

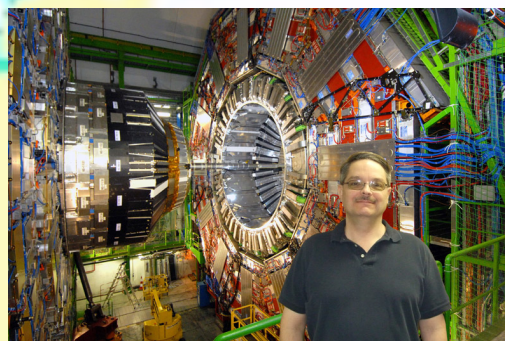


Fall 2012 Meeting Announcement and Program Schedule

Hope College, Holland, MI
October 6, 2012

Program Highlights

We are honored to welcome Dr. Don Lincoln as our featured speaker. He is currently Senior Physicist at Fermi National Accelerator Laboratory where he studies data from the Tevatron and the CERN Large Hadron Collider in Switzerland. A couple of his many glorious moments are being part of the teams that discovered the Top Quark and what is likely to be the Higgs boson.



Don will deliver the keynote address Saturday and facilitate an afternoon workshop on *What a kid needs to do to become a researcher*.

Door Prizes!!!

We have some great door prizes donated by various vendors including:

- Arbor Scientific: Gravity Ball
- Flinn: A Demo a Day
- Vernier: \$100 gift certificate and more!
- Plus additional door prizes from Pasco, Educational Innovations, and others.

Program Overview

Location: We will be in VanderWerf Hall using room 102 for the main meeting. The campus maps are at: <http://www.hope.edu/admin/campsafe/maps/index.html> Try the parking map, it may be easiest to read. Also Google maps should work by using the VanderWerf Hall address (27 Graves Place, Holland, MI 49422).

Registration: Registration cost is \$10 per meeting. Students and first-time attendees, though, may attend *free* of charge.

Parking: The best parking/building entrance option this time will be off of Graves Place. The lot south of Graves Place (and VanderWerf Hall) labeled "Church lot" will be the best place to park - feel free to ignore the Hope faculty parking signs. The entrance to the building is just under the "W" in the VanderWerf label on the parking map...we'll do our best to get signs out so folks can find us.

Lunch: Lunch options include local restaurants 2 blocks north (8th Street on the parking map) and the campus-dining hall. To dine on campus, the best option is Phelps dining hall. We've reserved a meeting room in the Hall, so folks could sit together after going through the dining hall food service area. MIAAPT attendees interested in eating in the campus-dining hall can purchase a meal ticket during registration Saturday morning and receive a discounted price of \$6.70; otherwise a charge of \$9.00 will be required at the entrance. Either option is cash only.

Hotels: For those who wish to stay overnight for the meeting try the following website:

www.hotels.com/de1731027/hotels-near-hope-college-holland-united-states/

Program Schedule – Saturday October 6th

- 7:30 – 8:00 am** **Registration/Morning refreshments**
Meeting fee: \$10.00 (FREE for students and first-time attendees)
Location: Use the Graves Place entrance of the VanderWerf Hall
- 8:00 – 8:10 am** **Call to order and welcome**
James Gell, Plymouth High School – MIAAPT President
Dr. Moses Lee, Hope College – Dean of Natural and Applied Sciences
Location: Room 102 VanderWerf Hall
- 8:10 – 9:40 am** **Contributed Presentations**
Location: Room 102 VanderWerf Hall
- 8:10 – 8:25 **University of Michigan Physics Hands-On Displays Project**
Dr. Carl W. Akerlof, University of Michigan—Ann Arbor (*cakerlof@umich.edu*)
- 8:25 – 8:40 **‘SCALE-UP’ at UM-Flint**
Chris Pearson, University of Michigan—Flint (*pear@umflint.edu*)
- 8:40 – 8:55 **Reflections on Transitioning to Studio Instruction**
Alan Grafe, University of Michigan—Flint (*grafe@umflint.edu*)
- 8:55 – 9:15 **Using Blackboard System For Formative Assessment in Physics Classroom**
Dr. Changgong Zhou, Lawrence Technological University (*czhou@ltu.edu*)
- 9:15 – 9:25 **Honors Physics Seminar-Reading Journal Articles With High School Students**
Steve Dickie and Serge Danielson-Francois, Divine Child High School (*falconphysics@gmail.com*)
- 9:25 – 9:40 **Using the Voltmeter as the R in an RC Circuit**
Michael C. Faleski, Delta College (*michaelfaleski@delta.edu*)

9:40 – 10:00 am Break

10:00 – 11:30 am Round Tables

4-year Institutions: Brad Ambrose, Grand Valley State University (*ambroseb@gvsu.edu*)

2-year Institutions: Scott E. Cochran, Kirtland Community College (*scott.cochran@kirtland.edu*)

High Schools: Don Pata, Grosse Pointe North High School (*Don.Pata@gpschools.org*)

Location: VanderWerf 102, VanderWerf 104, and VanderWerf B24. The actual assignment will be determined on the day of the conference.

The round table sessions are informal settings for peer support, networking, and discussion of academic issues specific to each group. Topics for discussion can range from creating laboratory exercises/experiments on a shoestring budget, utilizing the latest in off-the-shelf equipment and software, how to implement the new Flipped Classroom and Student Centered learning pedagogy, to how to reduce students' preconceived fears of physics, and any other item of interest.

11:30 – 1:00 pm Lunch

1:00 – 2:00 pm Keynote Address:

Hoopla in July: Did the LHC find the Higgs boson?

