

OUR NEXT MEETING......is at **Oak Park-River Forest High School****Tuesday****October 16, 2012****6:30 – 9:00 p.m.**

Go the last page for a map and directions.

Future Meetings

Oct 26-27	(Fr-Sat)	CSAAPT/ISAAPT Joint Meeting. Joliet Junior College
Dec 6	(T)	De Paul University (Eric Landahl/John Milton)
Jan 5-9	(Sat-W)	AAPT Winter Meeting, New Orleans
Jan 23	(W)	Elmhurst College, 39 th Annual Tri-Physics Meeting (Brian Wilhite/Venkatesh Gopal/Earl Swallow)
Feb (week of 15/22, M/W)		NEIU (Paul Dolan)
March (?)		Loyola U (Gordon Ramsey)
March/April ?? (SAT)		CSAAPT
Apr 10	(W)	Lake Forest College (Bailey Donnally/Mike Kash/Scott Schappe)
June 4	(T)	MSI, tentative (Ruth Goehmann)

AT OUR LAST MEETING...

Mel Sabella welcomed us to **Chicago State University**. We met in one of CSU's newly designed physics and chemistry classrooms. These are designed for group collaboration and active learning. Hexagonal tables allow students to work in groups. There are whiteboards on all four walls. Each whiteboard section is equipped with an independent Hitachi video Starboard. Security cameras and microphones can be used to record student activities at the tables. Mel gave us an informative handout about these teaching and learning laboratories.



Bernard Boston (CSU) showed us a student-made trebuchet that is part of a project done in conjunction with the Art Institute of Chicago. The instrument is designed to launch bad artwork into Lake Michigan! (See "Catapulting Artwork: Combining Physics and Art". <http://www.csu.edu/mbrs/illinoisstudentresearchconference2005.htm>.) It has actually been used to launch smaller projectiles like soccer balls in connection with a course segment on the physics of the trebuchet,



New Teacher Bags were presented to **Mike Tyler** and **Virginia Hayes**.



The Trebuchet

Roy Coleman (retired) shared some humor with us. Here is a sample (really a math puzzler)

$$x = y$$

$$\text{Multiply by } x : x^2 = xy \quad \text{Subtract } y^2 : x^2 - y^2 = xy - y^2 \quad \text{Factor: } (x + y)(x - y) = y(x - y)$$

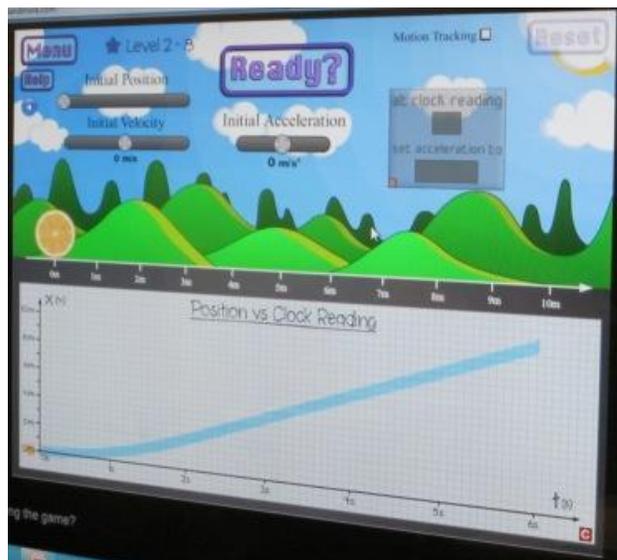
$$\text{Divide by } x + y = y \quad \text{But } x = y, \text{ so } y + y = 2y = y \quad \text{Divide by } y : \boxed{2 = 1} !!!$$

Roy would ask his students: What's wrong here?.

Roy showed us a picture of himself on E-Bay, in which he is balancing a tray on three closely spaced fingers – an old demo we've seen on center of mass. Then he told us he had had cataract surgery and experienced a strange phenomenon. If he looks at glowing LEDs, he gets a double image if the LED is green. We agreed that there is a wavelength relation here, but weren't sure why. [In an email sent 9/29, Roy says: "I was at NEIU this morning and their snack machine had a single green LED and a horizontal blue LED light bar. When I stood at the other end of the eating area and turned my head sideways, the single blue bar clearly became two and the blue was slightly more spread than the green. I think that this confirms our suspicion that it is wavelength dependent. Why it is happening is still a question."] Any ideas, anyone?

Andy Morrison (Joliet Junior College) showed us two physics related web sites. The first is a loosely organized online physics teacher community called *Global Physics Department*. Teacher presentations are available, and every Wednesday at 8:30 pm there is an interactive chat session on twitter, go to: <http://globalphysicsdept.posterous.com/#/>

The second site is *The Universe and More*. The author is “Mr. G,” (Matthew Blackman), a New Jersey physics teacher with a PER background, who is also an artist and a programmer. You can choose one of three “worlds” and in each one find several graph matching exercises.



