Michigan Section
of the American Association of Physics Teachers

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Scott Cochran
2013-2014 President

Announcing our Spring 2014 Meeting!
Saturday, April 12
Western Michigan University

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U-M solar astrophysicist Dr. Justin Kasper to serve as keynote speaker

The upcoming Spring 2014 meeting of MIAAPT will be held at **Western Michigan University** in Kalamazoo, MI, on **Saturday, April 12.** President Scott Cochran (Kirtland CC) will preside over the meeting. Our 1st Vice President Alan Grafe (UM-Flint) is the program coordinator for the meeting.

We are delighted to have as our keynote speaker **Dr. Justin Kasper**, a Professor in the Department of Atmospheric, Oceanic and Space Sciences at the University of Michigan. He also currently holds the position of Research Associate of the Smithsonian Astrophysical Observatory.

Dr. Justin Kasper (AOSS, U. Michigan)

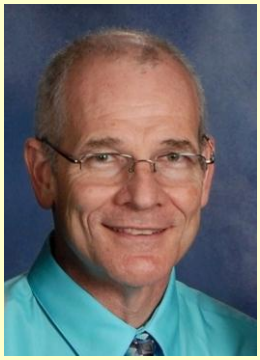
Dr. Kasper designs sensors for spacecraft that explore extreme environments in space from the surface of the Sun to the outer edges of the solar system. He is interested in understanding the forces that lead to solar flares and the solar wind, a stream of particles heated to millions of degrees in the Sun's atmosphere, or corona. His major results concern heating, instabilities, and helium in the solar corona and solar wind, and the impact of space weather on society. He currently leads SWEAP, an international team of scientists and engineers building sensors that will collect samples of the Sun for the NASA Solar Probe Plus spacecraft.

We will also be holding a high school **physics photograph contest,** based on the AAPT photo contest that is held at the Summer Meeting. Teachers can develop their own rules for the contest to fit their students and situation, but we would like to encourage the top examples to be submitted to the AAPT contest. A prize will be awarded!

For additional information about the Fall 2013 meeting, see our Call for Presentations as well as our website, http://web.miaapt.org. Other info about area hotels, parking, and maps for the WMU campus can be found at: https://www.wmich.edu/visit. Stay tuned for the full program announcement for details about parking and lunch on Saturday.

We hope to see you at MIAAPT on April 12! Bring a colleague too!

- Contributed by Alan Grafe & Brad Ambrose



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Fall 2013 Meeting Snapshots

(right) Danny Caballero (MSU) shares insights from the Global Physics Department

(photo credits: Steve Dickie)

(above) Keynote speaker Dr. Joseph Krajcik discussing development of the Next Generation Science Standards

(above) Jim Gell (Plymouth H.S., seated) and Steve Dickie (Divine Child H.S., not shown) co-lead a make-and-take on light, color, and circular motion.

High School Physics Competitions Results

In January of 2014, physics students from around the country entered the US Physics Team first round exam called "F=ma." The top students in the country on this difficult multiple choice contest are then invited to participate in the next round of the competition. These outstanding students get to take an even more difficult physics exam testing their problem-solving abilities over the course of three hours.

The state of Michigan placed 8 students in the top 400 from 3 different schools. These outstanding students (and teachers) are:

Jackie M. Bredenberg, and ***Aaron L. Zeng*** from Detroit Country Day High School in Beverly Hills, MI (***teacher: Dan Berger***);

Raghu P. Arghal, ***Raj K. Raina***, ***and Apurva Shrivastava*** from Novi High School in Novi, MI (***teacher: James Didio***); and

Stephen Z. Li, ***Omkar B. Shende***, and ***Justin J. Xu*** from Troy High School in Troy, MI (***teacher: John Morrison***).

Congratulations to all and good luck in the next round!!

- Contributed by Michael Faleski

Physics & Chemistry Modeling Workshops at Arizona State University

Arizona State University in Tempe offers four Modeling Workshops (June 9-27, July 7-25) for high school physics, chemistry, and physical science teachers nationwide. Two-year-college faculty and pre-service teachers are welcome, too.

This STEM program can lead to an interdisciplinary Master of Natural Science degree with concentration in physics. Degree-seeking teachers in 15 western states can apply for in-state tuition, through WICHE; teachers in at-risk schools can apply for forgivable Stafford loans and TEACH grants.

