

## ISPP REMINDER

May 2013

### OUR NEXT MEETING...

...is at  
**Museum of Science and Industry**  
Tuesday June 4  
6:30 – 9 pm

Scroll down for a map and directions.

### AT OUR LAST MEETING...

Welcoming us to Northwestern University, **Art Schmidt** opened the meeting with a DVD of a previous meeting (when we were all younger) and a series of helicopter activities.

He began with a set of blades cut out of heavy paper that flew somewhat like a Frisbee. We each got a sheet to cut out and try at home.

Then Art brought out a whirligig which is two blades on a stick. When the stick is spun between your palms and released the blades fly perhaps five meters high.

Art moved on to a balloon helicopter composed of a small balloon and three blades. The balloon is blown up and attached to the blades. When released the air from the balloon powers the helicopter. We each got one to take home and try. I got mine to work after a few tries.

Finally, Art brought out a small helicopter with a remote control. After a couple tries it flew up to the ceiling of the room. Art asked how it would work in a vacuum. He had the Northwestern vacuum and Bell jar. He put the copter in and evacuated the jar. When he started the copter it flopped around on the bottom of the jar. When he let the air back in the copter flew to the top of the jar.

One new teacher bag was presented. Sorry, we didn't get the name of the recipient, but will try to post it in the next Reminder.

**John Milton** (DePaul, retired) reminded us that there will be a hosts dinner at the Museum before the June 4 meeting, to work out next year's meeting schedule. Host school members will receive a letter from Eric Landahl. He also asked that members consider serving as authors for the Reminder. Currently John, Pete Insley, ASrt Schmidt, and Martha Lietz serve as authors.



**Paul Dolan** (Northeastern Illinois University) brought some plastic pop bottles and a couple bottle pumps. One pumped air in so he added an Easter marshmallow “peep” and crushed it by pumping it up. He asked if it would resume its shape if he let the air out. It didn’t.

Then Paul put a fresh “peep” in and used the pump to evacuate the air. It was hard to see any change in the “peep.” We put a couple in the Northwestern Bell jar and they more than doubled in size. When we let the air back in they shrank again.



Paul said his pumps were available at Arbor Scientific.

Paul also brought a Cartesian diver that didn’t work. He got lots of advice.

**Rich DeCoster** had several items. First he recommended the Yerkes Group at [www.starsatyerkes.net](http://www.starsatyerkes.net) Check it out if you have students who would like to see some actual astronomical data.

Second, he was watching a black and white movie on TV and noticed the reflection from a black surface was green. He explained that the white on the TV is actually red, green, and blue. The red and blue are polarize in one direction and the green is polarized at right angles to the red and blue. The surface absorbed one direction of polarization (see Brewster’s Angle).

Third, he brought CFL (compact fluorescent light) bulbs marked with different temperatures: 2500K, 3500K, and 5000K and a lot of different information. Art got out some diffraction gratings and we all recognized the mercury lines from all three bulbs. Other than that it was hard to see any differences in the spectra. I believed that I would see a difference if I tried it in a lab setting.

Finally Rich recommended a Malaki program that analyzed colors. The spectra from the bulbs should show a difference using this program.

**John Milton** recommended a website that compares different kinds of light bulbs (incandescent, CFL, and LED): <http://www.designrecycleinc.com/> Scroll down to “More on comparison chart” and click.

A few meetings ago **Paul Dolan** suggested the pi could be found by inscribing a circle inside a square and then choosing random points inside the square. The ratio of total points to points inside the circle equals pi over 4. With only 100 points Paul got 2.8.

**Pete Insley** cut a quarter circle out of a square and **Margaret Johnston** balanced them on a stick. The distance from the fulcrum to the quarter circle was 7.5cm. The distance from the fulcrum to the remaining part of the square was 28.5cm. Pete wrote the torque equation: Area of quarter circle times 7.6 equals other area times 28.5, and challenged the teachers to find  $\pi$ .



**Roy Coleman** reminisced about Cartesian divers; and then told us C4 and gunpowder have the same burning energy and then asked why C4 was so much more explosive? His answer was that C4 burned 1000 times as fast as gunpowder so its power was 1000 times as great.

**John Milton** brought out his car remote control and asked what kind of radiation it was emitting? What would block the radiation? Why did a car salesman put the remote under his chin to use it? Another put it on his forehead. Those are a few good questions. Maybe we'll have some answers at future meetings.

Look forward to seeing you at Museum of Science and Industry. Who will receive this year's **John RushAward**?

Submitted by Pete Insley.

ISPP on the Web: <http://www.ispp.info/>

## Directions to MSI

**From the north.** Head south on Lake Shore Drive and turn right onto 57th Street. Get in the left lane and follow 57th Street around to the Museum's west side. Turn left to enter the Museum's underground garage.

### **From the south.**

**Via I-94:** Take I-94 West to the Garfield Boulevard exit (exit 57). From the exit ramp, turn right and continue east on Garfield/55th for approximately one mile into the entrance of Washington Park. Bear right onto Morgan Drive for a half-mile, and bear right again onto Payne Drive for about a third of a mile, then turn left on Midway Plaisance. Continue east on Midway Plaisance for about a mile until it ends at Cornell Avenue, then turn left. You will see the Museum ahead on your right. Turn right at the 57th Street stoplight to enter our underground parking garage.

**Via the Indiana Toll Road and Chicago Skyway:** Exit the I-90 Chicago Skyway at Stony Island Avenue. Continue north on Stony Island for about a mile. As you approach E. 68th Street, move to the right two lanes so that you can bear right to follow Cornell Drive. Take Cornell Drive north about one mile, and turn right at the 57th Street stoplight to enter the parking garage.

**From the west.** Follow 290 East or 55 North to Lake Shore Drive. Go south on Lake Shore Drive. Exit right on 57th Drive. You'll need to be in the left-hand lane as you follow the curve around to the west side of the building and Cornell Drive. Turn left to enter the Museum's underground garage.



**Park in the garage.** Gates to be up when you leave, as last year.

Go up one flight of escalators and follow the signs (corridor to the right) to the Columbian Room.