

NJAAPT NEWSLETTER

March - 2009

President's Message

Some important things are happening and will you be a part of it? It is that time again for our annual meeting at Princeton University and we believe we have a good line up of speakers to pique your interest.

Various topics have been covered in recent years and they have been very successful. This year the program committee decided that we should consider how physics is applied to other sciences. Our students watch programs on television and are intrigued by how some crime or historical event is explained. Do they understand that much of the underlying reasons happen to be physics? The other sciences as important as they are have become more reliant on the principles of physics – just think of the revolution that occurred in biology. The double helix of the DNA molecule was discovered through the use of X-ray crystallography and the Bragg equation. How do we explain the spectrum of elements that in chemistry classes is used to teach atomic structure? Aren't we using the knowledge of energy levels in the atom to determine the frequency and wavelength of light emitted from an excited atom?

Well, maybe the physics of sight, and hearing is of interest to you. How about using physics in medical diagnosing and imaging? Hopefully, you have not been involved in an accident recently, but how does physics prove your guilt or innocence? Come and find out. Bring your colleagues or your students to experience a meeting that will provide much information to bring back to your classroom.

Ray Polomski



NJAAPT Spring Section Meeting

The NJ Section of the American Association of Physics Teachers will hold its annual Spring Meeting March 20-21 at Princeton University. This year's program includes a dinner Friday evening with a speaker and a full session on Saturday. Topics included in the programs are: The Physics of Accident Reconstruction, The Physics of Sight, The Physics of Hearing and Music, and the Application of Physics to Medical Imaging.

Further information and registration fees are available online at: www.njaapt.org

Spring Meeting Addendum

We have been able to secure a commitment from Warren Hein, the Chief Operating Officer of the AAPT, to attend our Spring Meeting in Princeton. Warren has been a supporter of our section for many years and was responsible for our receiving reimbursements from the Bauder Fund.

This is a wonderful opportunity for the section since when he was the second in command, we invited him to come and partake in our meeting. Because of the time when we had to schedule the two-day event, he already had commitments, but often rued that he had to keep them and not travel to us. If you are a member of the AAPT, here is the chance to meet and speak to the person in charge of the organization. He is very approachable and will be with us both days in Princeton. Due to Warren's acceptance, we will have to make some adjustments in our program schedule for Saturday. If you did not receive the new times, please visit our website for the updated information. If you are not a member of AAPT, Warren will have a very important announcement for you. We hope that we will see you in Princeton on March 20th or the 21st, or both days.

AAPT Future Meeting Sites

The Representative Council has suggested the following places and dates for upcoming winter and summer meetings to the Executive Board:

July 25 – 29, 2009	University of Michigan, Ann Arbor
Feb 13-16, 2010	Washington, DC – Joint Meeting with APS
July 15 - 22, 2010	Portland, OR
Jan. 6 - 13, 2011	Jacksonville FL (dates not finalized)
July 22 – 28, 2011	Omaha, NE
January 17 - 26, 2012	Ontario, CA (dates not finalized)

Attending a national meeting is a fun experience. There are many opportunities to participate in workshops, panel sessions, and walking the exhibit floor. The summer meetings are much less formal than the winter sessions and they provide a care-free atmosphere that is conducive to families. You should consider taking the time and effort to attend one of the meetings since one of the other benefits is that you get to meet and talk to so many teachers from around the country.



AAPT Winter Meeting *Chicago, IL Feb. 12 - 16, 2009*

Chicago opened its arms to over 1000 members of the AAPT at the annual Winter Meeting. This year's event, as will be next year's, was a joint meeting – this year with AAAS and next with APS. The format had to be altered from the normal Saturday to Wednesday format to a Thursday to Monday meeting schedule. The AAAS set this, as they were the larger of the organizations meeting.