Each **MODELING WORKSHOP has these features:**

* aligned with Common Core Math Standards and ELA
* aligned with Arizona Science & Math Standards
* includes all 8 scientific practices of NRC Framework for K-12 Science Education
* addresses multiple learning styles
* addresses naive student conceptions
* collaboration, creativity, communication, and critical thinking
* systems, mathematical modeling
* coherent curriculum framework, but not a curriculum; thus flexible
* compatible with Socratic methods & project-based instruction
* science & math literacy
* authentic assessments
* high- and low-tech options for labs

The name Modeling Instruction expresses an emphasis on making and using conceptual models of physical, chemical, and biological phenomena as central to learning and doing science. Mathematics instruction is integrated seamlessly throughout each course by an emphasis on mathematical modeling. In each workshop, content for an entire semester course is reorganized around models to increase its structural coherence. Participants are supplied with a complete set of course materials and work through activities alternately in roles of student or teacher.

For more details, visit their website: http://modeling.asu.edu/MNS/MNS.html. Direct questions to Jane Jackson, Co-Director of the Modeling Instruction Program: jane.jackson@asu.edu

- Contributed by Michael Faleski

50 Summer Modeling Workshops Nationwide

If you cannot visit ASU this summer (see above), good news!… Modeling Workshops in high school physics, chemistry, biology, and junior high physical science will be offered this summer in many states. Most workshops are two or three weeks long. (Did you know Modeling Instruction is designated as an Exemplary K-12 science program by the U.S. Department of Education?)

For details on dates and locations, visit their website: http://modelinginstruction.org/teachers/workshops

For descriptions of workshops offered: http://www.phystec.org/pd/?set=Modeling

- Contributed by Michael Faleski

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Portage Northern High School

MIAAPT Newsletter
Brad Ambrose, Editor
Grand Valley State University
Department of Physics
118 Padnos Hall
Allendale, MI 49401

Upcoming Professional Opportunities

Throughout the upcoming summer there are many opportunities for physics, chemistry, physical science, and astronomy teachers to attend conferences, workshops, and meetings. In addition to Modeling workshops (see p. 3) offered nationwide, here are other opportunities to watch for (follow links to active webpages with detailed information about those meetings):

- *2014 NSTA Conference:*
  April 3 – 6, Boston, MA
  "Leading a Science Revolution"
  http://www.nsta.org/conferences/2014bos/

  Note: Onsite registration for NSTA is still available.

- *Gordon Research Conference on Physics Research and Education:*
  June 8 - 13, Mt. Holyoke College
  "The Complex Intersection of Biology and Physics"
  http://www.grc.org/programs.aspx?year=2014&program=physres

  Note: Application deadline May 11.

- *Summer 2014 AAPT Meeting:*
  July 26 – 30, Minneapolis, MN
  "The Fun of Teaching Physics"
  http://www.aapt.org/Conferences/sm2014

If you are interested in any of these—or know of others that the MIAAPT community should know about—contact the MIAAPT Executive Board (see http://web.miaapt.org).

Recent Global Physics Department online meeting about free data analysis tool

In the last newsletter I wrote about the Global Physics Department (online at **globalphysicsdept.org**) and the weekly online meetings about a range of topics concerning physics education.

Recently, one of the weekly guests was one of the developers of a website that for plotting and analyzing data called *plot.ly*. Here is a link to the recording of that meeting:
https://sas.elluminate.com/p.jnlp?psid=2014-01-29.1859.M.637120DEA338D73BC64765BB11FF58.vcr&sid=2008114.

(*Note:* You will need the [free] Blackboard Collaborate software in order to listen to the recording. If you do not have it, clicking on the above link should take you to a window where you can download the launcher and read directions on how to run it.)

The *plot.ly* tool is free for non-commercial use. It allows users to enter data (directly or through import), plot the data, and analyze it.
It was pretty clear that the feature list is growing as the developers receive feedback from their users. The site allows users to share their graphs with other users, making it useful for teachers wanting students to post their graphed lab results.

I was particularly interested because of our district's move toward 1:1 computing using Chromebooks. The data analysis capability of the google spreadsheet has a long way to go to match what is available in Microsoft Excel. *Plot.ly* is platform independent and looks like a great alternative to fill that gap for my students.

- Contributed by Jim Gell