

Minutes  
Physics West Meeting  
September 13, 2011

Location: North Central College

Hosts: Paul Bloom, David Horner

Other Attendees: Andrew Morrison, Annie Rubino, Dan Rubino, Brendan Wischweh, Tressa Link, Mark Rowzee, Geoff Schmit, Mark Ailes, Bruce Medic, Nick Szarzak, Nickey Walker, Jim Vetrone, Gil Koenigsaecker, Pat Gennardo, Branson Lawrence, Chris Aderhold, Katherine Seguino, Cynthia Lilagan, Rob Lang

#### I. Demonstrations & Announcements

##### A. Mark Rowzee (Naperville North)

Mark showed a presentation of the NNHS Physics Club 2011 Space Balloon Launch highlighting some of the pictures, pressure, temperature, and radiation data taken while in flight up to over 103,000 feet. The balloon was launched from El Paso, IL and retrieved in University Park, IL approximately 3-1/2 hours later. The launch next Spring will involve other schools' scientific payloads and will be viewable at the NNHS "mission control center" where chase video and position data will be streamed live to the student audience.

##### B. Geoff Schmit (Naperville North)

Geoff shared the Marshmallow Challenge as a first day of school activity. Details are here: <http://marshmallowchallenge.com/Welcome.html> and the TED video is here: <http://www.ted.com/talks/view/lang/eng/id/837>.

ASME will be sponsoring a Microcontroller (e.g., Arduino) Workshop most likely on Saturday, November 12th. If you are interested in contributing in some way (maybe you have something cool to exhibit), please contact Geoff at [gcschmit@gmail.com](mailto:gcschmit@gmail.com)

Geoff also plugged the Global Physics Department Meeting which is every Wednesday at 8:30pm. More information is available here: [http://globalphysicsdept.posterous.com/#!/>](http://globalphysicsdept.posterous.com/#!/)

##### C. Chris Aderhold (Glenbard East)

Chris shared Google Documents, specifically the 'Forms' tool that allows you create an online form that feeds directly into an online spreadsheet. He demonstrated that this can be used for 1) student information sheets that he gives at the beginning of each year, 2) organized collection of lab group data into one central and also 3) creating a very simple (and spam free) way of organizing a social get together for your science department. EDIT: 4) You can also use this to schedule retakes, test makes ups, and extra help.

- To do this, you will need a Google account (if you have Gmail, you already have this).
- Next you will need to go to Google Documents to sign in.
- Create a form (they have tutorials on YouTube of how to do many things with this tool).
- Email the form to yourself. Chris already has email lists for his classes, so he simply forwards them the link.
- Check on the spreadsheet to examine the data/responses.

D. Branson Lawrence (IMSA)

Branson shared motion labs that make use of the Apple iPad2. His lab handout may be found at <https://docs.google.com/document/pub?id=1yrXf1TfvthAek0JJC3gzWp28nHbAUxJFHZxbMNzWrpU>

E. Mark Ailes (Addison Trail)

Mark demonstrated a card trick that takes advantage of optical refraction. A corner of a playing card is glued to the bottom of a shot glass. With a large clear marble in the glass, you can't see the card because of distortion from refraction. The refractive indices of water and glass are fairly close, so when you add water to the glass the card becomes visible. He then shuffles the card so that the desired card always stays on the bottom of the deck. The cards are set out on the table in groups, and the students are then asked to select groups of cards. After each pick the teacher discards a batch of cards in such a way that the desired card always remains on the table. Finally one card is left - the one under the glass.

F. Jim Vetrone (Hinsdale Central)

Jim showed a hexbug (about \$6 from Target, Toys R Us, Radio Shack), which is a micro-robotic bug that vibrates in random circular motion. He asked his students to design experiments with these bugs and they came up with ideas such as hanging one from a string to induce waves, finding the critical ramp angle to climb, high speed video of the bug's motion, and tracking the bug's motion patterns in a tray of sand. The bugs are fun to watch, but also stir up student curiosity and good physics phenomena.

G. Andrew Morrison (Joliet Jr. College)

There is a shared Dropbox folder (dropbox.com) available for Physics West (and ISPP) use. Email me (amorrison@jjc.edu) if you want access to it, and I will add you to the shared folder.

The Illinois Science Education Conference (which is joint between ISTA, the Chicago Section and Illinois Section AAPT, and the Illinois Association of Chemistry Teachers) is coming up October 27-29. Early registration is due September 24th.

II. Make & Take: Build your own converter box

Andrew Morrison showed us his "converter box" for making connections between several different types of connectors: BNC, banana plugs, RCA, and phone plug. Attendees then assembled their own converter boxes in the North Central College electronics lab. Converter box photos and a parts list are shown in the Appendix.

III. Upcoming Meetings

October 11, 2011 Glenbard North High School

November 8, 2011 Glenbard West High School

#### IV. Appendix: Converter Box information

##### parts list

ABS project box ([All Electronics MB-113](#))

BNC jack ([All Electronics BNC-148](#))

Banana jack, black ([All Electronics 5-BP-B](#), [Radio Shack 274-725](#))

Banana jack, red ([All Electronics 5-BP-R](#), [Radio Shack 274-725](#))

RCA jack ([All Electronics RCMJ](#), [Radio Shack 274-346](#))

1/4" mono phone jack ([All Electronics PHJ-S](#), [Radio Shack 274-252](#))

##### suggested enhancement

3.5 mm mono phone jack ([Mouser 161-3142M-E](#), [RadioShack 274-248](#))

or

3.5 mm mono phone jack to RCA adapter ([All Electronics AD-12](#), [Radio Shack 274-871](#))

##### Photos

