



**American
Association of
Physics
Teachers**

***Fall Meeting*
Northern California/Nevada
Section**

**Friday, November 7, 2008
Saturday, November 8, 2008**

~ Foothill College ~

**Friday Evening Social
Friday, 6 -7:30 PM, Tom Rossing's
Home
7:30-9 PM Foothill College
Saturday, *Foothill College, Los Altos,*
*CA***

**Local Host: David Marasco
email: marascodavid@foothill.edu
(650) 949-7492
www.ncnaapt.org**

**American Association of
Physics Teachers**

Northern California/Nevada Section
2008-2009 Officers

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~ Directions to Foothill College ~

Foothill College is located in the foothills of the beautiful town of Los Altos, which is situated about halfway between Redwood City and San Jose. Take the El Monte West exit off of I-280—you're there--it's that simple! For more information: <http://foothill.edu/news/transportation.html>

~ Parking ~

The main road into campus goes down a hill. At the bottom traffic takes a right-hand turn. If you are in the left lane you can drive through a traffic circle and park in Parking Lot 8. If in the right lane, park in Parking Lot 1, which is the first parking lot you will see. Alternately, you can drive around the campus loop, and park in Parking Lot 8. From Parking Lot 8 you will see a large building complex, the rooms for the day are on the third level of the building on the right-hand side (as you face the buildings).

Attention New Physics Teachers! PTSOS is here to help you!

PTSOS is an NCN-AAPT-sponsored project funded by a donation from the Karl Brown Foundation that assists physics teachers in their vulnerable first years of teaching. **PTSOS has expanded** and now offers two sets of three workshops; one at San Mateo High School hosted by **Paul Robinson, Dan Burns, and Stephanie Finander**, and the other at Rio Americano High School hosted by **Dean Baird and Steve Keith**. The second workshop is scheduled for January/February, 2009. New teachers should email Stephanie Finander at sfinander@aol.com for more information on how to get signed up.

~ Accommodations ~

Comfort Inn Redwood City
1818 El Camino Real
Redwood City, CA 94063
800-444-6835
\$80+/night

America's Best Inn
1090 El Camino Real
Redwood City, CA 94063
800-346-8357
\$70+/night

Days Inn Palo Alto-Stanford
4238 El Camino Real
Palo Alto, CA 94306
800-346-8357
\$69+/night

Travelodge - Palo Alto
3255 El Camino Real
Palo Alto, CA 94306
800-346-8357
\$74+/night

Comfort Inn Palo Alto
Stanford University
3945 El Camino Real
Palo Alto, CA 94306
800-346-8357
\$85+/night

Mermaid Inn
727 El Camino Real
Menlo Park, CA 94025
(650) 323-9481
\$76+/night

REGISTRATION FREE*—*What a deal!*

*Fee is *waived* for first-time attendees and students! The rest of us pay only \$20—which includes lunch. A bargain at *twice* the price!

~ Upcoming Events ~

- Spring, NCN AAPT Section Meeting

Pasco Scientific, Roseville, CA

March 27-28th, 2009

Ann and Jon Hanks, Hosts

November 7th, 2008
~ Friday Evening Social ~
Hot Dog Reception 6:00-7:30
PM

Complimentary Hot Dogs and Beer

At the lovely home of Tom Rossing

26464 Taaffe Rd, Los Altos Hills, CA 94022

Come join us and have a hot dog and brew or two
and get in the mood for some yummy physics—
and only a few minutes away from the telescope
viewing.



Directions to the Hot Dog Reception: (like quantum physics--it's actually much simpler than it sounds!).

From the south on I-280:

Exit at El Monte, go west (get into left lane as soon as possible, since 2 lanes turn in to Foothill College). Continue on Elena Road (don't turn on Moody). After passing two stop signs, the road goes up a hill, and you turn a sharp left onto Taaffe Rd at the top of the hill. Continue to 26464.

From the north on I-280:

Exit at Page Mill Rd, stay in the right lane and go straight across Page Mill to Arastradero. Follow Arastradero under I-280 and turn right at the stop sign onto Purissima. Follow Purissima until ends (about 2 miles) at Robleda. Go under I-280 once more to the stop sign and turn right (north) on Elena up the hill. At the top of the hill, turn a sharp left onto Taaffe Rd and continue to 26464.

From Los Altos, Palo Alto, etc:

Turn west off Foothill Expressway at Edith. At Fremont, make a very small jog left (south) to Robleda (practically a continuation of Edith). Continue on Robleda to the second stop sign, which is Elena. Turn right (north) on Elena up the hill. At the top of the hill, turn a sharp left onto Taaffe Rd and continue to 26464.

Alternate road from Palo Alto:

Take Arastradero past Gunn H.S. and turn left on Purissima before you go under I-280. Follow Purissima until ends (about 2 miles) at Robleda. Go under I-280 once more to the stop sign and turn right (north) on Elena up the hill. At the top of the hill, turn a sharp left onto Taaffe Rd and continue to 26464.

Parking: When driveway fills up (or for a fast getaway) park in the vacant lot just west of our driveway (or on the street).

Need help? Call Tom on his home phone
650-941-1008 or his cell phone at 650-714-8042.

Telescope Viewing Session

Foothill College, Parking Lot

7:30 – 9-? PM

Do you have some heavenly bodies you'd like to check out? Here's your chance for some personalized viewing hosted by the *Peninsula Astronomy Society* will put on a show just for us! They can fill the entire parking lot with telescopes if enough of us turnout. The big whopper includes a 16-inch Schmidt-Cassegrain! Driving and parking instructions for parking is the same as for Saturday.

PROGRAM

SATURDAY, November 8
Morning Session, Foothill College

7:45 Registration, Coffee, Donuts, and other culinary delights.

