

## ISPP REMINDER

March, 2012

### OUR NEXT MEETING...

...is at **Loyola University**  
Wednesday  
March 7, 2012  
6:30 – 9:00 PM

Scroll down for a map and directions.

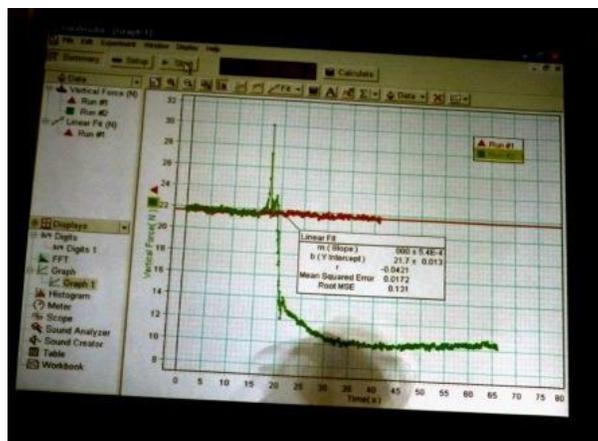
### FUTURE MEETINGS

Mar 29-Apr 1	(Thu-Sun)	NSTA	Indianapolis
March 30-31	(Fri-Sat)	ISAAPT, U. of Illinois	Champaign-Urbana
April 17	(Tuesday)	Lake Forest College	Bailey Donnally/Mike Kash/Scott Schappe
April 28	(Saturday)	CSAAPT, Thornton H. S.	Harvey
May 7	(Monday)	Niles West H. S.	Martha Lietz
May 15	(Tuesday)	Physics Day @ Great America	Krystal Bern ( <a href="mailto:kbern@sftp.com">kbern@sftp.com</a> ) or Nate Unterman
June 5	(Tuesday)	MSI (& annual Host Meeting)	Ruth Goehmann

### AT OUR LAST MEETING...

...we were welcomed by **Karlene Joseph** and her colleagues from **Lane Tech High School, Chicago: Faeghel Naderi, Scott Vesalo, Stacy Ewing, Ben Dueham, and Katrin Machaj**. And we were treated to pizza, soda, coffee and doughnuts.

Karlene began with a splashy demonstration, dropping four Mentos tablets into a 2-liter bottle of Pepsi resting on a PASCO force platform. The masses of Mentos and Pepsi were measured, and when the tablets were dropped into the Pepsi, a liquid column rose to a height of what looked like about two meters. (Unfortunately, it happened too quickly for me to get a photo.) The force vs time graph showed a spike (maximum 30 N force) followed by a reduction in force due to the loss of the Pepsi over a time interval of about 4 seconds. Students are instructed to use the masses, estimated column height, and graph data to find mass flow rate, work, power, impulse, momentum change and acceleration. Neat!



Two new teacher bags were presented.



**Ann Brandon** attended the AAPT Winter Meeting. She showed us a “Mysterious Glowing Ball” from Educational Innovations (\$7). When stationary it glows white, but when it is spun you can see three distinct colors due to the three rapidly blinking LEDs inside. This is a nice demo of color mixing. It is also possible to see the colors if you stare at the stationary ball and blink rapidly.

Next, she gave away an interesting “Skyler” toy made



By Z Windups (\$4.95, <http://www.zwindups.com/store/cc-wind-ups-skyler-plane.html>). It is a small airplane; Ann pointed out that it doesn't fly. But if it is would up and set on a table it moves to the edge and the, instead of falling off, turns to the right. We looked at it and think we know what does this. It has two rear drive wheels and a third rotating wheel at about the middle of the plane body with an axis perpendicular to the drive wheels. There are two small wheels in the front that are free to rotate. When these wheels reach the table edge and start to go over the edge, the middle drive wheel contacts the table and the toy rotates to the right. Some people said these toys are available locally.

**John Milton** (De Paul, retired) showed us a CBL unit made by TI. Several of these were given to St. Martin de Porres High School in Waukegan. They came with Vernier temperature, light and voltage probes and a cable that connects to a TI calculator. He asked for ideas on using these and the suggestion was made to contact Mel Sabella at Chicago State University. Vernier has an online manual with instructions for using these units with a PC or Mac.

