

# Michigan Section of the American Association of Physics Teachers

Summer 2012  
Volume 5, Number 3

<http://www.miaapt.org>

James Gell  
2012-2013 President



Join us for the Fall MIAAPT meeting - Saturday, October 6, 2012  
at Hope College – Holland, MI

## Coming AAPT Attractions

### Contents

Coming AAPT Attractions...	1
Meet Alan Grafe ...	1
Spring 2012 Meeting Recap...	2
More on high energy physics	2
Don Pata- Pres Winner ...	3
Resources for Teachers...	3
Door Prize Opportunity...	4
MI HS Competition Results	4

We had another good year with MIAAPT, as we had two well-attended conferences and big plans for next year. We already can say that the fall meeting will take place at Hope College on October 6, 2012. The Call for Presentations will be coming later this summer, so be on the lookout for that! We *Hope* to see you in the fall!

In addition the spring meeting will be taking place at Henry Ford Community College. More details will be following

during the coming academic year. Finally, the National AAPT meeting will take place in Philadelphia, PA this summer from July 28 - August 1. The theme of this meeting is "[Physics: The Experimental Core.](#)" In addition, from July 25 - 27, ALPHA (Advanced Laboratory Physics Association) will host the 2012 Topical Conference "Laboratory Instruction Beyond the First Year of College". More details can be found at the [Compadre website](#).

## Meet Alan Grafe - 2<sup>nd</sup> Vice President



President 2012 - 2013  
James Gell  
Plymouth High School



2<sup>nd</sup> Vice-President 2012-2013  
Alan Grafe  
University of Michigan-Flint

At the Spring 2012 meeting in Allendale, Alan Grafe was elected as the new Second Vice-President of MIAAPT. This is the first step in the executive chain of MIAAPT which will see him take over as 1<sup>st</sup> Vice-President next year and President the year after that. It's time for the membership to meet Alan.

Alan G. Grafe is a native of Michigan, having spent most of his pre-college years in the Jackson area. He now resides in Ann Arbor. After high school, he obtained his BS, MS, and PhD in Physics from the University of Michigan-Ann Arbor. During his time in graduate school, he developed an interest in archery; his highest national ranking was 53<sup>rd</sup>. He currently likes to spend his spare time riding his bike or doing yoga.

Alan's teaching career began in 1989 as a teaching assistant in Physics at the University of Michigan-Ann Arbor. Near the end of his time in graduate school, he got involved in curricular development, writing and prototyping new laboratory instruction units. After

graduation, he spent time as an adjunct instructor in Physics and Astronomy at UM-AA, UM-Flint, and Henry Ford Community College.

Eventually, Alan became a full-time lecturer in Physics and Astronomy at the University of Michigan-Flint. His current instructional portfolio includes Algebra- and Calculus-based introductory Physics, introductory Astronomy, Modern Physics, and Classical Mechanics. He is currently trying to find ways to introduce aspects of Computational Physics into undergraduate courses.

At the next MIAAPT meeting this fall at Hope College, be sure to stop by and say hello to Alan, as well as the rest of the MIAAPT Executive Board. In addition, be sure to bring a friend to the meeting!!

## MIAAPT Spring 2012 Meeting Recap



The Solar Cooker

The Solar Cooker demonstration from the Spring 2012 MIAAPT meeting. Kaniah Balachandran from Kalamazoo Valley CC demonstrated its use by making pancakes (among other things).



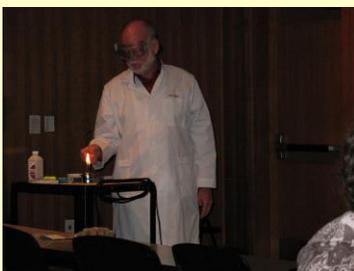
David Schuster and the Hat of Rotating Frames

David Schuster (WMU) talks about how things look in rotating frames during the Spring meeting. Wearing the hat signified that he was in a rotating frame.



David A. Van Baak

David A. Van Baak (Calvin College) with his magnetic demo during his talk at the MIAAPT Spring 2012 meeting.



Superhydrophobic!

Tom Deits (NSF Regional Center for Nanotechnology) demonstrates how to create a superhydrophobic surface for the classroom at the Spring MIAAPT meeting.

Grand Valley State University was the host of our Spring 2012 section meeting on April 21, 2012. Almost 50 teachers and students participated in a lively program of contributed presentations and demonstrations coordinated by our 1<sup>st</sup> VP (and now President), Jim Gell.