Thursday and Friday were devoted to workshops and a couple of trips. Participants had the opportunity to visit Fermi Labs on either day and/or travel to the Museum of Science and Industry for a tour. Numerous workshops were held at the two hotels and local schools, but it was disheartening to see that of the approximately 30 planned workshops, 13 were canceled. This may be attributed to the fact that many of the workshops are attended by high school teachers and since they were presented during the week, travel to them could have been difficult, Committee meetings filled much of the day, some of which were cut short so members could attend a talk given by Al Gore, an invitation extended by the AAAS. A High School Share-a-Thon and a Demonstration Show preceded the much-anticipated Dessert Reception.

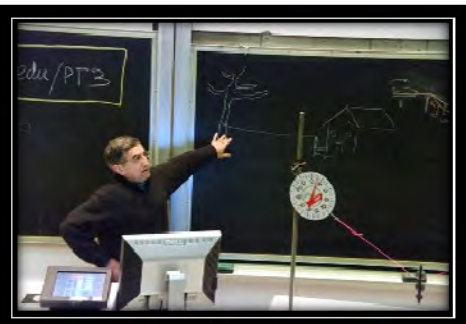
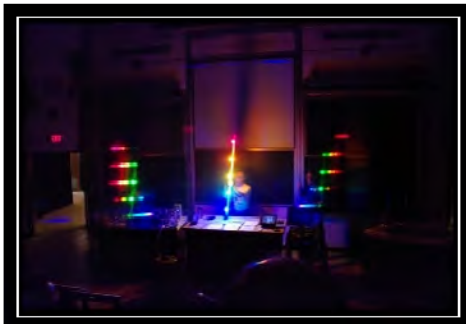
Saturday saw the beginning of the intense two and a half day Annual Meeting intense because some of the programs or meetings start at 7AM. During the day attendees ventured through the exhibition area or visited poster sessions or presentations in numerous areas relating to the many disciplines in physics research, education, or dropped into a commercial workshop. The first plenary session of the meeting featured Vera Rubin of the Carnegie Institution in Washington discussing “Rotating Galaxies and Dark Matter.” This day also saw two important committee meetings – The Bauder Fund and The Representative Council. The Bauder Fund is a source of support for the NJAAPT in providing funds to replenish money spent on workshops, our newsletter, and teacher outreach. The Rep Council consists of the section reps that advise the leadership of the AAPT on various policy decisions. This year's meeting has provided a number of new initiatives which are meant to increase AAPT's membership. As the night began to draw to a close, George Smoot – entitled, gave the second of the plenary talks: “The History and Fate of the Universe.”

Much anticipated on Sunday was the symposium on Physics First, “Early High School Physics: Building a Foundation for Understanding the Sciences” chaired by Leon Lederman and presented by a panel of individuals who have had a major impact on the program since its inception. Each of the six panelists was given an opportunity to address a specific aspect of the implementation of the program. Another treat for the attending teachers and researchers was the Great Book Give Away. This fun event provides door prizes in the form of books published by the AAPT or donated by some of the publishers who attend the meeting.

On the final day of the meeting the last of the plenary sessions was held. The topic: “Dark Matter in the Laboratory” allowed Joseph Lykken of the Fermi Laboratories to describe the history and search for this mysterious entity called dark matter. Drawing upon the work done at Fermi and what is anticipated at CERN, he concluded that everything he knew and presented could very well be proven wrong. However, his hope is that the enigma will be solved in the next ten years. A rather humorous conclusion to his prediction was a comment made by Vera Rubin, the plenary speaker from Friday. She stated that the first time she heard the term dark matter was in the late 1970's and the prediction was that it would be explained in ten years. So, what will be the outcome? Do we see a solution in ten years or will it be just another prediction gone wrong.

Ray Polomski

Dave's Demo Night 2009



The 17th straight year of Dave's Dazzling Demos, held at the Rutgers University Dept of Physics and Astronomy Physics Lecture Hall on February 20th, 2009, was another successful night of sharing demonstrations in the long running event.

