

AMERICAN ASSOCIATION
OF
PHYSICS TEACHERS

Fall 1993 Meeting
of the
Southern California Section

Saturday, 6 November 1993
San Diego State University

Local Host:
Norm Dessel
(619) 286-5033

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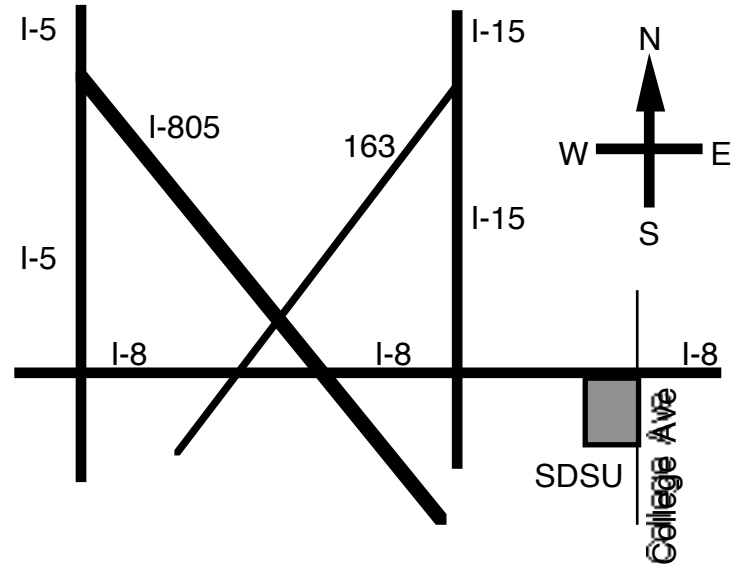
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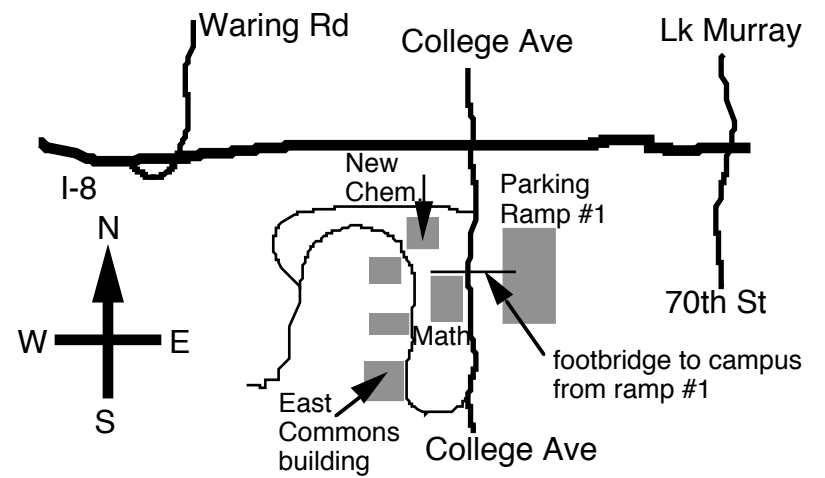


Freeway and Area Maps

Freeway Map to SDSU



Campus Map



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Meeting Notes



Directions

Park in Parking Ramp #1 on the east side of College Ave. South. No charge for parking. Take the elevator to the top ramp deck and walk west over the footbridge. Climb the stairs (or take the elevator in the Math building) and turn right on Campus drive.

The New Chem. building is on the right hand side as you walk north on Campus Drive. It's a smallish off-white building shaped like a Nabisco Box. We will be meeting in the large lecture hall. Juice, muffins, coffee and tea will be served beginning at 8:00.

Campus security has been advised that we are coming, and will help in any way they can.

