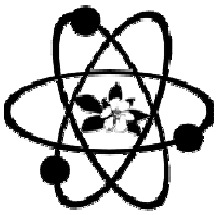
# Mississippi Association of Physicists


*The Mississippi Section of the*

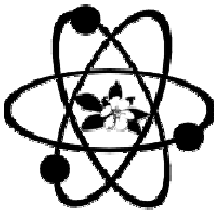
# American Association of Physics Teachers

**April 2008** **No. 078**

## NEWSLETTER



## SPRING MEETING



**Meeting Agenda, Saturday 5 April 2008.**

**Grand Gulf Nuclear Station, Port Gibson, MS**

| | |
|---|---|
| 0830 - 0900 | Registration |
| 0900 - 0915 | Welcome |
| 0915 - 1015 | Walter Cade and Staff, Nuclear Power at Grand Gulf Nuclear Station |
| 1015 - 1040 | Reports from Physics Dept Chairs, Tom Marshall, Quinton Williams, Mark Novotny, Khin Maung |
| 1040 - 1100 | Break |
| 1100 - 1130 | Meeting MAP physics education goal, Sandra Harpole, Marsha Hobbs, Jim Sabatier. The AAPT perspective. |
| 1130 - 1200 | Member Discussion: Where do we go from here? |
| 1200 - 1300 | Lunch, GGNS (Executive Board Meets) |
| 1300 - 1315 | Business Meeting: Minutes and Treasurer's Report |
| 1315 - 1400 | Elections of Executive Board members and MAP offices |
| 1400 - 1500 | Other discussions |
| 1500 | Adjourn |

# President's Message

The Spring meeting of the Mississippi Association of Physicists (MAP), also known as the Mississippi Section of the American Association of Physics Teachers, will be held 5 April at the Grand Gulf Nuclear Station near Port Gibson, MS. The theme of the meeting will be physics education: university undergraduate physics programs and MAP's involvement in high school physics education. Our host will be Walter Cade; he and his engineers will provide us with an excellent simulation of nuclear power production at the Grand Gulf Nuclear Station. I hope that you can join us for this important and informative meeting.

As usual at the Spring meeting, MAP will elect new Officers and Executive Board members. I encourage you to consider serving as one of MAP's Officers or on the Board. Please send me names of individuals that can serve or your name if you are interested in serving our Section in some aspect.

On behalf of our organization, I have invited the Chairs from the four public university Physics Departments to provide an overview of their respective institution's undergraduate physics programs. Also, Sandra Harpole, Marsha Hobbs and I will present views on MAP's potential contributions to high school physics education from our AAPT perspectives. From these talks, MAP will develop a vision for physics education in the state and brainstorm potential objectives to accomplish its goal.

