

**Mid-Hudson Chemist
American Chemical Society
Department of Chemistry
SUNY New Paltz
1 Hawk Drive
New Paltz, NY 12561**



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Chemists Celebrate Earth Day

April 22, 2007

"Recycling – Chemistry Can!"

Visit <http://www.chemistry.org>
for more information.

Announcement

The Department of Chemistry at Vassar College has recently installed a state-of-the-art single crystal X-ray diffractometer for chemical crystallography. Funding for the instrument was obtained through a National Science Foundation's Major Research Instrumentation proposal, "Acquisition of a CCD X-ray Diffractometer for Chemical Research and Education," NSF-0521237.

X-ray crystallography is a powerful technique for determining the molecular structure of materials, or the actual arrangement of atoms in molecules. X-ray diffraction techniques have enabled some of the most seminal discoveries in science, including the discovery of the double-helix structure of DNA and the elucidation of the structures of penicillin and hemoglobin.

The SMART APEX II platform diffractometer from Bruker Advanced X-ray Solutions is equipped with a MonoCap X-ray waveguide that increases the collimated X-ray intensity by a factor of 2.5, an APEX II charge-couple device (CCD) detector with ten-fold better sensitivity than first generation CCDs and an Oxford liquid nitrogen cryostream. These features make the instrument useful for a large variety of samples, including tiny, weakly diffracting and air-sensitive materials.

Science faculty members in the Hudson Valley who are interested in using the new instrument to obtain X-ray crystal structures in support of their research should contact Professor Joe Tanski (845-437-7503, jotanski@vassar.edu) for more information.

8th Annual ACS Undergraduate Chemistry Research Symposium

Wednesday, April 25, 2007

3:30 – 8:00 PM Student Center, Vassar College

Poster Session: 4:00-5:15 PM Talk: 5:30 PM Dinner: 6:30 PM

Guest Speaker: Dr. Thomas Mallouk

“Nanostructural Design of Photocatalysts and Photoelectrochemical Cells”

The Mid-Hudson Section of the American Chemical Society is pleased to announce the eighth annual Undergraduate Chemistry Research Symposium to be held at Vassar College on Wednesday, April 25, from 3:30 PM to 8:00 PM. The symposium provides a chance for area undergraduate students in the chemical sciences to present their research. All areas of chemistry, environmental science, molecular biology, and related fields are welcome. The poster presentations will be held from 4:00-5:15 PM, followed by a guest speaker at 5:30 PM. Poster set up will be from 3:30 to 4:00.

The Symposium: As in previous years, all research will be presented as posters. To present a poster, please submit an abstract of 200 words or less. The format for the abstract should adhere as closely as possible to the following guidelines: 1) 12 point Times-Roman font, 2) One inch margins, 3) MS Word document, 4) The abstract title should be typed in capital letters, followed by the authors' names and institution name, institution address, and telephone number in lower case letters. Advisor's name should be followed by an asterisk (*). Please submit the abstract no later than Friday, April 13 by e-mail or diskette to Dr. Joe Tanski. If you are unable to meet this deadline, please contact Dr. Tanski by phone or e-mail. Poster easels will be available for the first 35 participants; tables will also be available. Your poster should be self-supported on cardboard or posterboard backing. The standard size for ACS posters is 48 inches wide by 36 inches high. You will be contacted before the symposium to confirm acceptance of your abstract. Please note: there will be a \$25 conference fee per poster up to \$100 maximum per school. Please submit your abstract, via e-mail or diskette, to:

Dr. Joe Tanski
Department of Chemistry
Vassar College, Box 601
124 Raymond Avenue
Poughkeepsie, NY 12604
Phone: 845-437-7503
E-mail: jotanski@vassar.edu

Dinner: Please make reservations with Dr. Joe Tanski by **Friday, April 13**. Dinner will be at 6:30 PM in the same building, the All-Campus Dining Center (ACDC) on the first floor. The cost of dinner is \$20 per person, to be paid in advance or at the symposium to the Mid-Hudson ACS section treasurer, Joan Skinner.

