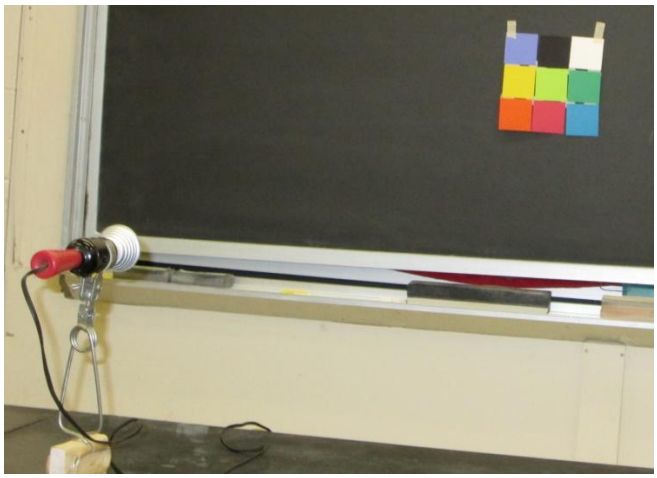
**ISPP Reminder** **April 2015**

**OUR NEXT MEETING…**

…is at **Northwestern University**
**Monday**
**May 4, 2015**
**6:30 pm to 9:00 pm**
**Go to the end for directions and map.**

**AT OUR LAST MEETING…**
**…** at **Lake Forest College** on April 15.

We were greeted by physics chair **Mike Kash**, Then **Tom Senior** set up an interesting item, a 16 color LED spotlight with remote control. The unit has red, blue, green LEDs that can be turned on and off individually or in pairs to produce color combinations. With all three on you see white. Tom put a set of colored paper squares on the board and we could see the way in which these squares reflected different colors. Tom also put up some cloth hangings and we saw how they looked when illuminated by various colors.



**THEN…** we found out that this was the giveaway for this meeting! We were give a bulb, the control, and an information sheet that Tom took from the web. (Look on the web at E27 3W 16 Colors RGB Remote Control Spotlight Bulb(85V-265V.)

Next, we heard several **Announcements…**

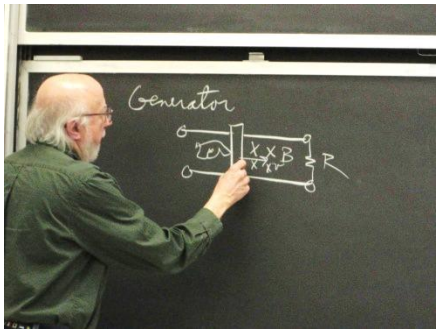
**Paul Dolan** is in slow recovery, with an expected rehab of as much as two years. The Fall CSAAPT Section meeting will be at Roosevelt University. It is hoped that Aaron Titus, from High Point University in North Carolina will be a featured presenter. Aaron is a well-regarded physics educator. A **High School Teachers Physics Camp** will be offered on Sunday, July 26, following the AAPT summer meeting, at the American Center for Physics in College Park, Maryland. More information about the schedule and the camp can be found at https://sites.google.com/site/physicsteachercamp/ The **Jensen Award** was to be presented to Karleen Joseph at this meeting, but scheduled parent-teacher meetings prevented her from attending. The award may be presented at Northwestern. We were informed that our friend and colleague from Lake Forest, **Bailey Donnally**, passed away in the fall. There may be construction on the Lake Forest campus next year that could affect our meeting date.

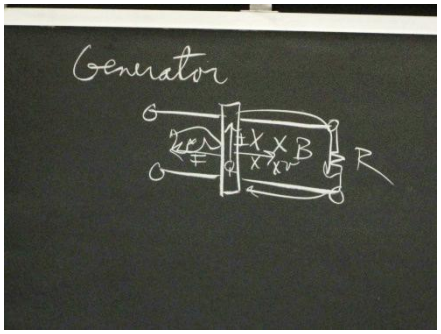
A new teacher bag was presented to **Danielle Campanella**, who teaches middle school science at East Lake Academy in Lake Forest.

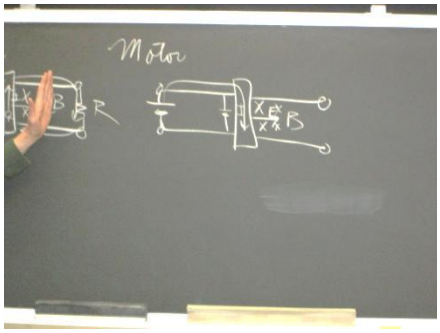
**Art Schmidt** (Northwestern U), assisted by Danielle, illustrated some of the features of the Genecon, a hand-crank low voltage device offered by Arbor Scientific. (http://www.arborsci.com/genecon) As she cranked, Danielle could feel the difference in resistance to her effort between the Genecon terminals open and shorted.

Then Art connected two Genecons, and when the first was cranked the second began to behave as a motor and its crank turned. The unit was connected to charge a 1 Farad capacitor and when the crank was let free it began to rotate as the capacitor discharged through the unit. Finally, we saw a movie Art made of connecting the unit to a 1 Henry inductor. A small effect is observed. References: *Phys. Teach.* **52,** 422-425 (Oct. 2014), *Phys. Teach.* **52**, 518 (Dec. 2014)

**Art** made some neat blackboard illustrations of the basic physics behind generators and motors: a conductor moving through a magnetic field and a current in a moveable conductor in a field.




**Martha Lietz** (Niles West High School) told us about a three volume series, *Teaching High School Physics*, by Carl Wenning and Rebecca Vieyra. The books are in kindle format but Martha said it is possible to read them on a computer. For information go the Carl Wenning's website: https://sites.google.com/site/teachinghighschoolphysics/

If you Google "martha lietz direct measurement videos" you will get information on using the Direct Measurement Videos produced at Carleton College. Detailed information is available at http://serc.carleton.edu/dmvideos/index.html. Email Martha (marlie@d219.org) for copies of the worksheets she uses.

**Mike Kash** let a constant velocity cart move between the poles of a magnet. A coil was attached to the cart; its axis was in the direction of the field and it was connected to a moving coil galvanometer. There was meter movement due to the flux change as the cart moved through the field. The question was asked: how did this look in the frame of the car. Reference was made to general relativity, but I missed

that. Two You Tube movies from Minute Physics (Veritasium) are helpful for looking at the relation between magnetism and special relativity

https://www.youtube.com/watch?v=hFAOXdXZ5TM
and
https://www.youtube.com/watch?v=1TKSfAkWWN0

We were then shown a giveaway from the recent Physics Northwest meeting, a coil made of bare copper wire. Two small cylindrical magnets are attached to ends of a AA battery, as shown here. This item is placed inside the coil and given a push and it continues to move through the coil. (Does the copper form a return conducting path from one magnet to the other?) Reference was made to an article by Chris Chiaverina in *The Physics Teacher*: **TPT**, Vol. 42, # 9, **Dec**. **2004**, p. 553


**Alan Insley** had taken apart the spotlight we were given and showed us that in its lens system there are three LEDs (RGB). Inside also is a circuit that controls the response to the remote.

Thanks to Mike Kash and his Lake Forest colleagues for a phun physics evening.

Look at ISPP on the Web: http://www.ispp.info/.

Reported by John Milton

**LINK** for directions to Northwestern Evanston Campus
http://www.northwestern.edu/visiting/directions/index.html