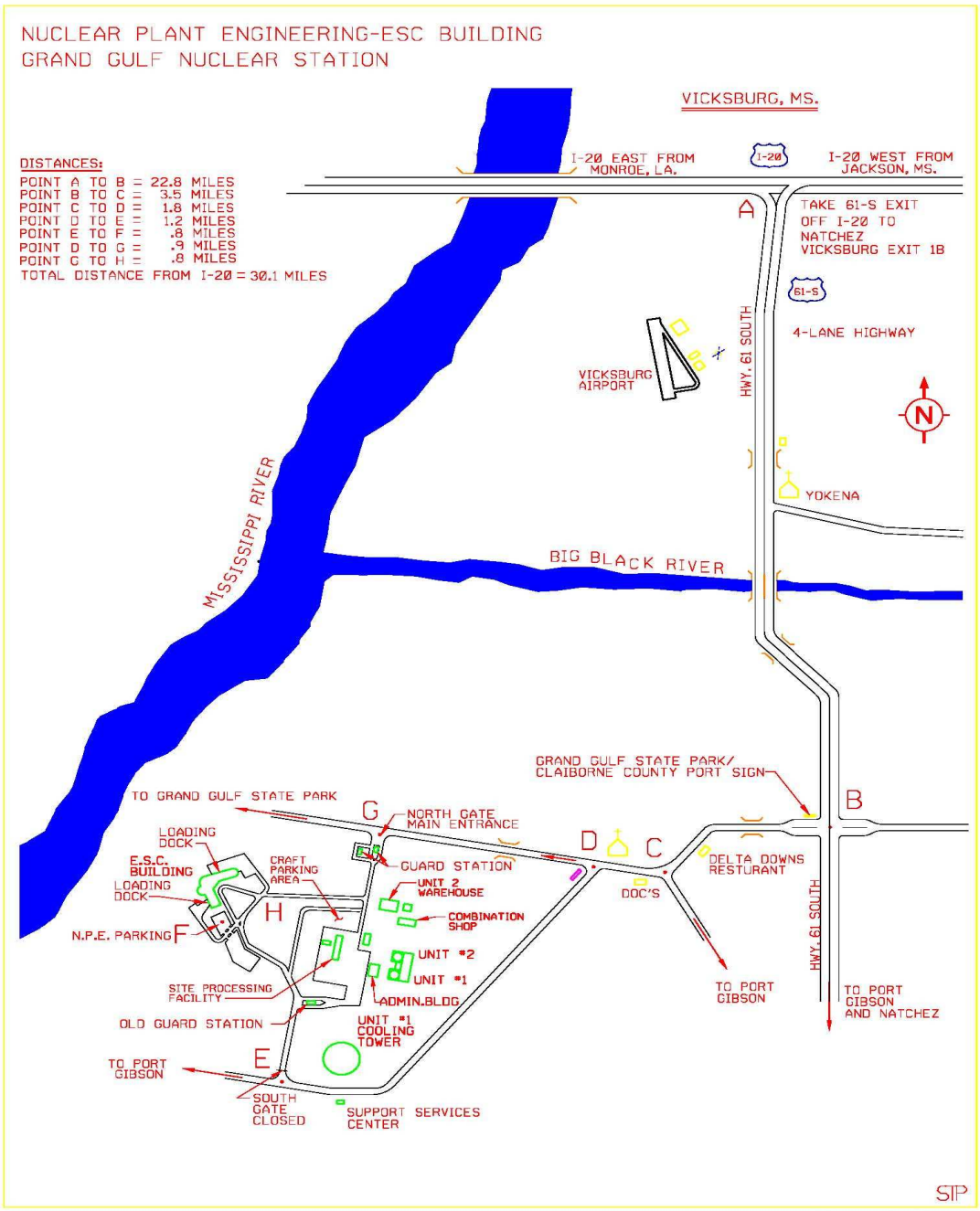
The meeting information, including driving directions and hotel information, can be found in this newsletter and on the MAP web page at www.msphysics.org. Be sure to go there to get the latest news about the Spring meeting. Lastly, I want to invite you to join me for a no-host dinner gathering on Friday evening. Check the web page for details.

## Hotel Information for Spring 2008 MAP meeting

There are several motels near the Grand Gulf Nuclear Station. These include a Hampton Inn, Jameson Inn, Holiday Inn Express, and a Fairfield Inn.

- Hampton Inn http://hamptoninn.hilton.com/en/hp/hotels/index.jhtml;jsessionid=K4V5LPQRSGSJACSGBJC222Q?ctyhocn=VKSBGHX No state rate.
- Jameson Inn - https://mycrs.innpoints.com/book/book/Wizard?search=true State Rate - 60.00
- Holiday Inn Express - http://www.ichotelsgroup.com/h/d/ex/1/en/hotel/vksbg?rpb=hotel&crUrl=/h/d/hi/1/en/availsearch&ias=y State Rate 89.99
- Fairfield Inn - http://www.marriott.com/hotels/travel/vksfi-fairfield-inn-vicksburg/ State Rate 70.00
- Further information including directions and phone numbers for reservations can be found at www.msphysics.org

# Map and driving directions for Spring 2008 MAP meeting




The meeting will be in the E.S.C. Building.
After turning on the site, proceed to bottom of hill to stop sign and turn right. The E.S.C. Building is the white building on the hill. Proceed up to the front of building and then back down the hill to parking spots. Enter the building from the front entrance.

Grand Gulf Nuclear Station link
http://www.entergy-nuclear.com/plant_information/grand_gulf.aspx

# Two of our meeting speakers

## Quinton L. Williams

**Chair of Physics, Atmospheric Sciences, and Geoscience**
**Jackson State University, Jackson, MS**

Dr. Williams is Chair of the Department of Physics, Atmospheric Sciences and Geoscience at Jackson State University. He received his Ph.D. degree in physics from the Georgia Institute of Technology. His research expertise includes optical physics and photonics. He is the immediate past-president of the National Society of Black Physicists and was elected a member of the Governing Board of the American Institute of Physics. He is a life member of the Optical Society of America, the American Physical Society and the American Association of Physics Teachers, the American Geophysical Union, the New York Academy of Sciences, and the Mississippi Academy of Sciences. For more information about Dr. Williams visit his link at:
http://msp.jsums.edu/personnel/show.faculty.php?FirstName=Quinton&LastName=Williams

