

The Dialog

March 2003

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Physical Science and the new Ohio Science Standards

This year's spring meeting will be held on April 12, 2003 at Sycamore High School in Cincinnati, OH. The focus of the meeting will be the role that physics plays in the new Ohio Science Standards. Here is the tentative agenda:

8:00-9:00 a.m. Registration and Continental Breakfast

9:00-10:00 a.m. Contributed Papers

10:00-11:00 a.m. Invited Speaker: Bernie Franks

11:00-12:00 p.m. Parallel Session II

12:00-1:00 p.m. Lunch

1:00-2:00 p.m. Parallel Session III

2:00-2:30 p.m. Business Meeting and Giveaways

2:30-3:30 p.m. Parallel Session IV

Invited Speaker: Bernie Franks is a physics teacher at McNicholas High School in Cincinnati, OH. Bernie is a member of the writing team for the Ohio Science Standards.

Topics for the parallel sessions include

Active Physics: Bernie Clemens Walatka, Lebanon High School, will do activities from this NSF program.

Examview: Greg Presnall, Sycamore High School, will demonstrate this test generating software.

Inspiration: Cindy Parrott, Sycamore High School, will show how to use this graphic organizer with students. **Free trial copies for all spring meeting attendees.**

Blackboard: Learn how to set up your own website using this user friendly address.

PDAs in the Classroom: Chad Husting, Sycamore High School, will show how to use this tool to assess students.

The Train Problem: Tim O'Donnell, Celina High School,

Use a digital control circuit, a Vernier LabPro, and remote control cars to answer the age old question, if a passenger train left New York traveling at 90 km/h E and a freight train left Chicago at 50 km/h W and the distance between the two is 1260 km and they both left at the same time, where and when would they meet. This hands on activity used an authentic learning task to promote student understanding.

Call For Papers

The spring meeting will be a great opportunity to present the results of your current project, or have one of your students present the work they (and you) have been doing. Our SOS/AAPT meeting provides a collegial forum to present preliminary (or complete) information on a project. This is an opportunity to test the waters and receive some constructive feedback from supportive colleagues.

Typical format for contributed papers is ten minutes for the presentation and two minutes for questions. Additional time for questions will be provided if the situation permits. Overhead projectors and chalkboards will be provided. Your abstract should be in standard APS format. **It must arrive no later than Friday, March 28.** Please send your abstract to Cindy Parrott
Sycamore High School
7400 Cornell Road
Cincinnati, OH 45242 OR
parrott@sycamoreschools.org

Directions to Sycamore High School

From the west:

I-275 East to Reed Hartman Highway. Stay in the continuous right turn lane to head south on Reed Hartman Hwy to Cornell Road. Turn left onto Cornell Road. School is about 1 1/2 miles on the left.

From the east:

I-275 west to Montgomery Road. Turn right onto Montgomery Road. Turn left at the first stop light onto Cornell Road. School is about 2 miles on right on Cornell Road.

Summer PTRA Workshop at The Ohio State University

Ohio has been selected as one of several states to participate in AAPT's Physics Teacher Resource Agent (PTRA) program, which is currently focusing on reaching teachers in rural areas. Participating teachers will attend a one-week workshop each of the next three summers at Ohio State, as well as 2 or 3 Saturday morning follow-up sessions during the school year. All sessions will be led by nationally trained PTRAs from Ohio. Participants will stay free of charge at a hotel near the OSU campus; breakfast and lunch will be provided, as well as an allowance for dinner. Additionally, each participant will receive a daily stipend and

travel reimbursement. This summer's workshop begins with a welcoming dinner on Sunday, June 15 and runs through the afternoon of Friday, June 20. Preference will be given to applicants teaching high school physics or physical science in rural areas of Ohio. For more information and/or an application, contact Dr. Kathy Harper at Ohio State (harper.217@osu.edu, 614-292-3644).

Review of applications will begin April 1 and will continue until the workshop is filled. All applicants will be notified of their status by May 1.

