

ISPP REMINDER

March 2013

OUR NEXT MEETING...

...is at
Loyola University
Wednesday March 6
6:30 – 9 pm

Scroll down for a map and directions.

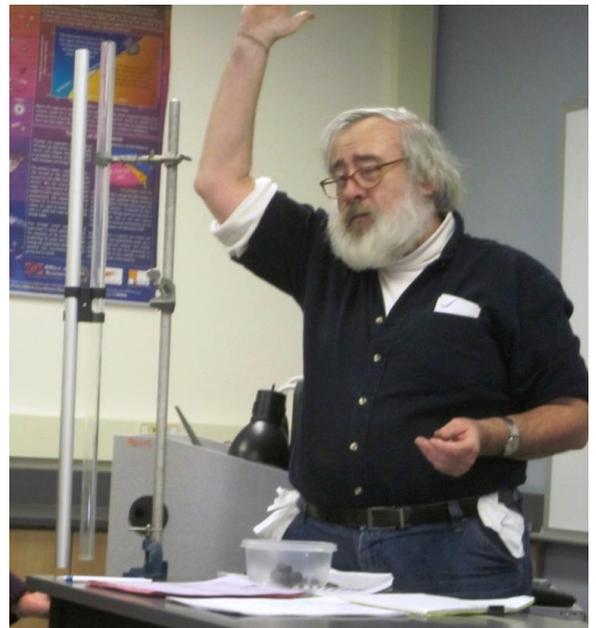
FUTURE MEETINGS...

March 16	CSAAPT – Glenbard South High School
Apr 10 (W)	Lake Forest College (Bailey Donnally/Mike Kash/Scott Schappe)
May 6 (M)	Northwestern University (Art Schmidt)
June 4 (T)	MSI, tentative (Ruth Goehmann)

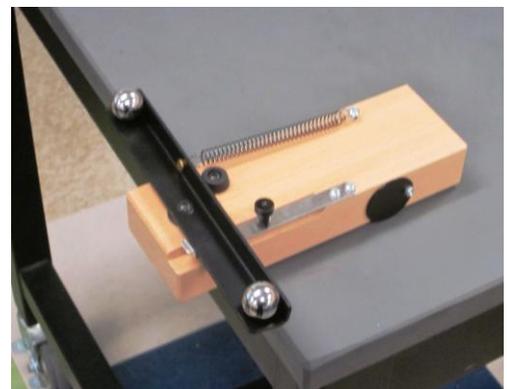
AT OUR LAST MEETING...

We were welcomed to Northeastern Illinois University by **Paul Dolan** with a phenomenon. He had a clear plastic tube and an aluminum tube mounted on the demonstration table. He showed that neither tube was magnetic and dropped a magnet down each in turn. It fell much more slowly down the aluminum tube due, he said, to eddy currents in the aluminum conductor.

Paul wondered if he could do the same thing rolling a disc magnet down an aluminum ramp. He found the ones he had were slightly magnetic due to iron impurities and his disc would not roll.



Paul also had a small device with a bar on a pivot. A spring was attached to one end of the bar. The spring was under tension when Paul placed two steel balls on the bar. When the bar was released the bar pivoted dropping one ball and throwing the other a meter or two across the room. You could hear them hit the floor at the same time.



Then Paul introduced many students from NEIU and **Debby Lojkutz** (Joliet West High School) passed out five new teacher bags to NEUI's MSTQE future teachers.