Motels

Howard Johnson's just north of the Waring Road exit of I-8
Close to meeting place
(619) 286-7000 typical rate \$33

La Mesa Country Inn, 7911 University Ave., La Mesa
Near La Mesa and Grossmont Shopping Center
(800) 237-7812

La Mesa Lodge, 7961 El Cajon Blvd., La Mesa
Near La Mesa and Grossmont Shopping Center
(800) 237-7125

Grossmont Lodge, 9550 Murray Drive, La Mesa
Continental breakfast, pool, spa, near restaurants
(619) 466-0200 Special rates available

Travelodge, San Diego's Old Town near intersection of I-5
and I-8. Near shops and restaurants
(800) 255-3050

Meeting

INVITED TALKS

“Programmable Diffractive Optical Elements”

Jeffrey A. Davis, Professor of Physics,
San Diego State University

Diffractive optical elements (DOE's) have new exciting applications. DOE's such as Fresnel lenses differ from the more familiar refractive optical elements such as eyeglasses. Current research involves fabricating DOE's onto programmable devices (such as small liquid crystal television sets) or overhead transparencies. This research has evolved into several interesting student thesis projects.

“Making the Invisible Visible: A Teaching/Learning Environment That Builds on a New View of the Physics Learner”

Fred Goldberg, Department of Physics and Center for Research in Mathematics and Science Education, San Diego State University

Research on student learning of science has suggested a view of the learner that has led to the development of a physics course for prospective elementary teachers. The course emphasizes: the role played by students' prior knowledge and beliefs; the importance of providing opportunities for students to actively construct new knowledge that is both valid and powerful; and the importance of hands-on experience, peer interaction and personal reflection. A coordinated set of strategies will be outlined. Two of these strategies will be described in detail – the use of specially designed computer programs, and the writing and collaborative peer evaluation of comprehensive explanations of novel physics phenomena.

High School Teachers

There have been recent changes in both the AAPT/Metrologic PHYSICS BOWL Contest and the AAPT Introductory Physics Examination.

PHYSICS BOWL

The 1994 AAPT/Metrologic PHYSICS BOWL Contest will be held Thursday, April 21. Entry forms must be received at the national office by March 21, 1994. Specialized math and science schools compete in a separate region. First and second year physics students compete in separate divisions, regardless of AP status. A school's score in a division is the sum of the four highest student scores. The 30 first place schools receive a laser donated by Metrologic. First and second-place teams receive PHYSICS BOWL T-shirts. All students and teachers who enter receive a certificate of participation. The contest exam consists of 40 multiple choice questions from all areas of physics. It is challenging, with an average score about 50%.

1994 AAPT INTRODUCTORY PHYSICS EXAM

The 1994 Introductory Physics Exam will be available this spring. The Introductory Physics Examination is designed to be a test of basic physics concepts. In addition to the five multiple choice sections, there are two new free response sections (Mechanics and Electricity & Magnetism). Scoring standards will be provided for these problems. A teacher may use all or some of the sections. Other recent changes include: an easier and more conceptual exam than previous editions, physics formulas provided on a separate sheet for use with the exam.

Ads for both these exams will appear in *The Physics Teacher* and *The Announcer* or write the AAPT, P.O. Box 989, College Park, MD 20741-0989.

Things to do

Join the national AAPT!

Are you a member of the national AAPT? If not, you are missing out on a good thing! Members receive *Physics Today* monthly and the *AAPT Announcer* quarterly, plus *The Physics Teacher*, the *American Journal of Physics*, or both. There are special low membership rates for students. You can request an application form by sending a postcard to AAPT Membership Dept., 5112 Berwyn Road, College Park, MD 20740.

Extra textbooks?

Is your office bulging with books you don't want or need? Duplicate or older desk copies? Are you a generous person who would like to share your excess reading material with others? Please bring unwanted books to the meeting, where they will be made available to high school teachers.

Pay your dues

Support the Southern California Section AAPT. Dues are \$10/year or \$25 for three years. Mail checks to Fernando Lopez-Lopez, Southwestern College—Department of Physics, 900 Otay Lakes Road, Chula Vista, CA 91910. Please include your name, address, city, state, school, home and/or office phone #, and status (faculty, staff, student, or other.) Thanks!