History of Science Tour 2003

Here is your opportunity to visit Holland and Belgium in the company of a group of most congenial people. Dates are not yet set, but it will probably be from June 25 to July 10. We shall end the tour in London, where we will attend a conference at the Royal Society on Robert Hooke. Hooke died in 1703 and this conference will be held jointly by Gresham College and the Royal Society to honor Hooke, an under appreciated genius.

Details of itinerary, dates, and cost will be available later, but if you are interested in this trip email either Yvonne Twomey, ytwomey@mindspring.com or Lee Marek Lmarek@aol.com.

The broad plans are to begin the tour in Amsterdam, where there are a number of sites of interest in the history of science. Then we will move on to Belgium. Finally the tour will go to England.

The cost of the 2003 tour is not yet calculated, but for your guidance, the 2002 tour cost was \$2475 which does not include transatlantic airfare.

Graduate credit is available. CPDUs are also available for teachers.

AAPT News

March 28 AAPT Physics Bowl Deadline

Attention HS Physics teachers; enter your students in Physics Bowl 2003 and receive national recognition for you school, your students, and yourself. Students will take a 40-question, timed, multiple-choice test in the period of April 10-April 23, 2003. Exam questions are based on topics and con-

cepts covered in a typical HS physics course. To enter, each school must complete and mail an entry form and enclose payment of \$2.50 per exam plus shipping and handling charges. For more information go to:

www.aapt.org/Contests/physicsbowl.cfm

The Physics Teacher Online

The Physics Teacher (TPT) is now available via the web. TPT Online is a fully featured electronic version of the print journal. Go online to view current issues, as well as five years of back issues. Access to TPT Online will be free to anyone through Aug. 5, 2003

www.aapt.org/tpt

News from AAPT College Park, Maryland

April 6 Abstract Deadline

April 6 is the deadline for submitting abstracts for the 127th AAPT National Meeting in Madison, WI, August 2-6, 2003. The meeting theme is "The Physics of Form and Function." For information on Call for Papers, or to submit an abstract, go to:

www.aapt.org/Events/call4papers.cfm

The AAPT Updates are archived on the AAPT web site at:

www.aapt.org/aboutaapt/updates.cfm

Honor a Teaching Assistant

An AAPT member who is a department chair of any university with a graduate physics program may nominate one teaching assistant (TA) who will then be awarded the AAPT Outstanding Teaching Assistant Award. The award includes a complimentary one-year student membership in AAPT. Deadline for nomination is May 9, 2003. For more information go to:

www.aapt.org/Grants/outstandingta.cfm

High School Physics Photo Contest

Entries are now being accepted for the 2003 High School Physics Photo Contest. The contest is open to all high school students. The top 100 photographs will be exhibited and judged at the 127th AAPT National Meeting in Madison, WI August 2-6, 2003. Information on how to enter the contest can be found at:

www.aapt.org/Contests/photocontest.cfm

Check your membership online

Ensure that you are receiving the latest information from AAPT, check your membership record at:

www.aapt.org/Membership/myaccount.cfm

Fall Meeting at The Ohio State University

Workshop Presenters:

Workshop A: Room 1042 Smith Lab

Alan Van Heuvelen, OSU, Columbus

Formative Assessment

Abstract: Formative assessment is very similar to the active engagement methods that have become popular and that have had a positive effect on student learning in reformed physics courses. We will illustrate how formative assessment can become a routine part of physics instruction and indicate sources of low-cost curriculum materials that can be used for this purpose.

Workshop B: Room 1048 Smith Lab

Gordon J. Aubrecht, II

The Nucleus in the Classroom

Abstract: A century after the discovery of radioactivity, nuclear physics is still a mystery to many people, including most of our students. We will review some of the "crazy" ideas some people have, and introduce some ideas that can help you teach nuclear physics in your introductory high school or college physics classes. Workshop participants will receive the Nuclear Science chart from the Contemporary Physics Education Project (CPEP). The workshop leader contributed to the development of the CPEP

char on Nuclear Science.

Contributed Sessions:

Radiation and units: G. Aubrecht, II

There are multiple units for radiation: grays, sieverts, the DARI, and so on. Which units should one use and why should they be used?