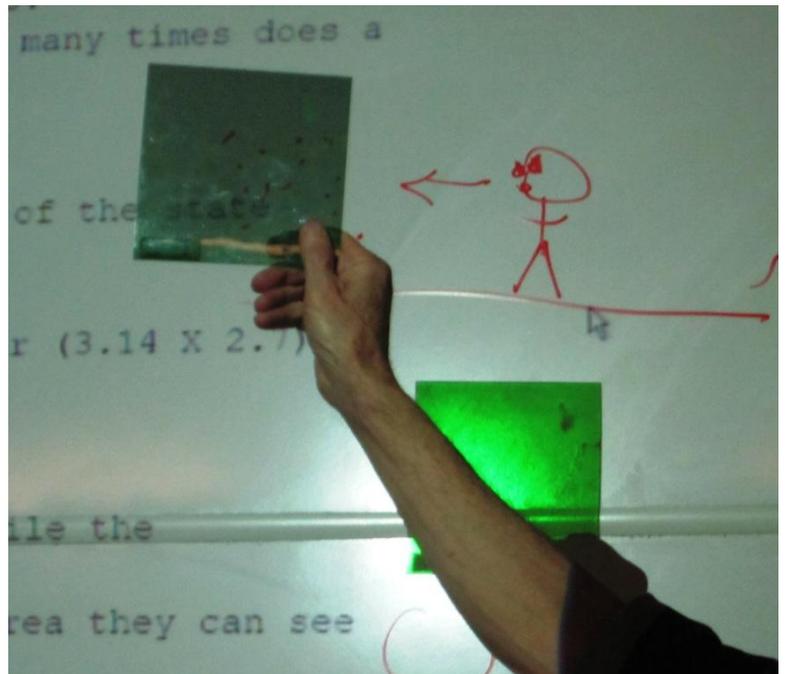


Roy Coleman asked a nice discussion question: “What would our environment be like if water did not expand between 4° and 0° but continued to contract like most substances?” Several of us had ideas. Roy also suggested the SMILE site at www.iit.edu/~smile/ph8804.html for additional ideas (as well as www.issp.info)

Kevin McCarron (Oak Park-River Forest High School) passed around a star chart for visually-impaired students.

Rich DeCoster mentioned a few astronomy programs for high school students including one at Yerkes Observatory in Williams Bay Wisconsin.

While Rich was discussing the formation of a rainbow and the fact that it was plane polarized he was waving a Polaroid sheet in front of projector. We noticed the sheet projected as a magenta in one orientation and green in the other. **Paul Dolan** said the white light we see is red and blue in one polarization and green in the other. We didn't pursue why this should be, but it seemed to be true.



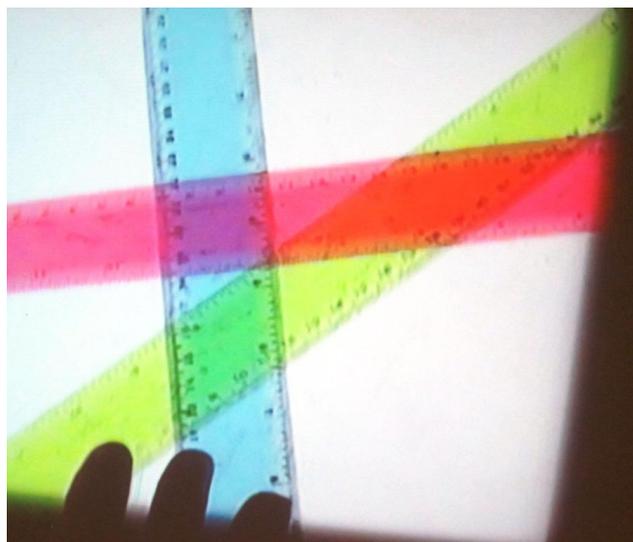
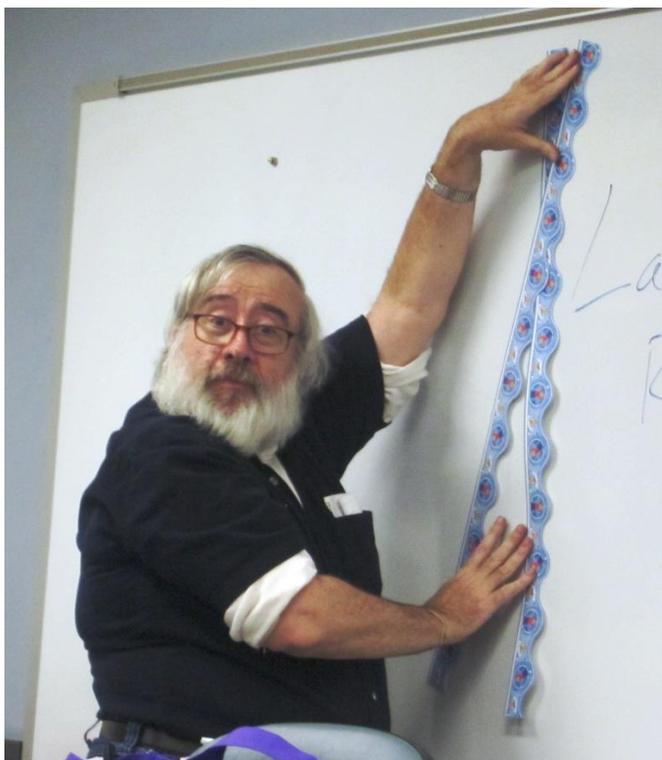
Pete Insley brought geometry problem he found interesting. He had always wondered why so many very smart mathematicians spent so much energy trying to “square the circle” or construct a rectangle with an area equal to a circle. It was finally proven impossible because π is irrational (that is: π cannot be expressed as a fraction).

Pete found a proof from Hippocrates who lived about 100 years after Pythagoras that used the Pythagorean Theorem to prove the area of a certain triangle was equal to the areas of a couple crescents.

