

OUR NEXT MEETING...

...is at

DePaul University
 Thursday October 22
 6:30 – 9:00
 Eric Landahl (773-325-3722)

FUTURE MEETINGS...

Date	Location	Contact
November 14 th (Sat)	Roosevelt University*	Brent Barker
December 1st (T)	Niles West HS	Martha Lietz
January 20th (W)	Elmhurst College**	Brian Wilhite
February	Lane Tech High School	Karlene Joseph
March	Loyola University	Gordon Ramsey
April	Lake Forest College	Mike Kash

*CSAAPT Meeting

**Tri-Phys Meeting

At our last meeting...

...at Illinois Institute of Technology, Grant Bunker, physics chair, made us welcome with coffee and rolls. Several of his colleagues were present: Ray Burnstein (retired), Carlo Segre, and Al Glodowski.

Announcements. There will be an International Conference on High Energy Physics in Chicago in August 2016. There should be an opportunity for high school teachers to attend a plenary session. **Pete Insley** suggested we discuss this further at the DePaul meeting. **Dan Cahill** told us of progress in his efforts to make CPDUs available at our meetings by having ISPP and CSAAPT identified as affiliates of AAPT. The fall meeting of the Chicago section of AAPT will be at Roosevelt University on Saturday, November 14 (<https://sites.google.com/site/chicagoaapt/>). Aaron Titus will be the keynote speaker.

A new teacher bag was presented to **Elizabeth Woltman**, a physics education student at IIT.

Carlo Segre showed us a small IR camera attached to an iPhone. We could see thermal patterns quite clearly. (I found this camera, or one like it, at <http://www.cnet.com/news/heat-seaker-thermal-imaging-camera-for-the-masses/>).



Al Glodowski told us about a small 3-D printer that currently sells for about \$350! The printing medium is a thermalized resin. He showed a picture of a small lab jack he made that holds up to 25 pounds. (I found a link at <https://printm3d.com/themicro/>).

Al suggested looking at *thingiverse*, *yeggi* and *youimage?* for design files for 3-D printers.



Martha Lietz passed around a container of Tic Tac mints and asked us each to take one. Then she had us drop the mint from about 25 cm above the table top and observe. We saw the mint bounced higher after the second bounce on the table than after the first. After repeated observations we saw that oblong-shaped mint rotated at a different rate after each bounce. We were able to conclude that while the total kinetic energy may not have changed much after a bounce, its distribution into translation and rotational energy did change. Martha gave us a facsimile of physics teacher Kelly O’Shea’s Physics! Blog!. The first item was Tic Tac Bounce. This leads to a short slow motion video of the bouncing mint; the change in rotation rate is clear to see. There is a very nice accompanying discussion of how she integrates this into her introductory discussion of energy. There are many other interesting topics covered on the blog.

Al Glodowski passed around an electromagnet in which a D-cell had replaced a 9-Volt battery. The electromagnet was stronger! Why? (You can find some discussion of this on Yahoo.)



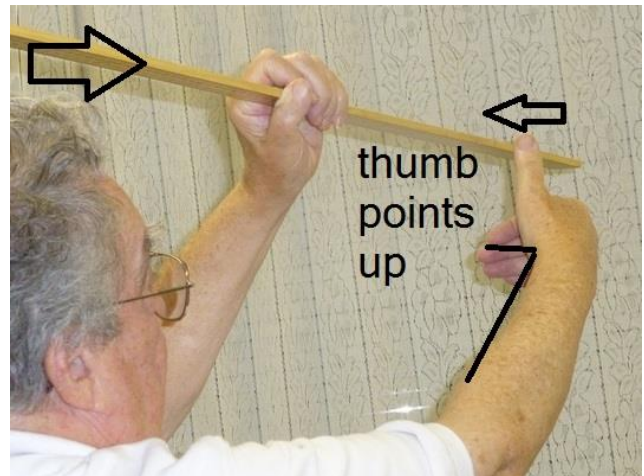
Kevin McCarron (Oak Park & River Forest HS) presented a “slide show” about his trip in a NASA plane outfitted with a telescope, connected with the “Telescopes to Tanzania” project. The show included both visible light and IR pictures. We saw a picture of the dwarf planet Ceres. It indicates that Ceres has an icy surface and an atmosphere.