Directions: Vassar College is located off Raymond Avenue in Poughkeepsie, NY. Refer to the following link for driving directions and campus map: <http://www.vassar.edu/directions/>. Enter the Main Entrance of the campus on Raymond Avenue and go left to find the North Parking lot. The All-Campus Dining Center is adjacent to this lot. The Security Guard at the Main Entrance will direct you to parking. The Student Center is on the second floor of the All-Campus Dining Center.

About the Speaker: Thomas E. Mallouk was born in New York and received an Sc.B. degree in 1977 from Brown University. He was a graduate student at the University of California, Berkeley, and a postdoctoral fellow at MIT. In 1985, he joined the Chemistry faculty at the University of Texas at Austin. In 1993 he moved to Penn State, where he is now DuPont Professor of Materials Chemistry and Physics. He is best known for his work on inorganic self-assembly, and on the chemistry of porous, lamellar, and nanoscale materials. His research has focused on the application of inorganic materials to different problems in solid state and surface chemistry, including photochemical energy conversion, nanoscale electronics, catalysis and electrocatalysis, chemical sensing, superconductivity, and environmental remediation. He is the author of approximately 250 scientific publications, including a few good ones, and has also edited three books on chemical sensing and solid state chemistry. He is an Associate Editor of the *Journal of the American Chemical Society* and the director of the Penn State MRSEC, the *Center for Nanoscale Science*.

Abstract: Nanocrystals and nanocrystal assemblies offer new ways to control the flow of light and the transport of electrons in photocatalysts and photoelectrochemical cells. Dye-sensitized TiO₂ cells are inexpensive devices for converting light to electrical energy, but their efficiency is low because they do not efficiently utilize the red part of the solar spectrum. By adding photonic crystal light scattering layers, the spectral response of dye sensitized TiO₂ cells can be extended significantly into the red. We have recently fabricated tandem cells from dye-sensitized TiO₂, which absorbs well in the visible, and single crystal Si, which is most efficient in the near-IR. This talk will also describe new photoelectrochemical cells based on “bed of nails” arrays of semiconductor nanowires (TiO₂, Si, CdSe), which allow one to separately control the length scales of light absorption and photochemical charge separation.

**The Mid-Hudson Section of the American Chemical Society
and
The Chemistry Department of Mount Saint Mary College**

Announce

Microwaves for Fast, Clean, Easy Organic Synthesis

Dr. Nicholas Leadbeater

Department of Chemistry
University of Connecticut

Wednesday, May 9, 2007

7:00 PM

Aquinas Hall, Room 303

Mount Saint Mary College, Newburgh, New York
(Refreshments at 6:30 PM)

Contact: Lynn Maelia at 845-569-3131 or by e-mail at maelia@msmc.edu

About the lecture: Microwave heating offers a way to make molecules quickly, easily and cleanly. In this presentation, microwave promoted synthesis of a range of organic compounds will be discussed as well as the challenges facing chemists wanting to use microwave chemistry to make large quantities of their target compounds. In addition to the application of microwave heating to the preparation of pharmaceuticals and fine chemicals, the fast easy and rapid synthesis of the valuable biofuel biodiesel will also be showcased.

About the speaker:

01/2004 - present University of Connecticut, USA. Assistant Professor
09/1999 - 12/2003 King's College London, UK. Royal Society University Fellow & Lecturer
09/1996 - 08/1999 Cambridge University, UK. University Research Fellow
09/1993 - 08/1996 Cambridge University, UK. Ph.D.
09/1990 - 08/1993 Nottingham University, UK. B.Sc.