We welcomed Prof. Bernard Pope from Michigan State University again as plenary speaker. Founding member of the D-Zero project at Fermilab, Prof. Pope is currently director of the ATLAS project at the Large Hadronic Collider (LHC) at CERN. In his keynote address he provided an overview of the construction of the LHC, and in particular of the construction and installation of the detectors in which the MSU high-energy experimental group played a vital part. Prof. Pope also shared with us recent results (some of which were taken merely a few days beforehand) on their progress—and future projections and plans—in isolating and identifying the elusive Higgs boson.

Along with Prof. Pope, we are thankful for the many presenters at the Spring meeting. In particular, we wish to acknowledge the following workshop and tour facilitators:

1. Michael Faleski (Delta College) led a workshop on an innovative “essay lab” on DC circuits, in which students collect and interpret observations on simple circuits and then synthesize their findings and into essays.
2. Richard Vallery (Grand Valley State University) provided an informal tour of the GVSU positronium

annihilation lifetime spectroscopy (PALS) lab, which he established and in which he collaborates with undergraduate students on investigations of nanoscale composition of various materials.

3. Mandy Frantti (NASA/Munising Public Schools) shared a wealth of hands-on activities on “cosmic connections,” focusing in part on activities that can be used to teach stellar formation and composition (and the observational methods we use to learn about stars).

We are also grateful for the instructors and students who delivered contributed presentations throughout the day. Who knew that during the course of a single meeting we would learn: how to teach nuclear decay chains hands-on; how to explore and make (do-it-yourself!) superhydrophobic surfaces; how Gauss himself measured magnetic moments; how to make pancakes with a solar cooker; and how convection works in micro-gravity? All this, as well as learning how to engage students in learning physics, to boot?

Finally, during the business portion of the meeting, we conducted elections of two important positions on the executive board. We extend our congratulations and our thanks to: Michael Faleski for becoming our next Section Representative; and Alan Grafe, from University of Michigan-Flint, for being elected as our newest 2<sup>nd</sup> Vice President. We also showed our appreciation for the work of Alan Gibson, who stepped down as Section Representative after many years of service in that role.

Brad Ambrose (1<sup>st</sup> Past President)

## More about the High Energy Physics

To find the PPT presentation given at MIAAPT this past April, one can click on the following link to look at it (it is a large file (52 MB)).

[Bernard Pope's MIAAPT slides](#)

In addition, for details about the recent announcement of the Higgs boson events

detected at CERN, as well as more general information about LHC, CERN, or the ATLAS experiments, follow these links:”)

[Large Hadron Collider US / LHC](#)  
[CERN](#)  
[ATLAS](#)  
[US / ATLAS](#)

## Don Pata - Presidential Award Winner

MIAAPT Executive Board member Don Pata was recently named a 2011 Presidential Awardee for the Presidential Awards for Excellence in Mathematics and Science Teaching (PAEMST). Don is one of 97 educators recognized this year. Taken from the [PAEMTS](#) webpage: "On behalf of The White House, the National Science Foundation (NSF) is pleased to invite each awardee and his or her guest to Washington, D.C. for this year's recognition program. This [three-day event, beginning on Wednesday, June 27](#), will incorporate activities that highlight our awardees' leadership abilities and celebrate their accomplishments."

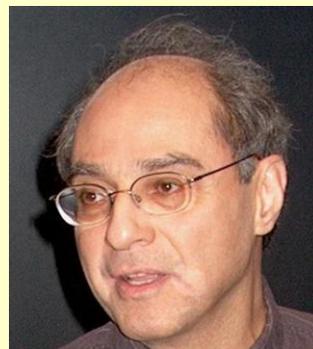
Don has been an extremely active member of MIAAPT, DMAPT, MDSTA, and MSTA, NSTA, and AAPT to name a few of the organization with which he is associated. He has given many talks and workshops on various topics at many levels.

We at MIAAPT congratulate him on a job supremely well done for being Michigan's only winner!

Don's bio can be read [here](#).



Don Pata... Presidential Award Winner for 2011 and MIAAPT Treasurer!



