J.B. Sharma Gainesville State College and Juan Llanes, Georgia Institute of Technology
2. *Changeringing on Church Bells* by Ron Edge, University of South Carolina
3. *Teaching Nuclear Physics Using DVD Teacher Kits* by Don Franklin

—Ntungwa Maasha, Section Representative

Southern California Section

Fall Section Meeting – November 14th

The Fall Meeting of the Southern California Section was held Saturday, November 14th at University of San Diego, San Diego, California. Attendees were welcomed to the meeting by the local host, Greg Severn, San Diego University Physics Department. Special thanks are due to Greg for arranging the meeting site. Approximately 50 people attended.

The meeting began with a choice of two activities. Some participants attended a workshop entitled **"Construction of Inexpensive Momentum and Energy Collision Carts and Track"** led by Bill Layton (UCLA) and Bob Baker (University Senior High School). Workshop participants built a low cost track and carts ($20 materials) and learned how to use them. Other attendees chose a tour of the new University of San Diego science facilities. The tours were guided by student members of the campus Society of Physics Students and Chemistry Club.

Dr. Alexander Rudolph alrudolph@csupomona.edu from California State Polytechnic University Pomona gave the morning invited talk **"The Effect of Interactive Instruction in the Astro 101 Classroom: Report on a National Study."** Dr. Rudolph described a national research study designed to determine the effect of interactive learning strategies on students' conceptual learning in general education astronomy courses. Nearly 4000 students at 31 institutions (4-year and 2-year) around the country participated in the study. There were dramatic improvements in student learning with increased use of interactive learning strategies. These gains applied equally to men and women, across ethnicities, for all levels of prior mathematical preparation and physical science course experience, independent of GPA, and regardless of primary language. The presentation made use of Classroom Response Systems (aka "clickers") allowing participants to experience interactive learning firsthand.

Dr. Greg Severn severn@sandiego.edu from the University of San Diego presented the afternoon invited talk **"Plasma Physics from Fusion to Plasma Processing: Cool Ideas in the Physics of Hot Stuff."**

Dr. Severn contrasted the two extremes of the plasma state, thermonuclear fusion in stars and compact fluorescent light bulbs. He then discussed how a wide variety of technologies, from fusion reactors to micro-chip etchers, exist in between these high temperature and low temperature plasmas. The technologies are based on plasma science and have profoundly affected modern society. Dr. Severn stated that fusion is the energy of the future and that that future is becoming closer as Q values (energy created over energy added) continue to increase. He described recent experimental research of plasma boundary physics conducted by a University of Wisconsin-Madison and USD research collaboration.

The meeting also featured a panel discussion entitled **"What can we learn from initial experiences with Physics First?"** The panelists were Dan Lavine (San Diego Unified School District) and Dominic Dirksen (Steele Canyon

High School, Spring Valley, California) and Bill Layton moderated. They discussed the history of Physics First in the San Diego Unified School District. It is currently a site by site decision and works best if the school can take "ownership" of the program. Students who succeeded in 8th grade algebra were successful in physics.

On the other hand, some schools had many students who struggled with math. Three fourths of the students who didn't pass physics in the 9th grade did not graduate from high school. The panelists also discussed problems of testing to state standards that are not based on physics first. Several teachers from the San Diego area who have had direct experience with the program discussed its effectiveness and possible extension. We were reminded that the 8th grade California Physical Science Standards contain a great deal of physics (already a kind of physics first) and perhaps we should build more upon this experience in high school.

The ever-popular Show 'n' Tell featured demonstrations by James Lincoln "Toy Box Physics", Bill Layton "Quick and Simple Energy and Momentum Collision Demonstrations", Fred Carrington "Build and Use a Simple Electrophorus", and Myron Mann "Resolution of the Human Eye and the Rayleigh Criterion."