## Thomas C. Marshall

**Chair of Physics and Astronomy**
**University of Mississippi, University, MS**

Dr. Marshall received his Ph.D. degree in physics from New Mexico Institute of Mining and Technology in 1981. His research expertise is in understanding electricity in storms, using balloon born instruments to measure electric field inside the storm. For more information about Dr. Marshall visit his link at:
http://www.olemiss.edu/depts/physics_and_astronomy/faculty/marshall.html

# Fall 2007 MAP Minutes

The Mississippi Association of Physicists (MAP) met at the Mississippi State University Center for Advanced Vehicular Studies (CAVS) in Canton, Mississippi. Registration began at 8:30 am. At 9:00 AM. James Sabatier called the meeting to order and provided a welcome to the MAP members and the Louisiana and Alabama Sections who attended the meeting.

Rod Schwartz, Engineering Manager of the body and stamping plants in the Nissan Facility was the first speaker. He talked about the responsibilities of his team of 20+ engineereers, which include controlling the intricate manufacturing processes required to build any one of the five different vehicles produced in Canton MS. He showed that the facility produces about 200 vehicles a day, some of them are sent to Middle East, China, Russia and North America.

Richard W. Peterson, Professor of Physics, Bethel University, St. Paul, MN, was the second speaker. Dr. Peterson was awarded the 1998 American Physical Society's (APS) Prize for outstanding research at an undergraduate school in the U.S. and was elected a Fellow of the APS in 2005. During 2005 – 2007 he served as national President/Past President of AAPT. He talked about the advanced labs and how to attract students in laboratory work. In addition he talked about his research interests, which involve new methods of performing highly-transient interferometric and holographic measurements in undergraduate labs.

Following Professor Peterson' presentation, several optic demonstrations were presented by Chris Sirola from USM and Thomas Jamerson and Jim Sabatier from Ole Miss.

Marco Cavaglià (University of Mississippi) – Laser Interferometer Gravitational-Wave Observatory (LIGO) in Mississippi, was the third speaker. He talked about his current research interests which focus on gravitational waves and black holes physics. He collaborates with the German Max-Planck Institute Outreach Program "Einstein Online". The NSF – sponsored LIGO Scientific Collaboration (LSC) consists of more than 500 scientists from 47 institutions worldwide, working together to achieve the first-ever detection of a gravitational wave. One of the three LSC interferometers is located near Livingston (LA) and Dr. Cavaglià invited MAP members and high school teachers and their students to visit the site and the newly-opened LIGO education center.

The meeting was adjourned at 12:00 pm and followed by lunch at the same place.

At the Executive Board meeting, Dr. Sabatier suggested several amendments to the constitution of the MAP to enable MAP to be more effective in its work. These included raising the institutional dues and requiring the Executive Board to prepare a slate of candidates for the Executive Board and Office of the President, Vice President and Secretary.

# NEWS FROM AROUND THE STATE

## Mississippi Academy of Sciences News

At the recent MAS meeting in Olive Branch there were several very good papers presented by students from physics departments in our state. These papers and student presenters were:

### From JSU

1. Methodology in the concentration and temperature dependent separation of complementary and non-complementary DNA to enable liquid crystal observation and extraction, by **Taiquitha Robins**
2. A Hils system for UAV attitude data synchronization by **Joshua C. Etchison**

### From MSU

1. Vortices in the optical near field of an electric dipole, by **Jie Shu**
2. Light propagation near a mirror by **Xin Li**

### From UM

1. Gas transport capabilities of vortex rings by **Barnabas Kipapa**
2. Measuring accelerations of horizontally launched small spherical objects with a high-speed camera by **William Lancaster**

### From USM

1. Solving Schrodinger equation in position, momentum, and mixed spaced representation, by **Mallika Dhar.**

MAP congratulates these students for their work and presentations as well as their respective faculty advisors and coauthors for the student support.

## USM News

With support from NASA, USM will hold the annual High School Physics Competition in April. Invitations will be sent out to all MS schools including schools in LA and AL. In this competition, a challenging physics problem is proposed and 3-person HS student teams submit a solution, which USM faculty evaluate the day of the competition. Student teams visit the campus, tour USM physics labs, receive T-shirts, certificates, lunch, and team & individual awards. Contact Dr. Chris Sirola at christopher.sirola@usm.edu for more information

USM offers two courses for physics-related teachers during the summer: PHY 604, Physics for High School Teachers, and PHY 610, Astronomy for Teachers. These courses are intended for teachers who want to shore up their content knowledge. USM also offers PHY 605, special topics, on an individual basis.

