



# Program



for the **2004 Fall Meeting** of the  
**Michigan Section of the American Association of Physics Teachers,**  
to be held on  
**Friday-Saturday, October 15-16, 2004**  
at **Oakland University in Rochester, Michigan**

**Please note:**

This MIAAPT Fall Meeting will be held jointly with  
the Fall Meeting of the Ohio Section of the American Physical Society.

**The themes of this special joint meeting are:**

- Teaching 20<sup>th</sup> Century Physics in the 21<sup>st</sup> Century
- Physics in Medicine

All events are in Banquet Room A, Oakland Center, unless otherwise noted.

<b>Friday, Oct. 15</b>	
12:00- 5:00	Registration
<b>2:00 - 3:45</b>	<b>Magnetic Resonance Imaging Symposium:</b>
2:00 - 2:15	Welcome
2:15 - 3:00	Paul Callaghan, Victoria University of Wellington
3:00 - 3:45	Steve Blackband, University of Florida
3:45 - 4:00	Break
4:00 - 5:15	Physics in Medicine Contributed Session
5:15 - 6:00	Poster Session
<b>6:00 - 8:30</b>	<b>Banquet, in Meadow Brook Hall:</b>
6:00 - 7:00	Social Hour
7:00 - 8:00	Dinner
8:00 - 8:30	After Dinner Talk, Paul Callaghan

**Physics in Medicine Contributed Session (Oct. 15)**

- 4:00 John Paul Morgan, Current density imaging using magnetic resonance imaging
- 4:15 Hisham Alhadlaq, Changes in regional T2 relaxation in compressed cartilage: A microscopic MRI (\_MRI) study
- 4:30 Barbara Weiland, Imaging CD MEG fields associated with epileptic onset
- 4:45 Donald Dolton, Nonlinear analysis of surface EMG time series of back muscles
- 5:00 Deborah Janks, Burst pacing with weak stimuli induces reentry in cardiac tissue

<b>Saturday, Oct. 16</b>	
7:30- 8:30	Registration, Complimentary Continental Breakfast
<b>8:30 - 10:30</b>	<b>Workshop by Dean Zollman in Varner 226</b>
8:30 - 10:15	Parallel Contributed Sessions
10:15 - 10:45	Break
<b>10:45 - 12:15</b>	<b>Teaching 20<sup>th</sup> Century Physics in the 21<sup>st</sup> Century Symposium:</b>
10:45 - 11:30	Mario Belloni, Davidson College
11:30 - 12:15	Dean Zollman, Kansas State University
12:15 - 1:15	Lunch
1:15 - 1:30	MIAAPT Business Meeting
<b>1:30 - 3:30</b>	<b>Workshop by Mario Belloni in Varner 226</b>
1:30 - 3:15	MIAAPT Contributed Session

### **Physics Education Contributed Session (Oct. 16)**

- 8:30 Cameron Reed, Leaping the fission barrier: A sophomore-level model
- 8:45 Klaus Fritsch, The physics of rules of thumb for pilots
- 9:00 Henry Griffin, Teaching "radioactivity" through research
- 9:15 Ryan Fedewa, Adaptation of "6 ideas that shaped physics" for life-science major audiences
- 9:30 Ulrich Zurcher\*, College physics with biomedical applications
- 9:45 Guy Vandegrift, Campus boat building and sailing group
- 10:00 Gordon Aubrecht, Studying teacher attitudes and student perceptions of physics laboratories using a Q-type assessment instrument

### **Condensed Matter Contributed Session (Oct. 16)**

- 8:30 Russ Hayes, Ferrite-Piezoelectric layered composites: Synthesis and magnetoelectric characterization
- 8:45 Robert Hirst, Proton NMR relaxation in anhydrous ammonium-Y and H-Y Zeolites
- 9:00 E. D. von Meerwall, Ultrasound treatment of butyl gum and rubber, studied by NMR relaxation
- 9:15 Mark Taylor, Conformation of a polymer chain in solution: A density expansion approach
- 9:30 John Griffin, Transparent, weakly conductive films for space applications
- 9:45 Jutta Leuttmer-Strathmann\*, Local friction in random and alternating polyolefin copolymers: a small scale simulation.