8:55 Welcome and Announcements

9:00 Show & Tell

Share your favorite demonstration or teaching tip. Since new teachers and section members will be at this meeting, you are encouraged to dust off some of your oldies but goodies. If you have handouts, please bring 75 copies. Pasco will present of their latest products. *Time limit is 5 minutes per person or you risk the dreaded GONG!*



10:00
“Physics of Percussion Instruments”

Invited Speaker: Tom Rossing

Stanford University, rossing@ccrma.stanford.edu

Percussion instruments are among our oldest musical instruments, yet much less has been published on their acoustics than string or wind instruments, for example. Percussion instruments generally use one or more of the following basic types of vibrators: strings, bars, membranes, plates, air columns, or air chambers. We describe the acoustics of a representative number of percussion instruments, including marimbas, drums, cymbals, gongs, bells and steelpan. The HANG, a popular new type of hand-played steel instrument will be discussed and demonstrated.

11:00 Break

11:15

***“Pitch Physics to Your Students—
Using PITCHf/x Data from Major League
Baseball”***

Invited Speaker: David Kagan

CSU Chico, DKagan@csuchico.edu

Wouldn't your students would love to see that the kinematic equations they slave over in class are actually useful in the *real* world? Thanks to the folks at *Sportsvision* and Major League Baseball you can access the initial position, initial velocity, and average acceleration of any pitch thrown in the big leagues. The video technology that tracks pitches is called PITCHf/x. I will explain how to get to the data and what to do with it once you have it.

12:15 LUNCH: *Campus Cafeteria*

Lunch is included with your registration! Best of all, here's your opportunity to converse with interesting luminaries like yourself! Lunches will be prepared by your local Subway/Togos/Safeway and you will be asked to make your selection from a menu when you register. A variety of sodas will be provided. Cookies and Costco cheesecake for dessert--yummy!

1:30-2:00 Raffle/Business Meeting: Report from the Officers and other business.

~ Break ~

Contributed Papers

2:00 "Let Your Fingers Do the Walking"

Claudia Winkler, Gunn High School,
claudiawinkler@pacbell.net

To once and for all replace the coldness and abstraction of kinematics equations with a physical and mental picture of underlying physics and motion in real life, students will analyze the motion of their fingers on a desk and gather and plot measures of distance and time as their fingers move at constant or changing velocity forward or backwards. They will then derive the equations of motion "bottom up" and forever make a mental connection between actual motion and more abstract concepts such as "slopes, areas under a curve, positive or negative acceleration" that often leave first-year students bewildered and often discouraged.

2:20 "Playing with Cards"

Thomas White, Fremont Christian School,
twhite@fremontchristian.com

This is an inexpensive, easy prep, yet valuable activity that only requires a deck of cards. In this activity, students will use playing cards to build a structure that can support a stack of textbooks. The team that can stack the most textbooks wins. A video of students in action will be shown.

2:40 "Spreadsheet Demonstrations of Kepler's Laws"

Duygu Demirlioglu, Holy Names University,
Duygud@aol.com

The proof that Newton's Law of Gravitation leads to elliptical orbits for planets revolving around the Sun requires considerable mathematical sophistication. This proof is generally done in upper division courses in Classical or Analytical Mechanics. An iterative spreadsheet calculation, based on an approach found in Feynman's *Lectures on Physics*, provides a far more elementary demonstration of planetary orbits. The result is a persuasive visual display of Kepler's First Law, suitable for freshman courses. This computational approach can be extended with very little effort to yield Kepler's Second Law (without the use of angular momentum arguments), and his Third Law for elliptical orbits.

3:00 "Summer Research Fellowships"

Paul Grossi, pgrossi@stanford.edu

Stanford University's Office of Science Outreach (OSO) partners with IISME in offering summer research fellowships in Stanford labs. These 8-week paid internships (\$8200) include 4 days a week in the lab, and the 5th day meeting as a group for faculty lectures, lab tours, and other educational enrichment opportunities with the full group of teacher fellows (typically around 20). There is a high demand for more physics teachers, which means an excellent opportunity for applicants to wind up in a great situation. I will present details on the program, examples of previous fellowship activities, and information on how to apply.

3:20 "Make a 'Flexbook' For Your Class"

Kim Knestrick, Natomas High School,
kknestrick@natomas.k12.ca.us
James J. Dann, Natomas High School

We will present a new technology made possible by the non-profit CK-12.org. This web-based technology allows teachers to easily make their own textbook ('flexbook') that meets the needs of their own students (or even individual students). The technology is very easy to use and works remarkably well. CK-12 allows the user to publish one of the open source books in their database as it is or to modify the book in order to better fit their class and students. The teacher can go further and create a unique book using various sources like chapters from other books, Wikipedia, NASA, teacher developed worksheets or any other open source material. We donated our book, 'The People's Physics Book', to CK-12 and encourage you to make it your own.

3:40 "Epo's Chronicles: A Weekly Web Comic that Teaches Space Science"

Kamal Prasad, Sonoma State University,
kamal@universe.sonoma.edu

Sonoma State University Education and Public Outreach created "Epo's Chronicles"--a weekly web comic about Epo, a sentient spaceship/observatory and its humanoid companion, Alkina. Follow the adventures of Epo and Alkina as they explore the Universe and try to discover their origins. The comic employs a fictional story line incorporating both recent and classic scientific discoveries from NASA missions while educating the young and the young at heart in a creative and engaging way. Each weekly "episode" is translated into French, Italian and Spanish, and is accompanied by supporting information including glossary entries, multi-media clips, and links to additional resources. Visit Epo's Chronicles at <http://eposchronicles.com>.