The following contributed talks were presented:

"Clicker use in Large Introductory Physics Lecture Classes"
George A. Kuck galbertk@aol.com, California State University, Long Beach

"Journal-style Lab Reports in the Advanced Physics Lab Courses"
Ertan Salilk esalik@csupomona.edu, California State Polytechnic University, Pomona

"Fighting the Bean Counters. Laboratory Science Classes at Dangerous Numbers."
Gary Reynolds drgreynolds@sbcglobal.net, Santa Ana High School

The meeting ended with our World Famous "Order of Magnitude Contest." This meeting's question was: "At what temperature does a body's radiance peak in the AM band?" Al Siger submitted the median answer of 10 μK and selected a Plasma 360 Ball from the APS Division of Plasma Physics Research. Door prizes were won by Jimmy Liao ($50 Vernier Gift Certificate), Joe Rauch (*Physics with Vernier*), Lee Leveridge (*Physics with Video Analysis* from Vernier), Deborah Lilly (*Physics* Schaum's Outline from McGraw Hill), Beth Stoeckly and Ertan Salik (each *Physics* by Giambattista, Richardson, and Richardson from McGraw Hill). Ten high school teachers received copies of *The Plasma Universe* (Cambridge University Press). Many attendees received AAPT pens, note cards, posters, and trading cards.

We thank our corporate sponsors – Vernier Software & Technology, McGraw-Hill Science, Cambridge University Press, the APS Division of Plasma Physics Research, and Cenco-Sargent/Welch – for their support and donation of door prizes.

The Southern California Section will hold its Spring Meeting in late April or early May. Please bookmark the SCAAPT URL http://www.scaapt.org/ and check for the date in early Spring.

—Mary Mogge, Section Representative

Southern Ohio Section

The Southern Ohio Section held our fall meeting on October 10, 2009 at Ohio Wesleyan University in Delaware, OH. This meeting was joint with the Ohio Region Section of the American Physical Society. We would like to thank Brad Trees, our local host, for doing the work to allow our program, prepared by Kathy Harper (Denison University) with help from Sandy Doty (Ohio University – Lancaster), Jennifer Blue (Miami University), and Gordon Aubrecht (The Ohio State University – Marion). There were approximately 100 APS attendees and 25 AAPT attendees.

The day opened with a lively contributed session. The talks were *"Rotational Motion – Modeling Style,"* by Mary Whalen (Olentangy High School), "Measure Up!" by Jason Cervenec (Thomas Worthington High School) and Brian Geniusz (Worthington Schools), *"Through Time with Galileo: The 2009 SPS Outreach Catalyst Kit,"* by Mary Elizabeth Mills (Miami University), *"Resilience of Astronomy Misconceptions,"* by Jennifer Blue and Adam Hicks (Miami University), *"Grading to Encourage Expert-Like Problem-Solving Behaviors,"* by Kathleen Harper (Denison University), *"Incorporating Other People's Good Ideas Into My Class,"* by Kevin McChesney (Pickerington High School – Central).

Following the contributed session was a special presentation by Gordon Aubrecht *"Celebration of a Life in Physics: E. Leonard Jossem."* We thank our APS hosts for allowing this presentation to run unopposed in the program.

The morning ended with parallel workshops: *"Teaching with the Contemporary Physics Education Project Chart Nuclear Science,"* by Gordon Aubrecht and *"Links to Chemistry for Physics Teachers,"* by Jessica Mamais and Elizabeth Kovach (Olentangy Orange High School).

After lunch, special guest Jan Tobochnik of Kalamazoon College and editor of the *American Journal of Physics* presented "What's in the World," an entertaining look at quantum mechanics utilizing a recent series of letters to the editor. Nearly 40 APS attendees remained after the formal portion of their program had concluded to listen to this talk.

The last session of the day was a brief business meeting run by section president Jennifer Blue.

Our spring meeting will take place at Claremont College in Batavia, OH, under the leadership of Darwin Church. The date is tentatively set for April 24.

—Kathy Harper, Southern Ohio Section Representative

Wisconsin Section

Approximately 55 teachers from 16 high schools and 16 colleges, universities and technical schools attended the Wisconsin Section meeting at the University of Wisconsin-Whitewater, in Whitewater, Wisconsin on October 30-31, 2009. Steve Sahyun from UW-Whitewater was program chair for the meeting.