Dr. Don Lincoln, Fermi National Accelerator Laboratory (*lincoln@fnal.gov*)

Location: Room 102 VanderWerf Hall

Fireworks are normal for the Fourth of July, but this year's pyrotechnics were of a scientific nature, rather than merely an incendiary one. Scientists at the Large Hadron Collider announced their evidence resulting from their search for the Higgs boson. Dr. Don Lincoln is a member of one of the two teams involved in that exciting announcement. In his keynote address, he will describe what was found, what wasn't and will tell us what sort of new results the future will bring.

2:00 – 2:30 pm Puzzlers! And Door Prizes!

Location: Room 102 VanderWerf Hall

2:30 – 3:00 pm MIAAPT Business Meeting

James Gell, Plymouth High School – MIAAPT President

Location: Room 102 VanderWerf Hall

3:00 – 4:00 pm Workshops

Invited Workshop #1

What a kid needs to do to become a researcher

Dr. Don Lincoln, Fermi National Accelerator Laboratory (*lincoln@fnal.gov*)

Location: Room 104 VanderWerf Hall

While high school teachers and teaching-oriented faculty give students the crucial first steps into the fascinating world of physics research, when your students leave you they will encounter a myriad of challenges that are not addressed by even the keenest appreciation of Gauss' Law. A successful research career requires a complex blend of physics, social, and even political skills. In a world in which approximately 3% of graduating Ph.D.'s eventually become a professor at a research institution, knowing the pitfalls early on can substantially improve a student's chance of success. In this discussion, Don Lincoln, a senior physicist at Fermilab and adjunct professor at the University of Notre Dame, will share some of his thoughts and experiences, including choices he could

have made better. This workshop will begin with a short presentation and then become a very informal conversation.

Workshop #2

Active Galaxies: What is All This Energy?

Mandy Frantti, Munising Middle/High School (*mandy.frantti@mps-up.com*)

Location: Room B24 VanderWerf Hall

Current research in astrophysics is revealing astounding information about high-energy sources in the universe. Among them is the study of active galaxies and black holes. Workshop participants will engage in learning activities designed to reveal some of the conclusions that have been drawn from the research that can be used in the high school physics or astronomy class. NASA activities and materials that can be taken back to the classroom will be used during the workshop.

Abstracts for Contributed Presentations

University of Michigan Physics Hands-On Displays Project

Dr. Carl W. Akerlof, University of Michigan—Ann Arbor (*cakerlof@umich.edu*)

In 1969, Frank Oppenheimer founded the Exploratorium in San Francisco, providing a wonderful model for introducing science in a mode that was both fun and beautiful. This has been widely copied in many communities across the world. Physics students see the simpler demonstrations in introductory lectures but often don't get to explore more sophisticated examples until their senior year, if at all. This talk will illustrate seven displays that invite experimentation with various optical and mechanical concepts usually introduced only in the upper-level courses.

'SCALE-UP' at UM-Flint

Chris Pearson, University of Michigan—Flint (*pear@umflint.edu*)

Inspired in part by the work of Beichner ET. Al. (<http://www.ncsu.edu/per/scaleup.html>), during fall 2011 the introductory physics course environment at UM-Flint changed from a typical arrangement of large-lecture/small-lab to an integrated lecture-lab environment. Necessary infrastructure changes were made possible by a generous gift from a physics alumnus and the David Zick Active Learning Classroom was created. This talk will explain the learning environment and present observations from the initial year of use. Student performance and retention will be discussed along with faculty load and staffing changes. Student comments will be presented as well as lessons learned during the initial year.

Reflections on Transitioning to Studio Instruction

Alan Grafe, University of Michigan—Flint (*grafe@umflint.edu*)

After nearly two decades of my teaching college-level Physics in the traditional lecture/laboratory model, my colleagues and I made the decision to transition to the studio instruction model. Having now taught in this mode for two semesters, it turned out that the transition was more straightforward than initially contemplated. I will share what I have learned from this process and discuss possible future directions.

Using Blackboard System For Formative Assessment in Physics Classroom

Dr. Changgong Zhou, Lawrence Technological University (*czhou@ltu.edu*)

Various forms of formative assessments have been widely adopted in classrooms. One popular form is clicker questions. After instructor polls a question of a topic just discussed in class, and students answer with their

clickers, the instructor can immediately review the class performance and make a decision whether to move on to the next topic or to spend more time on the current one. To take advantage of clicker questions, schools and students usually need to invest in special hardware and software. We'd like to share with other teachers how we use existing technology infrastructure at Lawrence Technological University to implement clicker type questions without additional costs.

Honors Physics Seminar-Reading Journal Articles With High School Students

Steve Dickie and Serge Danielson-Francois, Divine Child High School (falconphysics@gmail.com)

For our Honors Physics Seminar, we have structured a series of discussions intended to teach students how to synthesize peer reviewed academic articles written well above their current level of content mastery. We are using ACT Science sub-scores to measure student progress in engaging discipline-specific material, data and graph interpretation and inference skills. This initiative complements a multi-layered approach to enhancing scientific literacy grades 9 through 12 at our school. We are documenting student reviews of the literature and using this data to continually improve our science fair research assignment.

Using the Voltmeter as the R in an RC Circuit

Michael C. Faleski, Delta College (michaelfaleski@delta.edu)

The RC circuit is a standard circuit discussed in introductory physics courses. Calculations of currents and voltages for the resistors are done and nice graphs are made of what ammeters and voltmeters would read. Real instrumentation has real resistance, which affects the measurements of the quantities in question. In this presentation, discussion will be made of how to use the voltmeter as both the recording device of voltage and also the resistance for the circuit. Results of experiments performed by students will be reported.