As usual, the evening started at 6 PM with a gathering of the teachers who were presenting as well as the people interested in attending. This year's list of presenters included the physics high school teachers Anthony Lapinski, Jonathan Gaffin, John Valente and Borislav Bilash, as well as the retired physics teacher Ollie Perry.

In attendance for the show were over a hundred individuals consisting of other teachers, college instructors, students of all ages, and family and spouses. After an hour of gathering and snacking on various foods and drinks, mostly supplied by the ever wonderful human dynamo Jessie Blair, the event started at 7:00 PM with a welcoming statement by Ray Polomski, the president of NJAAPT, who reminded the crowd of the events calendar of NJAAPT and asked people in the audience, who weren't already members of NJAAPT, to join our group and make it stronger. He also reminded the NJAAPT members who were not also members of AAPT of all the benefits of being part of both groups.

Dave Maiullo then said a few words, thanking Jessie for her hard work and also recognizing the contribution of the students who staff the Physics Lecture Hall as to their efforts in making the event possible. He explained the timetable for the evening, though, as usual, it was going to be a fairly fluid event.

The first to present was Anthony Lapinski who excited the crowd with over 40 minutes of various demonstrations. Using both high and low tech items, Anthony's enthusiasm was contagious as he demonstrated various mechanics, sound, fluid statics and dynamics, E & M, and optics principles. Anthony continually reminded us why PHYSICS RULES! Next up was Jonathon Gaffin, who presented about 30 minutes worth of assorted thermal and mechanics demonstrations. He also pulled out a couple old physics texts and illustrated how they contained excellent ideas in their modeling of physics, demonstrating some of the principles contained in the texts. A great lesson in how "physics doesn't change"!

The audience then broke out for about twenty minutes so that Anthony and Jonathan could gather their items and the next presenters could set up their demonstrations. The audience took this opportunity to discuss the demonstrations already viewed and to indulge in some liquid nitrogen ice cream which was prepared by the student worker staff of the Physics Lecture Hall. Delightful as always!

About 8:30 PM we reconvened and Ray restarted the proceedings with a few words of encouragement. We then had the always interesting and mostly amazing Eugenia Etkina, the master teacher of physics teachers, remind us of her program at the Graduate School of Education at RU, and illustrate the on-line resources which she's developed over the years.

At 8:45 PM John Valente started his 45 minutes of sharing the various items he had assembled for the evening. His assortment also ran through the breadth of physics, focusing on low-tech and inexpensive items which instructors sometimes forget about in these days of the web and computerized demonstrations. A highlight was the reaction to the string/plastic cup phone by the youngsters in the crowd as he exhibited how it worked by pulling a couple volunteers out of the audience. Amazing how the simple devices can be the best physics teaching tools of all.

After 45 minutes of demos, John ceded the floor to Ollie Perry. Ollie had one demo to share with the audience, a model of how the tensions are directed in the cables and supports of a ski lift. After his evocative and passionate discussion of the demonstration, it was Borilaw Bilash's turn to perform 4 demos in about 15 minutes. As always, Borislav's experiments were both fascinating and educational, and sparked excellent discussions of their effects.

By this time, it was 10 PM and Dave, as emcee, decided it was best to end the discussion of physics demonstrations for the evening. He remarked it was the first demonstration show he ever did where he performed no demos himself!

Also of note was the presence of John Johnston. John drove from quite a long way to share 4 acoustic demos with the audience and had been scheduled to perform them, but he forgot a crucial piece of equipment and decided to instead contribute by adding to the conversations as other's presented demonstrations. In this role, as he always has been, he was invaluable. We do hope to see some of his devices next year, however, as they are always beautiful apparatus and spark great discussions.

Finally, the presence of Fred Pregger, one of the founders of the NJ Section of the AAPT and a Dean of demonstrations must be noted. Dave learned quite a bit from Fred when he was a "wet behind the ears" physics demonstrator. It was great to see him once again sharing with the group, and a special treat for Dave.