# Happenings at MSU

*Workshop Highlights*

Our aim is to help provide Mississippi teachers with the knowledge and resources needed to make their physical science classes more effective. Workshop activities are designed to be transferable to the middle school classroom.

The workshop will follow a hands-on, active learning approach, including demonstrations and laboratory activities. The daily activities include the following:

- Discussing numerous physical science concepts.
- Documenting student difficulties.
- Solving conceptual & analytical problems.
- Identifying related resources.
- Planning teaching strategies.

*Physical Science Topics*

- *Velocity, displacement*
- *Forces, momentum, Newton's Laws*
- *Work and conservation of energy*
- *Electricity and circuits*
- *Magnetism*
- *Properties of waves*
- *Properties of matter*
- *Energy fundamentals & pollution*
- *Fossil fuels and renewable sources*
- *Radiation and nuclear energy*
- *Conservation & global effects*

Our goal is to ensure that Mississippi Teachers are knowledgeable and that they deliver the best instruction in their field.

## Teacher Training in the Physical Sciences (TTIPS08)

Hands-on workshop for Physical Science Teachers covering the topics that are regularly taught in year long middle school science course.

Each teacher:

- Earns a stipend of $1760.
- Receives $1000 worth of laboratory supplies and workshop materials.
- Participates in 22 days of workshop activities, including attending the Mississippi Science Teacher Association fall 2008 conference.
- May earn CEU's or graduate college credit.

**Contact Information**
Anastasia Elder
Mississippi State University
P.O. Box 9727
Phone (662) 325-0387
Fax (662) 325-3263
Email: aelder@ra.msstate.edu
or dunne@ra.msstate.edu

**http://physics.msstate.edu/TTIPS08**

Mississippi State University

## Summer Workshop

**June 2, 2008 – June 27, 2008**

*Department of Counseling, Educational Psychology, and Special Education*
*&*
*Department of Physics and Astronomy*

No Child LEFT BEHIND

IHL MISSISSIPPI BOARD OF TRUSTEES OF STATE INSTITUTIONS OF HIGHER LEARNING

Project Personnel: Dr. Anastasia Elder
Dr. Jim Dunne

INDUSTRY EDUCATION PARTNERSHIPS

# *Professional Development Workshop*
# *June 2-27, 2008*

The project connects education with business/industry to focus on preparing students to enter a workplace based on a global economy. This project provides hands-on experience in industry settings.

*What Do Participants Receive?*

Competitive Stipend
Travel Reimbursement
Meal Reimbursement
Paid Housing
CEUs

*For Additional Information:*

**http://csmt.msstate.edu**

or Contact Debbie Weeks at (662) 325-2922

Funded by:

*Early Bird Application Deadline February 15, 2008*
*Final Application Deadline April 15, 2008*

For further information on this MSU program, visit the website at http://csmt.msstate.edu/.

# University of Mississippi News

The Department of Physics and Astronomy of The University of Mississippi is organizing a one-day group visit to the LIGO Laboratory in Livingston (LA) for Saturday, April 5th. The visit will include a guided tour of the detector (main building, control room and possibly laser and corner station) and some fun at the Science Outreach Center, with screening of a short NSF movie on LIGO. The Department of Physics will provide transportation for up to 15 people. Other participants are welcome to join, but will have to provide their own transportation. Contact Dr. Marco Cavaglià at cavaglia@phy.olemiss.edu no later than March 28th, 2008.

The University of Mississippi hosted the Fourth Annual Gulf Coast Gravity Meeting on March 7-8, 2008. More than 40 scientists from the United States and foreign countries convened to discuss the present status and latest developments in the physics of gravitational systems. This is the first time that the Gulf Coast Meeting is held in Mississippi. The meeting is sponsored by the Department of Physics and Astronomy of the University of Mississippi and the American Physical Society - Topical Group on Gravitation. Best student paper awards presented.

The meeting web page is: http://www.phy.olemiss.edu/GR/gcgm4.