Debby Lojkutz (Joliet West High School) spoke about two accelerated motion exercises some of us had seen before, then added an interesting variation on one of them. A ruler is dropped between the open fingers of a student’s hand and the distance it drops before being caught can be used to find the time of fall (reaction time), from $y = \frac{1}{2}gt^2$. A second exercise has a student stand next to a wall and reach as high as possible, then put a post-it note on the wall at this point. The subject then jumps vertically and places another post-it note at the highest point reached. The distance between the notes can be used to find the “hang time”.



Then Debby told us of an extension of the first exercise. The student holds a cell phone in the other hand and the ruler is dropped while the student is texting. She said that the reaction times were significantly larger! One might ask the question: How far would your car move during this extra time?

Mike Tyler II (CSU) attended a workshop on interactive topics in sound and acoustics at the AAPT Philadelphia meeting. He received a kit that could be used for several interactive exercises and demos. (<http://www.exploresound.org/>) Andy Morrison told us he had helped design the kit for the Acoustical Society, Mike attached a string to one of the tuning forks from the kit and swung the fork horizontally over his head. We could clearly hear the Doppler effect. Other acoustic exercises mentioned were: putting the vibrating tines of the fork in water, touching the fork to a ping pong ball hanging from a string, and rotating the fork about a vertical axis.

Bill Blunk (retired) told us that he went, as he does frequently, to *Amazing Toys*, in Great Falls, Montana. They had some “hoey sticks” on sale for \$1 each. Bill was told he could have one free if he would explain how it worked. Bill did so, and demonstrated the use of the stick apparatus, reminding us of how changing the position of one finger changes one component of the torque on the stick. The result is that the “propeller” at the end of the notched stick changes its direction of rotation. (Google “hoey stick” to find out more.)



Before we left, Mel directed us to several Giveaway boxes of miscellaneous equipment, including some small electronic balances. Thanks, Mel for offering CSU as a site for our physics phun.

Directions to Oak Park River Forest High School

210 N Scoville Ave, Oak Park, IL 60302

Kevin McCarron, 708.434.3285

From downtown Chicago and the Loop:

1. Take the Eisenhower Expressway (I-290) west, to Austin Boulevard. Exit from the left. Turn right (north) onto Austin Boulevard. Travel about 1 mile, just past the overhead "L" tracks, and turn left onto Lake Street. Go west on Lake Street to Ridgeland Avenue (3 stop lights). Turn right onto Ridgeland Avenue and go 3 blocks north to Superior Street. Turn left, go to Scoville Avenue (2 blocks). Turn left on Scoville (south) and look for parking. or
2. Take the Eisenhower Expressway (I-290) west, to Harlem Avenue. Exit from the left. Turn right (north) onto Harlem Avenue about 1 mile, past the overhead "L" tracks, to Lake Street. Go east on Lake Street to Oak Park Avenue. Turn left onto Oak Park Avenue and go 3 blocks north to Superior Street. Turn right on Superior and go 4 blocks to Scoville Avenue. Turn right and look for parking.

From the Western Suburbs:

From most locations take either the Eisenhower Expressway (I-290) or the I-88 extension to I-290. Exit from the left lane onto Harlem Ave. Turn left (north) onto Harlem Ave. for about 1 mile, past the overhead "L" tracks to Lake St. Turn right onto Lake St. Go east on Lake St. to Oak Park Ave. Turn left on Oak Park Ave. and go north to Superior St. Turn right on Superior and go 4 blocks to Scoville Ave. Turn right and look for parking.

From Evanston and the North side of Chicago:

1. Take the Edens/Kennedy Expressway south to the Eisenhower Expressway (I-290) junction. Take a right onto the Eisenhower and proceed west about 10 miles to Austin Boulevard. Exit from the left lane. Turn right (north) on Austin Boulevard. Go 1 mile (past overhead "L" tracks, and turn left onto Lake Street. Going west on Lake Street, take a right on Ridgeland Avenue and proceed to Superior Street. Turn left and go to Scoville Avenue. Turn left on Scoville and look for parking. or
2. An alternate route is to take Cicero Avenue (US 41) south to North Avenue. Take a right on North Avenue (west) and proceed to Oak Park Avenue take a left (south) to Superior Street. Turn left on Superior Street (east) and go 4 blocks to Scoville Avenue. Turn right on Scoville and look for parking.

The meeting will be in room 241(teacher's cafeteria). Use the main entrance on Scoville Avenue.

PARKING: There is a parking garage on the south side of the school, but it is not free. (Village-run, so we have no say-so on that.) Parking is free if you park on the curbs touching the school. The curbs across the street are reserved.