Student-Posed Problems:

Kathleen A. Harper (Faculty and TA Development, The Ohio State University), Eugenia Etkina (Graduate School of Education, Rutgers, the State University of New Jersey)

As part of weekly reports, I structured journals in which students answer three standard questions each week, they respond to the prompt, "If I were the instructor, what questions would I ask or problems assign to determine if my students understood the material?" An initial analysis of the results shows that some student-generated problems indicate fundamental misunderstandings of basic physical concepts. A further investigation explores the relevance of the problems to the week's material, whether the problems are solvable, and the type of problems (conceptual or calculation-based) written. Also, possible links between various characteristics of the problems and conceptual achievement are being explored. The results of this study spark many more questions for further work. A summary of current findings will be presented, along with its relationship to previous work con-

cerning problem posing.²

Teasing Apart Complex Motions using VideoPoint

Mark Fischer (College of Mount St. Joseph)

Using video analysis software such as VideoPoint, it is possible to explore the physics of any phenomenon that can be captured on videotape. The good news is that complex motions can be filmed and analyzed. The bad news is that the motions can become very complex very quickly. An example of such a complicated motion, the 2-dimensional motion of an object as filmed by a camera that is moving and rotating in the same plane will be discussed. Methods for extracting the desired object motion will be given as well as suggestions for shooting more easily analyzable video clips.

Student Mental Structures Apparent in Interviews About Quantum Mechanics

Keith Oliver (The Ohio State University)

We are interested in various mental structures students use learning quantum mechanics. Among these structures some elements which are epistemic (having to do with the nature and justification of human knowledge) and metacognitive (having to do with reflecting on or controlling ones own thought processes). We have interviewed sophomore physics majors in a modern physics class. We will discuss what types of mental structures become apparent in these interviews. (more on page 4).

**SOUTHERN OHIO SECTION OF THE
AMERICAN ASSOCIATION OF
PHYSICS TEACHERS**

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Please email your address as the Dialog is moving to an all electronic format. The Dialog will be sent via email and can also be found at:
www.physics.ohio-state.edu/~aubrecht

ASU's Summer Graduate Courses for Teachers of the Physical Sciences in summer 2003.

The Department of Physics and Astronomy at Arizona State University has a summer program of courses designed for in-service high schools physics, physical science, chemistry, and math teachers. Teachers may want to enroll in these courses to earn credit towards re-certification, or to pursue an interdisciplinary Master of Natural Science degree (MNS). Take one course or many! A certification option exists for graduates in physics or engineering. The NSF has funded this program for the next 3 years. There are stipends, free housing, and some free tuition. Reply to jane.jackson@asu.edu

Summer 2003 Courses:

2 modeling workshops in mechanics
Modeling workshop in electricity (CASTLE and microscopic models)
Modeling workshop in waves, sound, light
Modeling workshop in 9th grade physical science
Energy and Environment
Integrated Math & Physics
Integrated Physics & Chemistry
Matter and Light
Light & Electron Optics
Spacetime Physics
Leadership workshop

Modeling workshops are peer-led. Courses are taught by ASU faculty and Teaching Associates, expert high school teachers who develop activities for the H. S. classroom.

Two summer terms: June 16-July 3, July - Aug. 8, 2003

Fall Meeting Continued

Consequences of economic decisions on emissions

Gordon J. Aubrecht, II (Ohio State University at Marion)

Utilities use screening curves to decide how to mix their generating units. In the last 30 years, substantial changes in these curves have been experienced. The implications for electricity production of these changes are examined.

All abstracts from the meeting can be found at:
www.aps.org/meet/OSF02/baps/tocB.html

Kim Copeland from Denison University lead a physics teaching round table. Kim gave some insights on how post-secondary physics teachers and universities give credit for AP Physics classes completed in high school. There was also a discussion on the type of laboratory skills needed by high school graduates in order to be successful in the college physics lab.

This was followed by OSU's Best Lecture Demonstrations in room 1000 of McPherson Lab.

son Lab.