To draw the problem, first inscribe a right triangle using the diameter of a circle as the hypotenuse. Then use each leg of the triangle as a diameter of a new circle. As soon as you see the two new semicircles must have the same area as the original semicircle it's easy to see the two crescents formed must have the same area as the triangle.

I hope **John Milton** managed to get a picture of the diagram but I decided when I got home that the phenomenological way to do the problem would be to cut it out of a poster board. So I did that and will show it at future meeting.

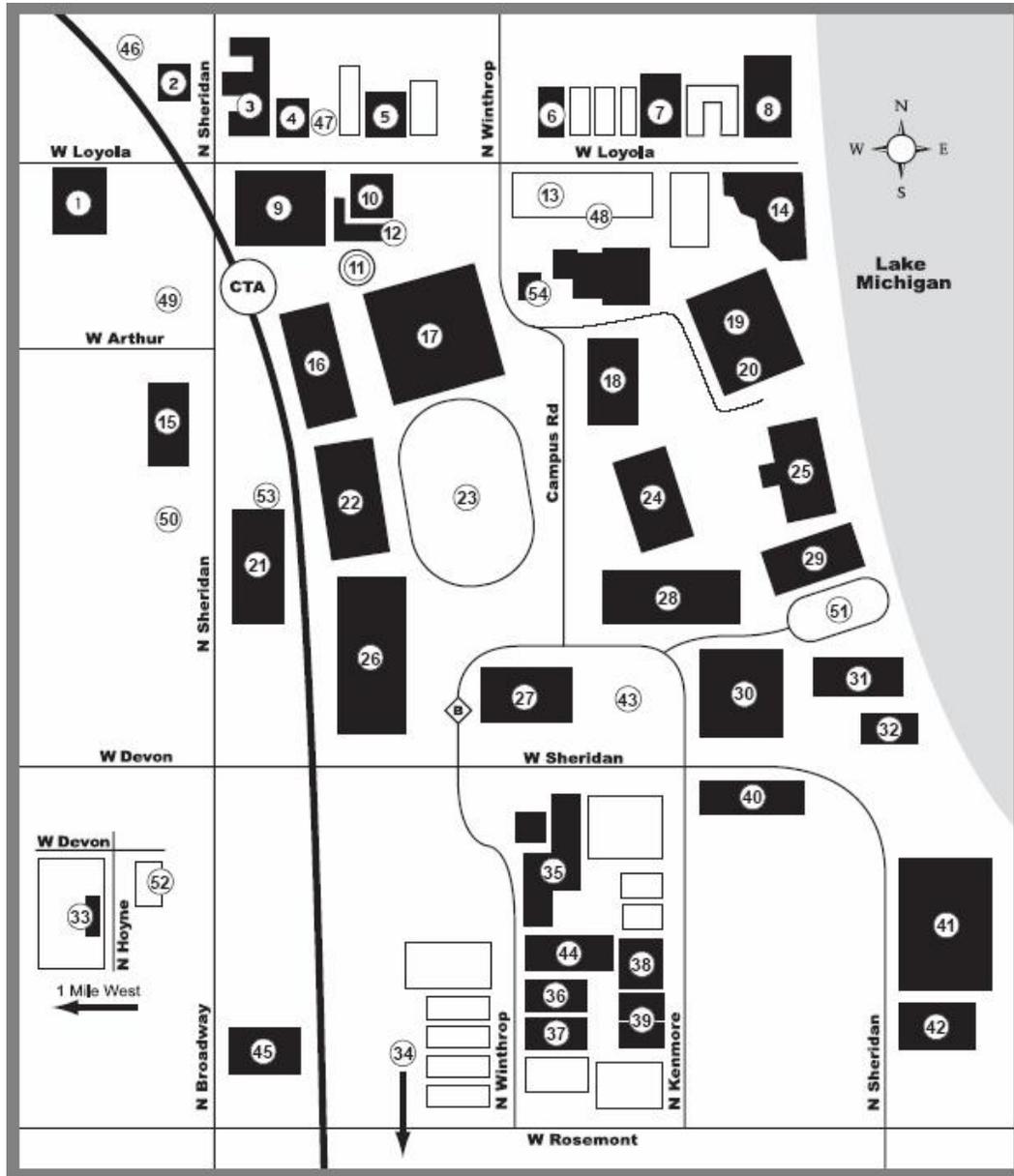
Paul Dolan ended the meeting with a few giveaways. He had some wavy edging that looks like bulletin board decoration that he thought could be used to show wave interference. He also had a PhotoShopped photo of a woman with four eyes (disturbing!). And he had some transparent colored rulers he thinks can be used for color adding (or subtracting).



Thanks for hosting Paul! Be sure to join us March 6th at Loyola University.

Submitted by Pete Insley

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
Lake Shore Campus 6525 N. Sheridan Rd., Chicago, IL 60626, 773-274-3000

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).