Our research group of one postdoctoral worker, five graduate students and a number of undergraduates at the University of Connecticut are recognized as one of the best equipped laboratories in the world in the area of microwave-promoted synthesis. Through close links with the major scientific microwave manufacturers we have access to the majority of the commercially available apparatus as well as acting as a site for new product development. We currently have nine different microwave systems in our laboratories. For more information on our equipment and our publications see our research group website:

<http://chemistry.uconn.edu/leadbeater.html> or <http://homepages.uconn.edu/~nil03002>

Directions to Mount Saint Mary: Mount Saint Mary College is located at 330 Powell Avenue in Newburgh, NY. For additional information visit <http://www.msmc.edu>. Take I-84E to Exit 10. At the bottom of the ramp take a right onto 9W South. (From the East, take I-84W to the second exit after the Newburgh-Beacon Bridge (Exit 10S). At the bottom of the ramp, turn right onto Rte. 32 and then another right at the first traffic light onto 9W South.) From 9W South, turn left onto North Plank Road (south of the I-84 overpass). Stay on North Plank Road 1/4 mile and turn right at the first traffic light onto Powell Avenue. The College is 1/4 mile on the left.

NCW 2006 Poster Contest Winners

The following students were recognized for their work and efforts in the 2006 National Chemistry Week poster contest with the theme "Your Home-It's All Built on Chemistry". Sixty four posters from Bishop Dunn Memorial School were entered in the contest. First place winners in each category were submitted to the national competition sponsored by the American Chemical Society for judging in their spring 2007 national meeting.

K-2

1st place: Michaela Baker

3-4

1st place: Alexander Gormley
2nd place: Alexandra Ellingson
3rd place: Antonio Harris

5-8

1st place: Emma Wagner
2nd place: Michael Czerniak
3rd place: Erin O'Keefe

NATIONAL CHEMISTRY WEEK 2007 "The Many Faces of Chemistry " Celebrate October 21-27



Dutchess County Science Fair Results

The Annual Dutchess County Regional Science Fair was held on Saturday, March 24. Several members of the section assisted in judging those exhibits related to the study of chemistry. The Section presents special awards to those students who are deemed best able to demonstrate the understanding of their subject matter and were creative, thorough and clear in their presentation. There were quite a few projects we wanted to recognize as is evident from the long list of awards we presented. In addition to asking questions on their current work, the judges provided the students with suggestions on furthering their study of the subject. The group reviewed nearly 60 projects. Below are the names of this year's recipients and judges. Many thanks to those who volunteered their time on Saturday!!

Outstanding

Hanna Brandow
(6th grade at St. Denis/St. Columba)
*Transesterification - From the Fryer
to Your Fuel Tank*

Jeff Duncan
(8th grade at
Poughkeepsie Middle School)
Avogadro's Number

Zhong Zhuang
(John Jay High School)
Ethanol vs. Gasoline

Superior

Richard Coffin
(6th grade at St. Denis/St. Columba)
*The Effect of Temperature on a
Chemical Reaction*

Tara Grogan
(5th grade at St. Denis/St. Columba)
I've Reached my Boiling Point

Parker Swenson
(8th grade at
Wappingers Junior High School)
The Cleaning Power

Laya Varanasi
(Roy C. Ketcham High School)
*Hyperaccumulators - Plants that
Absorb Metals from the Environment*

Honorable Mention

Eric Berlinghoff
(7th grade at Van Wyck
Junior High School)
Which Salt Melts Better?

Narise Conner and
Shannon Moloney
(4th grade at Kinry Elementary)
Acid Effects

Rebecca Daves
(6th grade at Van Wyck
Junior High School)
Heat of Fusion

Kristen Duke
(9th grade at
Roy C. Ketcham High School)
Stay on Top with Surface Tension

Zachary Kellerman
(8th grade at St. Mary's - Fishkill)
Stop, I'm Shrinking

Emily Machado
(6th grade at St. Mary's - Fishkill)
The Dangers of Toothbrushes

Charles A. Ropes
(7th grade at St. Martin de Porres)
How Much Carbonation is in Soda?