The plenary speaker after the Friday night banquet was Dr. Stephen P. Maran, an astronomer, author, and a senior advisor with the American Astronomical Society.

He presented a talk titled: *Galileo to Hubble and Beyond*.

The following papers were presented:

Apparent Shape of a Swimming Pool, Ken Mendelson, Marquette University.

Some Surprising Facts About How to Determine the Average Density of the Sun and of Other Stars Without Knowing Their Masses or Volumes, Jim Mallmann, Milwaukee School of Engineering.

An Elementary Calculation of Gravitational Light Deflection using Snell's Law, Takamasa Takahashi and Rongyi Du, St. Norbert College.

Cruising, Computing, and Calibrating, Research Activities and Opportunities at UWRF, Jim Madsen, UW-River Falls.

Self Firing Pottery (*ceramics*) *using a Microwave Oven*, Robert Foley, UW-Stout.

Physics Assessment Summit II, Mark Lattery, UW-Oshkosh.

Tablet PC Enhanced Lectures, Roger Hanke, North Central Technical College.

A Technological Teaching Tool, Ken Menningen, UW-Stevens Point.

Pasco Motion Sensors in Introductory Labs, Brett Unks, UW-Madison.

A Masters Program for In-Service Physics and Physical Science Teachers, Mark Lattery, UW-Oshkosh.

Two Types of Traveling Outreach, Jim Reardon, UW-Madison.

Solution Manual Q&A, Eric Hendrickson, UW-Eau Claire.

Research on Student Model Formation and Development in Physics, Mark Lattery, UW-Oshkosh.

The following posters were presented:

Icetop Latitude Survey 2009, Samantha Jakel, Kyle Jero, Drew Anderson, Jim Madsen, Paul Evenson, Searpa Tilav, John Bieber, John Clem, UW-River Falls, UW-Rock County, University of Delaware.

Consequences of a Small black Hole Created at the Large Hadron Collider, Michelle Stephens and David Tamres, UW-Stevens Point.

Thinning Cosmic Ray Shower Simulations, Kyle Bindrim, and Alessio Tamburro, UW-Waukesha, UW-Whitewater, UW-River Falls.

Investigation of Water Height Effects on Cosmic Ray Count, Drew Anderson, Kyle Jero, Jessica Graveson, Samantha Jakel, UW-River Falls, UW-Rock County.

Determining Object Size and Distance from Camera Settings, Nathan Harris and Roman Khypun, UW-Oshkosh, Normandale Community College.

Effect of Weather Conditions on Cosmic Ray Detection Rate, Nathan Harris and Roman Khypun, UW-Oshkosh, Normandale Community College.

Simulations of Photon Transport in the South Pole Ice Using a Graphical Processor Unit, Abby Riddick, UW-River Falls.

Comparison of GPU and CPU Photon Transport Simulations for Ice Cube, Mary Murphy and Tareq AbuZayyad, UW-Madison, UW-River Falls.

Workshops

SPECTRA: *Remote Experiments at the Synchrotron Radiation Center* (*SRC*) *for your classes*, Rick Cole, Evansville High School, Dan Wallace, SRC, Steven Sahyun, UW-Whitewater.

Bungee Jumping of Action Figures, Gary Baier, Green Bay East High School.

Using Comics to Promote Thinking, Matt Evans, UW-Eau Claire.

Mapping the Milky Way Galaxy, Bob Benjamin, UW-Whitewater.

Astronomy Activities Using CLEA, Juliana Constantinescu, UW-Whitewater.

Share Group and Make and Take, Any participants.

Awards

Gary Baier, Green Bay East High School, received the *Service to and/or Excellence in the Teaching of Physics at the Secondary School Level.*

Jim Mallmann, Milwaukee School of Engineering, received the *Lifetime Achievement Award.*

Officers—Newly elected and continuing

*President***:** Steve Sahyun
Past president: Paul Nevins
Vice President: Matt Vonk
Secretary/Treasurer: Erik Hendrickson
Section Representative: Jim Mallmann
Two-Year College Representative: Roger Hanke
High School Representative: Gary Baier

—Jim Mallmann, Section Representative