Attend the Spring Meeting

The 1994 Spring Meeting (with NCal/Nevada Section) will be held April 23, 1994 at a place to be determined in the Silicon Valley area.

Attend the National AAPT Meeting

The 1994 Winter Meeting will be held in San Diego, Jan. 3-8 (workshops Jan. 3-4). See *The Announcer* for details.

Highlights

LUNCH

The cafeteria is located in the East Commons building shown on your map.

“SHOW AND TELL”

A constant attraction of our meetings is the “Show and Tell” session. There is still time to get a favorite demo together and share it with others at the meeting.

THANK YOU EXHIBITORS!

Many thanks to our exhibitors and door prize contributors including (as of press time) PASCO Scientific (donating a Projectile Launcher as Grand Prize for the Order of Magnitude Contest), LaserPoint (donating a copy of *Hewitt DrewIt*), Vernier Software (donating a \$50 gift certificate), and McGraw-Hill.

DOOR PRIZES!!

As always door prizes, see above, will be given away to those in attendance at a drawing to be held in the afternoon.

ORDER-OF-MAGNITUDE QUESTION

How much solar power is used in the process that leads to rain? A prize goes to the person whose estimate is the median of all entries received. The winner must be present at the awards ceremony. If there are an even number of entries the Vice-President's estimate will be withdrawn.

AMERICAN ASSOCIATION OF PHYSICS TEACHERS

Meeting of the Southern California Section—6 November 1993

San Diego State University—Host: Norm Dessel

Meeting Place: New Chemistry Building, Large Lecture Hall

MORNING SESSION

- 8:00** **Registration, Exhibits, Coffee, and Doughnuts**
- 9:00** **Welcome**
Professor Steve Roeder, Chair
Dept. of Physics, San Diego State University
- 9:10** **“AAPT/Metrologic Physics Bowl Exam: Local Scholarship Program”**
Jim Outwater, Woodbridge HS
- 9:25** **“The Southern California Alliance of Mentors for Physics Instruction—An Opportunity for HS Physics Teachers”**
John Jewett, Cal Poly Pomona
Roger Nanes, Cal State Fullerton
- 9:40** **“An Optometrist’s View of Geometrical Optics”**
Sergio Monteiro, Moorpark College
- 9:55** **Coffee Break, Exhibits, Late Registration**
- 10:35** **“Programmable Diffractive Optical Elements”**
Jeffrey A. Davis, San Diego State University
- 11:25** **“Show and Tell”**
Greg Darakjian, Harry Manos, Sergio Monteiro, George Stassinopoulos, and others?

12:00 **Lunch**

East Commons cafeteria

DEMO/WORKSHOP SESSION

- 1:00-1:30** **“The Comprehensive Unified Physics Learning Environment (CUPLE)”**
Sergio Monteiro, Moorpark College
- 1:00-2:30** **“Dynamics Experiments Using the Eduquest PSL Probe”**
George Stassinopoulos, PTRAs, Santana HS

AFTERNOON SESSION

- 1:40** **“High School Physics in Shanghai China: The Shanghai Experiment”**
Harry Manos, Schurr HS
- 1:55** **“A Simple Approach to Newton’s Third Law”**
Gerald Michnevich, Providence HS
- 2:10** **“Getting in Touch with Your Feelings: Lessons from the Principle of Equivalence”**
John Mallinckrodt, Cal Poly Pomona
- 2:25** **“The Mixing Route to Thermodynamics”**
Harvey Leff, Cal Poly Pomona

- 2:40** **“Making the Invisible Visible: A Teaching/Learning Environment That Builds on a New View of the Physics Learner”**
Fred Goldberg, San Diego State University
- 3:30** **Order of Magnitude Contest Winner and Drawing for Door Prizes**
- 3:45** **Meeting Adjourns**