**Roy Coleman** passed out copies of "Is There a Santa Claus? – a physicist view" [sic]. The original appeared in Spy Magazine, January 1990. The one page document carries out calculations such as this: "Santa's sleigh is moving at 650 miles per second, 3,000 times the speed of sound." Another quote has Santa subjected to "centrifugal" forces 17,000.06 times greater than gravity.

**Rich DeCoster** (Niles West High School) was able to take apart an Epson video projector unit and look at the optics. He attended the AAPT winter meeting and heard a presentation by Michael Ottinger (Missouri Western University), *Using Your Classroom Projector to Demonstrate Some Properties of Light*. Abstract is at <http://www.aapt.org/Conferences/wm2012/sessionpanel.cfm>. Rich told us that the red and blue portions of the RGB signal are sent to one polarizer, and the green portion to the other. These are combined to give the full color signal. When a polaroid sheet was held in front of a projected image we saw the effect, depending on the direction of polarization. One or the other signal (red-blue or green) was transmitted.



**Nate Unterman** (Glenbrook North High School) passed out some nice magnifying glasses, about 1.5" diameter.

**Andy Fitz** (Lindblom High School) had some questions about the Rubens' tube demo, in which lighted gas flowing through a tube with small closely spaced holes is excited to resonance by a speaker connected to an audio oscillator. People who had used such a device gave suggestions regarding the size and spacing of the holes and other features of the apparatus. Someone said an old air track can be used.



**Stacy Ewing** (Lane Tech) had a helium-filled balloon tied to a small cart and asked which way the balloon would move if the cart were pushed. We saw that when the cart was pushed to the right, the balloon was directed upward to the right. Then she pushed a cart with a helium-filled balloon inside a closed space. The balloon pointed in the direction of the acceleration. This is a good exercise that combines vector force analysis with buoyancy.



Stacy had three air-filled balloons with objects inside: a hex nut, a large washer, and a dime. She rotated each balloon and we heard a different pitch in each case. The hex nut produced a higher pitch than the large washer. The dime produced soft high pitch (about 1000 Hz), which, it turns out was due to the ridges on the edge of the dime.

We received a giveaway – balloons we could use to repeat these neat demos.

**Andy Morrison** (Joliet Junior College) told us of something he heard on NPR about the dangers of instant ramen noodles. Children have been severely burned by tipped over noodle containers. Andy examined the tipping angle as a function of the center of mass for containers of different shape and different depths of liquid. Contact him for more information. ([amorrison@jjc.edu](mailto:amorrison@jjc.edu)). Nate Unterman asked: what is the critical depth for stability?



**Marilyn Stone** (Lane Tech, retired) showed us a picture of her dog and we saw that each eye reflected a different color! (Not just “red eye”.)

This was a fine meeting. The time and location worked well for Lane and other local teachers. Our thanks to Karlene and her Lane colleagues.

