

OUR NEXT MEETING...

...is at
IIT
Wednesday September 9
6:30 – 9:00

FUTURE MEETINGS...

Date	Location	Contact
September 9th (W)	IIT	Chris White
October (Th)	Niles West HS	Martha Lietz
December 1st (T)	DePaul University	Eric Landahl
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
May (M)	Northwestern University	Art Schmidt

*Tri-Phys Meeting

AT OUR LAST MEETING...

...at Northwestern University on May 4

We arrived at Northwestern University a little early to find **Tom Senior** outside blowing giant bubbles. I saw several students with their phones and tablets out taking videos of them. You could also note interesting air patterns as the bubbles rose up the sides of the buildings. Thanks Tom. Maybe next year we should do a “make and take” so everyone can have one. What do you think?

Moving inside, **Roy Coleman** reminded us it was Star Wars day...May the Fourth...

John Milton began by throwing a ball to **Art Schmidt** and asking whether knowing the horizontal position as a function of time and the time of flight, could we determine the angle and vertical position assuming no air friction. I think yes, but I haven't tried it yet.

John then recommended a site call *Statcast* recently debuted by Major League Baseball which offers interesting statistics and graphs based on their high-tech system which measures and tracks everything that happens on the baseball field.

After the announcements **Art Schmidt** passed out a small booklet on optical illusions and the giveaway which was a small (10cm diameter) plastic spinner and four discs to spin on it. Each disc produced a different illusion; some were difficult for me to see but a couple were really clear. The spinner came with explanations but the booklet did a better job of it.



Martha Leitz (Niles West High School) brought us a nice question from angular dynamics. If you drop a toilet paper roll and at the same time drop another but hold the paper and make it unroll, how high should the second roll be if the first roll is dropped 2m and they are to hit the floor at the same time? She showed videos of the students trying their calculations. The students were totally involved. She helped lower level students with the equations but left her AP:C students with just the problem. If they didn't finish it they were to finish it at home and video the experiment and email it to Martha.

Rich DeCoster found a computer program that calculates the evolution of a star from a gas cloud to final collapse; *MadStar E2*. You decide on the mass and composition of the cloud and the program calculates density and numerous other characteristics over the life of the star. The calculations can then be organized into an Excel spreadsheet. You get thousands of data points from this program.
<http://www.astro.wisc.edu/~townsend/>

Karlene Josphe (Lane Tech) was awarded this year's *Harald Jensen Award* for contributions to physics education in general and ISPP in particular. Congratulations Karlene!

She brought a baking pan fitted with a plastic top. She put some pith balls in it and charged the plastic with some paper. When she touched the plastic with her hand the pith balls moved. Then she tried replacing the pith balls with small paper scraps (they looked like hole punch bits) and they bounced around like crazy. She said the students were very impressed.

Karlene then used a pie plate and Styrofoam cup electrophorus to charge a demonstration electroscope to show the students what is happening to the paper bits. When the students try it for themselves they feel the small shock when the charges travel to and from the pie plate. She asked the students to calculate the work done on the paper bit given the density of the paper and the depth of the baking pan. She also tried to use the digital display we got at a previous meeting to show the static charge.



Pete Insley took apart last month's giveaway and passed around a baggie containing the parts of the color LED light from Lake Forest.

Debby Lojkutz (Joliet West High School) brought a bag of pill boxes to add to the couple hundred **Art** was giving away. Someone suggested that small Leyden jars could be made out of them with some aluminum foil and a paper clip. Another take home?

Debby also brought two Pasco carts with magnets installed that repelled each other. She held the carts various distances apart and then released one. Measuring the original distance apart and the distance traveled by the released cart, she has students make an x vs y plot and try to guess the relationship and write an equation that fits the curve

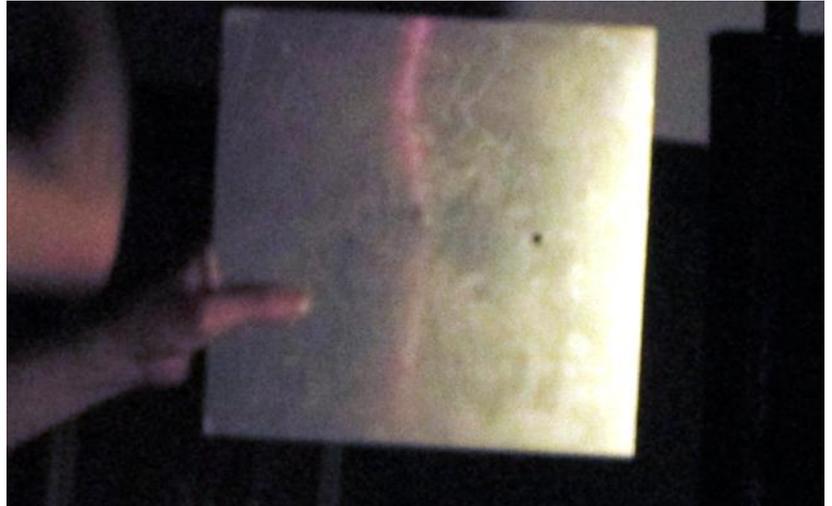


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Art Schmidt ended the meeting with a couple demonstrations. Remembering the color addition of the Lake Forest LED bulbs he got out a sodium lamp and some old sodium protection dark glasses. He held the glasses in front of the light and they worked fine. You couldn't see the light through the glasses. Then he used a laptop computer to get a nice yellow line that you could see through the glasses. Art explained the yellow on a computer is really red and green, not true yellow.

Then Art got out a bulb with a long thin filament (they are called display bulbs). Holding up a metal sheet with two small holes, he turned off the lights, and projected two filaments on a screen, one from each hole. If he covered one hole, one filament disappeared. If he covered the bottom of the filament the top of the filament disappeared. He waved his fingers in front of the filament. Then he replaced the metal sheet with a piece of acetate with two black dots the same size as the holes in the metal. Projecting, we saw two filament shadows. Again he covered various things but it was too dark for me to get everything down. You'll just have to try it yourself. I'm going to.



Thanks **Art** for a great meeting!

Look at ISSP on the Web: <http://www.ispp.info/>

Reported by Pete Insley

Parking Information for IIT. Park in the A4 Visitors lot, east side of State Street, a little south of 31st St. Meeting will be in the **Life Sciences Building**, 31st and State, southwest corner. Room number will be posted.