After a box lunch and report from Ohio section representative, Lawrence J. Badar, Ruth Howes, Ball State University, gave a presentation on **SPIN-UP and the State of Undergraduate Physics Programs**: The National Task Force on Undergraduate Physics was convened by APS, AAPT, and AIP to study the steep decline in the number of physics majors that occurred during the 1990s. This year, the Task Force has conducted project SPIN-UP (Strategic Programs for Innovations in Undergraduate Physics) to investigate why some departments are thriving while others are losing majors. With support from the Exxon Mobil Foundation, we have conducted site visits to 23 "thriving" departments and have worked with the AIP statistics program to survey the 562 departments that grant undergraduate degrees in physics. The results of the study have identified key ingredients in thriving departments and essential elements needed to make changes that respond to the changing environments in which physics departments find themselves. More info on SPIN-UP can be found at: www.bsu.edu/csh/physics/spinup.htm

Modeling Workshops Nationwide: Summer Grad Courses for HS Physics Teachers

Modeling workshops will be held this summer in these states: Arizona, Florida, Illinois, Massachusetts, Mississippi, New York, North Carolina, Pennsylvania, and Wisconsin. Most workshops provide stipends and/or tuition waivers for in-state teachers. For contact information, visit modeling.asu.edu.

In particular, these Modeling Workshops are in your region:

New York:
SUNY Buffalo State College in New York July 7-18 Content: Electricity and Magnetism

Cornell University, Ithaca (funded by the NSF) July 27-Aug. 1
New York state physics teachers have priority.

Gordon Aubrecht Receives the Hart Award

October 19, 2002

By James F. Sullivan

In the winter and spring of 1983 several of us were engaged in the process of organizing the Southern Ohio Section of the American Association of Physics Teachers. Some of you will recall *AAPT Announcer* regularly printed a map of the 48 contiguous United States and there was a huge hole in the southern portion of the state of Ohio where no AAPT section existed. The organization effort began in Cincinnati and quickly spread northward into Dayton. At some point during that period we found out that Columbus and indeed many cities further north would be included in our section. It seemed important to include people from that area in the organization and, of course, The Ohio State University was an obvious choice.

I made several blind calls to the OSU Physics Department without locating the proper person. One day, Professor Leonard Jossem called me and suggested that I contact a new young Physics Professor, Gordon Aubrecht.

I recall that initial phone conversation as if it were yesterday. I asked Gordon to consider serving the new section as the initial Vice President for Colleges and Universities. He asked the obvious question: "How much work would be involved." I gave him the honest answer that since the section was just being formed I really had no idea what his time commitment might be. It was evident that we had the correct person when Gordon answered this with an unqualified "Yes, I'll do it."

Gordon indeed served as the Section's first Vice President for Colleges and Universities. He then was elected as the second President of the section during 1984-85. As SOS/AAPT President, he initiated many things including a corporate giving program, the Physics Prize Contest, and the Physics Awards at Ohio State Science Day. He guided us through the second-year growing pains that every new organization experiences.

Since that time Gordon has continued to serve the section in too many offices and jobs to describe here. When a job has had to be done, Gordon has been there. This award is long overdue and I simply end this by saying that it is indeed my pleasure to award the SOS/AAPT *John B. Hart Award for Distinguished Service* to Professor Gordon J. Aubrecht II of the Ohio State University.

Congratulations Gordon!!!

**Advanced Registration Form
SOS/AAPT Spring Meeting
Sycamore High School
7400 Cornell Road
Cincinnati, Ohio 45242**

Saturday April 12, 2003

Name _____

Affiliation _____

Address _____

Phone _____

Email: _____

SOS/AAPT Dues	\$10.00	
Advanced Member Registration	\$10.00	
Onsite or Nonmember Registration	\$15	
Retired or Student Registration	free	
Ham, Turkey, or Veggie Boxed Lunch		
Please circle choice	\$6.00	
Total		

Please return registration by March 28, 2003

Make checks payable to: **SOS/AAPT**

Return form to: Cindy Parrott
C/O Sycamore High School
7400 Cornell Road
Cincinnati, OH 45242

email: parrottc@sycamoreschools.org
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