Submitted by John Milton

### **Directions to Loyola University Chicago**

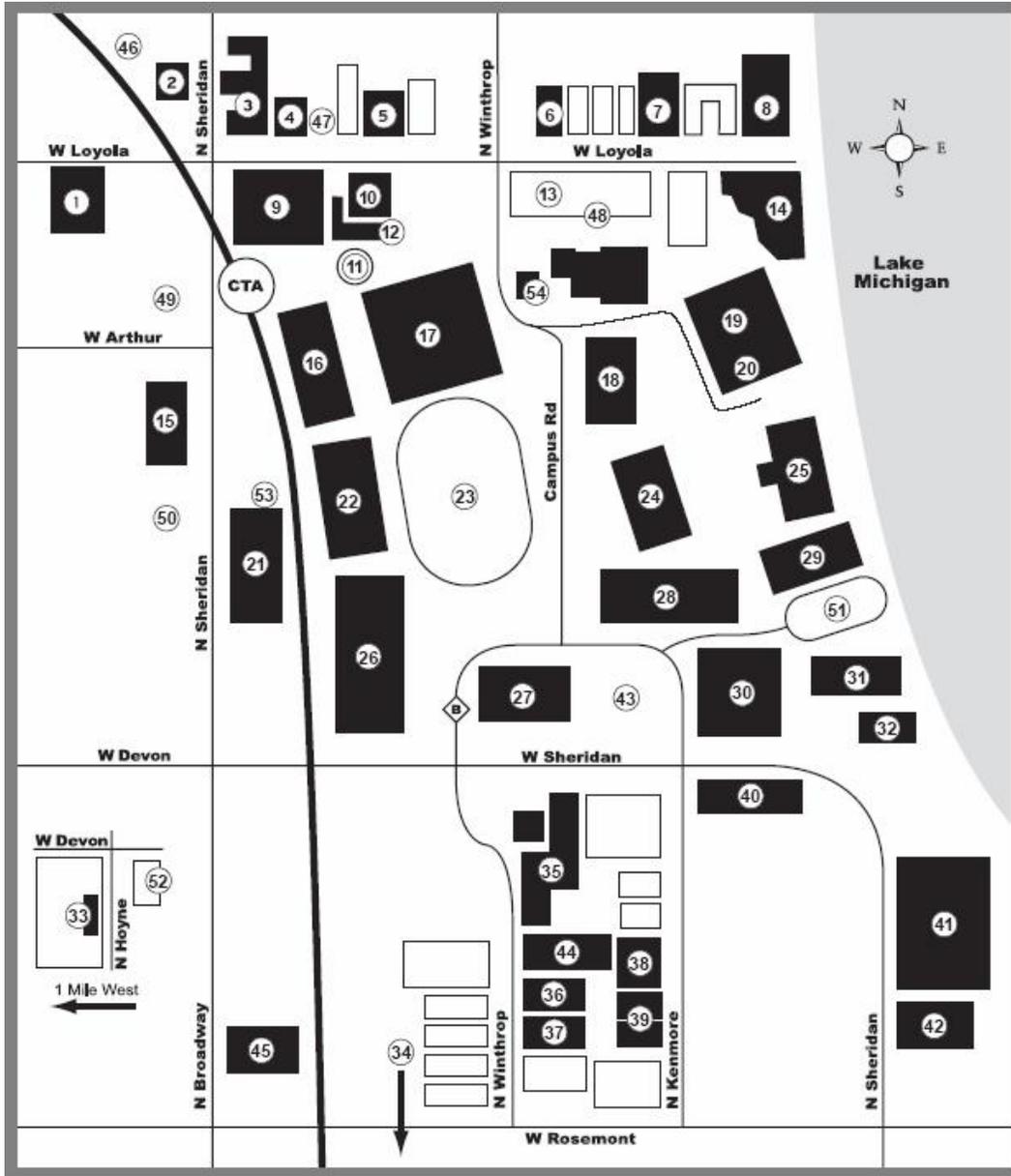
**From the North:** From north Sheridan Road: Since there will be no left turns onto W. Sheridan at rush hour, continue to Rosemont Ave. Go left on Rosemont to Kenmore and straight onto campus. Continue around Campus Drive to the high rise parking structure (Bldg 26 on the map).

**From the Edens:** Exit Edens Expressway at Touhy going east. Take Touhy to Sheridan Road and turn right (south) on Sheridan. Since there will be no left turns onto W. Sheridan at rush hour, continue to Rosemont Ave. Go left on Rosemont to Kenmore and straight onto campus. Continue around Campus Drive to the high rise parking structure (Bldg 26 on the map).

**From downtown or south:** Take Lake Shore Drive (LSD) to Hollywood (as far as it goes) and turn right onto Sheridan Road. Continue until you reach the bend in Sheridan. After the bend is a stoplight. Turn right onto Campus Drive and continue to the high rise parking structure (Bldg 26 on the map).

**Via El trains:** Take the Red Line north to the Loyola Stop (near the end of the line, right after Granville). This is marked CTA on the map. Cross Sheridan Road onto the campus (by building 16 on the map). Go straight to Campus Road and look for Cudahy Science (Physics Building), the one with the green dome on top (Bldg. 24 on the map).

**Cudahy Science** (Physics Building) is the one with the green dome on top (Bldg. 24 on the map). We will meet in room 202. Signs will be posted.



**LOYOLA UNIVERSITY CHICAGO**  
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