Caitlin Smart
(Roy C. Ketcham High School)
You Are What You Eat

Jacob Wiegard
(6th grade at St. Denis/St. Columba)
*History & Science –
A Revolutionary Mix*

Judges

Jacqueline Bair
Lauren DiMisa
Beate Klingenberg
Nancy Klymko
Doris Love
Jocelyn Nadeau
Dominic Schepis
Patti Cusatis

Hudson Valley Science Café

Science Cafés are informal meetings held in cafés, usually once a month, for the discussion of important and interesting scientific issues. They are open to the public. The first “Cafés Scientifiques” were held in Leeds, UK in 1998. From there, Cafés gradually spread throughout the UK and the rest of the world. Currently, over 150 Cafés meet regularly to hear scientists talk about their work and discuss it with diverse audiences. A wide range of issues relating to science and technology have included such topics as climate change, the chemistry of chocolate, issues and obstacles of nanotechnology, biodiversity, cancer risk factors, consciousness, Darwinism, why some marriages succeed and others fail, genetically modified organisms and more.

A Science Café for the Hudson Valley is located at 280 Broadway in Newburgh, NY. Newburgh is centrally located, less than 1 hour from most of Westchester, Rockland, Putnam, Orange, Ulster, and Dutchess counties in New York, as well as parts of Northern New Jersey and Western Connecticut. If you would like to be added to the e-mail list to learn about speakers, suggest speakers, or if you have experience speaking to the public (and a topic of general interest), please e-mail Toby G. Rossman, Ph.D., Professor of Environmental Medicine, NYU School of Medicine, rossman@env.med.nyu.edu .

When is it?

The 4th Tuesday of the month, at 7:00 PM.

Where is it?

The Café of Hudson Valley Showcase, 280 Broadway, Newburgh, NY. There will be an entrance fee of \$3, which will include coffee or tea. You can also purchase light meals and desserts. For directions, see <http://www.hudsonvalleyshowcase.com> Free parking in back of building. Enter from the back. Doors open at 6:30 PM.

Further information on Science Cafés: <http://www.cafescientifique.org/north%20america-links.htm>

Schedule - 2007

April 24 “Characteristics and Health Effects of the World Trade Center Dust”

George Thurston, Associate Professor of Environmental Medicine, NYU School of Medicine

May 22 “Inherent Gender Differences in Science/Math Abilities - A Critical Analysis”

Alison Nash, Professor and Giordana Grossi, Asst. Professor, Psychology Department, SUNY New Paltz

June 26 “Renewable Energy”

William Makofske, Professor Emeritus of Physics and Environmental Sciences, Ramapo College

July 24 “The Psychology of Middle Age”

Professor Lawrence Force and Professor Paul Schwartz, Psychology Department, Mount St. Mary College

Other speakers who have committed include:

A chemist looks at the origin of life (Bob Shapiro, Chemistry, NYU)

The toxicology of Polonium-210 (Beverly Cohen, Env. Med., NYU)

Is it possible to create a vaccine against HIV? (Arthur Nadas, Environmental Medicine, NYU)

The psychology of belief in pseudoscientific and paranormal claims (Terrence Hines, Psychology, Pace)

Overqualification and its impact on employee attitudes and behaviors (Maynard, Psychology, New Paltz)

Genetic alterations in Hudson River fish (Ike Wirgin, Environmental Medicine, NYU)

Promises and pitfalls of human genotyping (Ron Snyder, Shearing Plough Research Inst., Summit, NJ)

The environment and cancer (Toby Rossman, Environmental Medicine, NYU)

The criminalization of mental illness (Zebulon Taintor, Nathan Kline Institute)

The biology of skin aging (Gopinathan K. Menon, Avon Products, Inc)

The Mid-Hudson Section has received a \$500 grant from the American Chemical Society to support the foundation of a Science Café in the Hudson Valley region.

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