### **General Physics Contributed Session (Oct. 16)**

- 8:30 Xiaodong Liu, Lorenz propulsion yielded by LC oscillator
- 8:45 Mario Belloni, Visualizing wave packet dynamics in the infinite square well using the wigner quasi-probability distribution
- 9:00 Philip Ugorowski, Design and characterization of a compact multi-detector gamma spectrometer for studies of triggered energy release from nuclear isomers
- 9:15 Ronald Propri, Design and implementation of specialized analysis package for a small, multi-detector array
- 9:30 Pierre-Marie Robitaille, The photosphere as condensed matter
- 9:45 Kasey Plummer, Experimental estimation of physical effects leading to atomic clock instability
- 10:00 Michael Crescimanno\*, The physics of coherent population trapped (CPT) atomic clock instability

\* Session Chairman

## **MIAAPT Physics Education Contributed Session**

- 1:30 Rosa Lukaszew, Integrated lecture and laboratory: A new concept for intermediate electronic labs
- 1:45 Laurie Reed, Using *Blackboard* to Explore Astronomy in Art and Music
- 2:00 James Porter, An Overhead Projection Demonstration of Non-collinear Force Addition
- 2:15 Frank Rose, Geometric Method of Finding the Mid-potential in a Coaxial Conductor
- 2:30 Bradley Ambrose, A Repeat Performance? Challenges in Addressing Conceptual Difficulties in Quantum Physics
- 2:45 Bill Semrau, A High School Physics Teacher Goes to College: The PhysTEC Experience (this talk is 30 minutes in duration)

### **Oakland University Campus Map with Directions:**

Please see <http://www2.oakland.edu/map/>

### **Parking:**

Parking is free on campus, and no sticker is required.

### **Accommodations:**

Please see <http://personalwebs.oakland.edu/~roth/OSAPStravel.htm>

### **Registration:**

For people primarily affiliated with MIAAPT, the registration cost is \$5 (free for students with a valid student I.D.). Registration will take place in the Oakland Center (see map), Banquet Room A.

You may pre-register by mail by sending your registration fee (and lunch fee, if you choose) to:

HC Snyder  
MIAAPT Secretary/Treasurer  
3239 Fanone  
Port Huron, MI 48060-7255

Please make checks payable to MIAAPT. Please provide enough lead time so that the MIAAPT Secretary/Treasurer receives your pre-registration by Thursday, October 14.

### **Lunch on Saturday:**

Lunch will be available for a cost of \$7.

### **For further information:**

Please see <http://www.miaapt.org>

# High School Student Events

These activities on Saturday, October 16, are aimed at high school students interested in physics, but are open to all attendees of the OSAPS-MIAAPT meeting and the general public (except for the pizza party, which is high school students only). All events take place in Room 190, Science and Engineering Building (SEB).

- 9:00 Physics at Oakland University 190 SEB  
*Prof. Andrei Slavin, chairman of the Oakland University Department of Physics, will give an overview of physics at Oakland, followed by a tour of department facilities.*
- 10:00 AP Physics Exam Clinic 190 SEB  
*A recent OU graduate and a current OU undergraduate, both of whom recently took and scored well on the AP Physics Exam, will discuss the exam, describe strategies for success, and answer questions.*
- 11:00 Campus Tour 190 SEB  
*Take a tour of Oakland and learn about educational opportunities throughout the University*
- 12:00 Pizza Party 190 SEB  
*The Oakland University Society of Physics Students will host a pizza party (this event is for high school students only). Enjoy a free lunch, and talk to current physics students about what life is like as a physics major. For those of you attending the Saturday Symposium, don't worry: there will be plenty of pizza left if you arrive at 12:15.*
- 1:00 Visit to the Honors College 190 SEB  
*The Honors College provides highly motivated students an intellectually stimulating community. At 1:00, gather in 190 SEB for a walk over to the Honors College office at 112 Vandenberg Hall (or meet us there at about 1:10).*
- 2:00 Demonstration Show 190 SEB  
*In our spectacular grand finale, Professors Alberto Rojo and George Martins will present a fun and exciting Physics Demonstration Show. See all your favorite demonstrations explained. Enjoy the show, and learn some physics.*

Plus, high school students may attend all events at the OSAPS-MIAAPT meeting, including the Friday afternoon Symposium on Magnetic Resonance Imaging and the Saturday morning Symposium on Teaching 20<sup>th</sup> Century Physics in the 21<sup>st</sup> Century. However, high school students may attend the Saturday Workshops only if space permits.