# Officers and Executive Board Members

## MAP Officers, 2007-2008:

President – Jim Sabatier (sabatier@olemiss.edu)
Vice-President – Larry Croft (wlcroft@bellsouth.net)
Secretary - Manaf Ali (mhali@northwestms.edu)
Treasurer - Willie Newell (willie.newell@jcjc.edu)
Section Representative - Sandra Harpole (sharpole@ra.msstate.edu)
Webmaster – J. Webster - (jwebster@olemiss.edu)
Newsletter Editor – Mottsee Spurgeon (mottsee@phy.olemiss.edu)

**Executive Board Members:** 4 year colleges – Larry Croft, Jim Sabatier*
2 year colleges – Kevin McKone, Mary Boleware*
High Schools – Darla Nash, Tommy Sumrall*
At-Large – Thomas Jamerson, Manaf Ali*

* Asterisk denotes 2007 elected board members.

# About AAPT

AAPT was established in 1930 with the fundamental goal of ensuring the "dissemination of knowledge of physics, particularly by way of teaching." We currently have more than 10,500 members in 30 countries around the world.

Annual Meetings in winter and summer provide our members with the opportunity to network, discuss innovations in teaching methods, and share the results of research about teaching and learning. In addition to these meetings, we host or support smaller workshops and conferences and symposia throughout the year to provide further opportunities for professional development and knowledge sharing.

We also publish two major peer-reviewed journals, the *American Journal of Physics* and *The Physics Teacher*. These journals provide a medium for sharing methods and research about teaching physics at introductory and advanced levels. In 2007, we launched a new general-interest magazine, *Interactions Across Physics and Education.* All AAPT members receive *Interactions* and their choice of one of the journals as part of their membership.

We also participate in or sponsors many projects related to improving the teaching of physics. And we offer awards and grants for educators and we sponsor or participate in many contests and competitions for physics students.

The Summer AAPT meeting will be held July 19-23 in Edmonton, Alberta.

For more information about joining AAPT, go to http://www.aapt.org.

The above information is reprinted from the AAPT website.

# CALL FOR NOMINATIONS - Please Respond

## Outstanding High School Physics Teacher Award

Each year at its spring meeting the Mississippi Association of Physicists presents a certificate and a cash award to a Mississippi high school teacher chosen for outstanding accomplishments in physics teaching. To be considered for the award, a deserving teacher must first be nominated by a student, a colleague, a principal, a parent-anyone - including the teacher. Nominations are reviewed and researched by a MAP committee established for this purpose.

In addition to this form, the nomination should be supported with a profile from the nominee which includes the following information: Name, undergraduate major and year degree was obtained; academic honors; graduate education and year(s); number of years teaching experience; subjects taught; schools where employed (name, place, years); honors and recognition as a teacher; honors and recognition in science of any present or former students; professional organization memberships and affiliations; papers which describe unique or innovative features which indicate the excellence of your physics program. Supporting letters from administrators, colleagues, and students (three maximum) are strongly encouraged. DEADLINE: January 15, 2008.

**Nomination for Award**
**Excellence in High School Physics Teaching 2007-08**

Name of Nominee:_____

School:_____

School Address:
_____

Courses Taught:
_____

Comments (Attach additional sheets if needed):
_____
_____

Name of Nominator:
_____

Address of Nominator:
_____

Phone Number of Nominator:
_____

Mail to: Jim Sabatier, NCPA, P.O. Box 1848, University, MS 38655

# Mississippi Association of Physicists

http://msphysics.org

The Mississippi Association of Physicists (MAP) was established in 1970. It is the Mississippi Section of the American Association of Physics Teachers. Its goals are:

●To provide an opportunity for the physicists of the state and physics and physical science teachers to get to know their colleagues at other institutions.
●To provide a means for greater cooperation among the physics departments in the universities, colleges, junior colleges, and high schools in promoting teaching and research.
●To provide a better program of consultation between the universities, colleges, junior colleges, and high schools.
●To provide a cooperative effort among all universities, colleges, junior colleges, and high schools to strengthen the teaching of physics at all levels.
●To improve the public understanding of science.

Membership is open to all people interested in promoting physics. Teachers, professors, and industrial physicists are encouraged to join. Annual membership dues are $5.00. MAP meetings are held semiannually.

# MAP Membership Application

Please print or type

**Name:**

_____

Last First Middle/Maiden

**Address:**

_____

Street/P.O.Box Apt.#

_____

City, State Zip

**Phone Number: (circle one: work or home) _____**
**Email address: _____**
**Institution: _____**
**Job Title/Area of Certification: _____**
**Number of Years Experience: _____ Are you a member of AAPT? _____**

Send the completed membership application and a check or money order of $5 for membership dues to:

**Willie Newell, MAP Treasurer**
**Jones County Junior College**
**900 South Court Street**
**Ellisville, MS 39437**