MIAAPT Liaison to MSTA  
Alex Azima  
Lansing Community College



Section Representative  
Michael C. Faleski  
Delta College



MIAAPT Liaison to MI State Bd of Ed.  
Kathy Mirakovits  
Portage Northern High School

## Resources for Teachers

Are you starting out as a physics teacher? If so, consider becoming a member of the MIAAPT by attending one of our meetings. The next meeting will be Friday-Saturday, October 6, 2012 at Hope College - Holland, MI. For more information, see [www.miaapt.org](http://www.miaapt.org). Below are a series of websites that provide lessons, tips, ideas, news, and demos for class. Clicking on the icons below will take you to the individual sites.



1<sup>st</sup> Vice President  
Scott Cochran  
Kirtland CC



**The Michigan Section of  
The American Association of  
Physics Teachers**

**President**

James Gell  
Plymouth High School

**First Vice-President**

Scott Cochran  
Kirtland CC

**First Vice-President**

Alan Grafe  
University of Michigan-Flint

**Section Rep. / 2<sup>nd</sup> Past Pres**

Michael C. Faleski  
Delta College

**1<sup>st</sup> Past President**

Brad Ambrose  
Grand Valley State University

**3<sup>rd</sup> Past President**

Drew Isola  
Allegan High School

**Secretary/Webmaster**

Steve Dickie  
Divine Child High School

**Treasurer**

Donald Pata  
Grosse Pointe North HS

**Liaison to MI State Brd of Ed**

Kathy Mirakovits  
Portage Northern HS

**Liaison to MST A**

Alex Azima  
Lansing Community College

**Website:**

[www.miaapt.org](http://www.miaapt.org)

**Facebook:**

<http://www.facebook.com/groups/156771657721956/>

## Door Prize Opportunity - Fall Meeting

At the Fall Meeting of MIAAPT, we will award a door prize for the person producing the best solution to the following challenge problem.

A few rules:

- 1) To receive the door prize, you must be present to win!
- 2) If you wish to send a solution and cannot attend the Fall Meeting... that is fine... we may still feature unique and interesting solutions in the next Newsletter or online.
- 3) The *best solution*... very subjective... however, one guideline... Physics elegance wins over mathematical grinding.

Please send solutions to [ambroseb@gvsu.edu](mailto:ambroseb@gvsu.edu) with Subject line "MIAAPT Door Prize Challenge." Word docs are the preferred format.

### Question:

A point-like block of mass  $m$  is placed on a fixed inclined plane of angle  $\theta$  to the horizontal. When released from rest, the block slides down the incline that has coefficient of friction  $\mu_k = \mu_s = \mu$ . In terms of these parameters (and "g"), determine the minimum vector force that a person must apply to the mass so that it would remain at rest on the surface of the incline.

## Michigan Physics Competition Results 2012

In January of 2012, physics students across the country competed in the preliminary round to determine the US Physics Team. The first round exam called "Fnet=ma" consists of 25 multiple choice questions dealing with mechanics. Students have 75 minutes to answer the questions.

This past fall, of the top ~350 Semi-Finalists (high scorers), 7 of them came from students in Michigan. The schools that these students attended were Detroit Country Day High School (2 students), Novi High School (3 students), and Troy High School (2 students). Well done to both students and teachers! The full list of names can be found in the 2012 Winter Newsletter.

The top 20 students make the team. Unfortunately, no students from Michigan got this far... but there is always next year!

The full list of US Physics Team members can be found at [US Physics Team Members](#).

In March/April of 2011, the PhysicsBowl took place around the world. This is a 45 minute multiple choice exam covering all areas of physics. Students have 40 questions to answer with no penalty for incorrect answers. More than 250 schools from the U.S., Canada, China, and Italy competed.

There are 2 divisions (1st year physics and 2nd year physics) and there are both individual and school awards. In Michigan's region (Region 08), there were several winners:

Individuals:

**Allen J. Chen:** 1st place Div. 2 (Troy HS)  
**Maxwell W. Li:** 2nd place Div. 2 (Troy HS)

Team (top 5 scores from a school):

1st place Div. 1: **De La Salle Collegiate HS**  
2nd place Div. 1: **Plymouth HS**  
2nd place Div. 2: **Troy HS**

Well done to all!! The full list of winners can be found at

<http://www.delta.edu/michaelfaleski/PhysicsBowl>

The MIAAPT Newsletter  
Michael C. Faleski - Outgoing Editor ☺  
Delta College  
Physics Department  
1961 Delta Rd.  
University Center, MI 48710