Pete Insley modified a “Reaction Rocket” he bought at American Science and Surplus for about \$2.95. A plastic tube about 16 cm long is attached to a superball about 2 cm in diameter. A second tube (“rocket straw”) 10 cm long slips over the 16 cm tube and rests on the ball. When the unit is dropped the rocket straw is propelled a considerable distance, depending on the original height of the unit. Martha Litz pointed that this is a small version of dropping a basketball with a tennis ball or ping pong ball on it – harder to do in a classroom. A good discussion of energy and momentum conservation should follow. Pete also bought two super balls for 30¢ each. He wants to attach them via a pin imbedded in one ball. Someone mentioned a similar toy, the Astroblaster (far right picture, available from Arbor and several science toy sites). It has four balls.



Roy Coleman said he recalled an education class at IIT taught by George Ross. George said that in the last 10 minutes of the first day in class, the teacher should show the students a phenomenon they had never seen before and ask them to discuss it. Roy reminded us that he had a clock in his classroom in which the hands rotated “counter-clockwise,” and the numbers to the left of twelve were 11, 10, etc. (He showed us his wristwatch, which had the same “backwards” arrangement.)

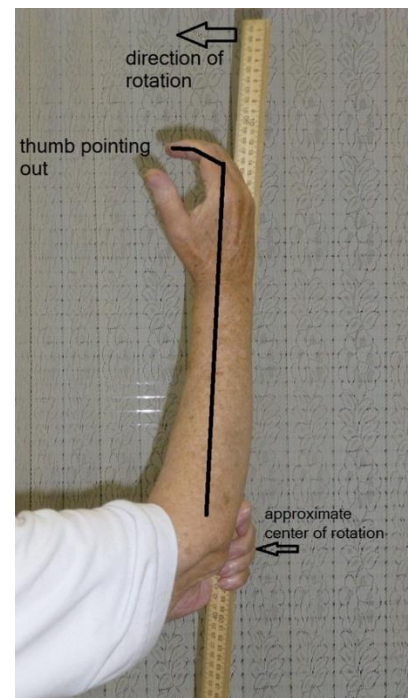
He grasped a meter stick with four fingers, so that his thumb pointed away from the plane of the stick’s rotation (the angular velocity vector?) In the picture to the right, the stick is rotating horizontally and Roy’s thumb is pointing in the vertical direction, normal to the plane of rotation.



In the second picture the stick rotates in the vertical plane and his thumb points out of the plane of the paper. Neat!

This concluded our meeting and we left with new ideas for presenting phenomenal physics, and with a container of Tic Tacs.

Many thanks to our hosts at IIT.



To get to DePaul University:

From the north and northwest

From the Kennedy Expressway (I-90/I-94) exit at Fullerton Avenue and turn left (east.) The Lincoln Park campus is approximately two mile from the expressway on Fullerton Avenue at Kenmore Avenue.

From the west

From the Eisenhower Expressway (I-290), turn onto the Kennedy Expressway (I-90/I-94) heading toward Wisconsin. From the Kennedy Expressway (I-90/I-94) exit at Fullerton Avenue and turn right (east.) The Lincoln Park campus is approximately two miles from the expressway on Fullerton Avenue at Kenmore Avenue.

From the south

From the Dan Ryan Expressway (I-90/I-94) continue as the expressway becomes the Kennedy Expressway (I-90/I-94). Exit at Fullerton Avenue and turn right (east.) The Lincoln Park campus is approximately two miles from the expressway on Fullerton Avenue at Kenmore Avenue.

From Lake Shore Drive (north or south)

Exit Lake Shore Drive at Fullerton Avenue. Head west for approximately three miles. The Lincoln Park campus is located at Fullerton Avenue at Kenmore Avenue.

Parking

The lot just north of Byrne hall is not available for parking. Evening on-street parking in much of the area is restricted. If you cannot find on-street parking, use the high-rise building indicated on the map.

We will give you forms at the meeting to avoid parking fees.