Ray Polomski



2009 AAPT Winter Meeting

Chicago, IL
Feb 12-16, 2009



AAAS Annual Meeting-2009



(picture taken from 104th floor of the Sears Tower)

During February 12-16, 2009 I attended, for the first time ever, the 138th American Association of Physics Teachers (AAPT) winter meeting that was held in conjunction with the 175th American Association for the Advancement of Science (AAAS) annual meeting in Chicago, IL. If I have to use one word to describe it, I'll say "overwhelming". It was a wonderful experience; I hope that I'll be able to attend other such meetings (summer, too) in the future. If time and money allow, I strongly recommend it to any physics teacher to participate.

I am still working on disseminating the notes I took, as well as organizing and reading the materials accumulated. I met many physics educators from different parts of the country and learned about current research in physics education that take place at different universities physics education research (PER) groups. I also brought back contacts that will probably lead to future collaborations. By participating in this event I feel that I grow professionally and it opened the door to many ideas that I can use and implement at my school with my students.

Until I prepare a more detailed report, here is a synopsis. I arrived on Wednesday, Feb 11 later in the evening and I settle in my room at The Fairmont Chicago. My roommate was asleep. On Thursday, Feb 12, I signed up for the visit to Fermilab. It was an organized tour; we left the hotel with a school bus (!) and upon arriving at Fermilab a scientist-host guided the whole group throughout the lab. You already know the reputation of Fermilab, it is one of USA's leading research laboratories. It is credited with major discoveries: bottom quark (1977), MRI, tau quark (1995), tau neutrino (2000), as well as with the "invention" of MRI. I learned that more cutting-edge experiments are taking place at Fermilab. There is a neutrino beam that goes from Fermilab through the Earth to a mine in Soudan, Minnesota 790 km away. The purpose is to learn more about the properties of the ghost-like neutrinos and their role in the evolution of the universe. Pretty cool!

On Friday, Feb 13, the workshop that I originally signed up for was cancelled; therefore I had time to visit all the exhibits, collect flyers, information and many promotional materials (pens, pictures, lanyards, posters, stickers, bags, etc.); I was like a kid, happy about all kind of "free" stuff. Being a dual meeting (AAPT and AAAS) there were numerous exhibits, from textbooks publishers (Wiley, CPO Science, McGraw Hill, WebAssign, etc.), vendors that manufacture educational materials (PASCO, Education innovation, Vernier, Interactive Physics, etc.), as well as different organizations (DOE and the national research labs, NOAA, European Research, NIST, NSF, Japan Science and Technology Agency, etc.). At 1:30 pm I attended the joint plenary conference on global warming where the invited speaker was Arnold Gore, former vice president and Nobel Peace Prize winner. It was an excellent presentation and speech, very inspiring. The day ended with a late evening Physics Demo show organized by physics teachers from the Chicago area.

Saturday, Feb 14, early in the morning I signed-up for "First time gathering" breakfast. It was the first day of poster presentations; I took a tour to see what people (students, teachers, and college professors) have to show. Then, I was present at the sessions on "Physics Education Research in High School" and "Best Practices for Teaching with Technology". Also, I attended the Physics2000.com workshop, as well as the two-year college crackerbarrel discussions.

On Sunday, Feb 15, I had my poster presentation in the morning, and then I attended more presentations at the session on “Interactive Lectures”, “Good Teaching Ideas”, and “PER-Problem Solving”. At 1:30 pm I attended the plenary session and discussions about “Early High School Physics” where the invited speaker was Leon Lederman, former director of Fermilab and Nobel Physics Prize winner.

On Monday, Feb 16, I attended more presentations in the morning at the session on “Researching use of clickers in Physics lectures”. Before heading to the airport, I took a quick walk to visit the Sears Towers. Later in the afternoon I flew back home.

Here are some pictures from the meeting.

Jiberiu Dragoiu-Luca

