

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



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**50 YEAR MEMBERS**

50 year members of the ACS will be recognized at the Undergraduate Research Symposium at Vassar College on April 25. You will receive an invitation in the mail soon. Please plan to join us!

**\*\*\*Join the Mid-Hudson ACS Listserv!\*\*\***

The January and August 2007 issues of the Mid-Hudson Chemist will be available **ONLY** on the Section's website, at <http://www.midhudsonacs.org>. When the issue is available, a message will be sent to the listserv. The Mid-Hudson Section does not automatically subscribe members to its listserv. To add your e-mail address, you must send an e-mail message to [listserv@acc.msmc.edu](mailto:listserv@acc.msmc.edu) with a blank subject line and the following command in the body of your message:

subscribe acs-mh

You will then receive an e-mail message with more information about the listserv (posting, unsubscribing, etc.).

Don't miss the next issue of the Mid-Hudson Chemist! Subscribe now!

## Mid-Hudson Section of the American Chemical Society High School Chemistry Mini Grants

The Mid-Hudson Section of the ACS will fund up to five \$500 grants to be awarded to high schools in the area covered by the Mid-Hudson Section. The funding must be used to enhance the laboratory portions of high school chemistry classes. In particular, we expect the funds to be used to introduce new experiments or enhance existing experiments by the purchase of supplies or equipment. Although we expect to focus the grants on enhancements in AP chemistry courses, we will also consider proposals for Regents chemistry courses. In support of this program, the chemistry departments at Marist, New Paltz, Vassar, and Orange County Community College will make available on the Mid-Hudson Section web site ([midhudsonacs.org](http://midhudsonacs.org)) lists of the General Chemistry experiments currently being used at those colleges along with contact information for someone who can provide information about the experiments. The experiment will be available by February 5. Applicants can, of course, propose introducing other experiments. The grants will be awarded this spring with the expectation that new experiments will be introduced in the 2007-2008 school year.

### Grant Applications

The grant applications are due by March 30, 2007 and should be sent to Dan Freedman either by email at [freedmad@newpaltz.edu](mailto:freedmad@newpaltz.edu) or by snail mail to:

Dan Freedman  
Chemistry Department  
SUNY New Paltz  
1 Hawk Drive  
New Paltz, NY 12561

Applications should be no more than five pages in length. The application should include a brief CV for each teacher involved in the program giving educational background and employment history, a description of the experiment(s) that are to be introduced along with how they will enhance the curriculum of the classes in which they will be used, the number of students that will be affected, and a budget for how the \$500 will be spent.

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## National Chemistry Week 2006 October 23-27

### “Your Home, It’s All Built On Chemistry”

The Mid-Hudson Section would like to thank the hosts and volunteers who helped to make the local NCW events a great success!

### National Chemistry Week Report

Submitted by Dan Freedman, NCW coordinator

National Chemistry Week activities were held at Marist, Vassar, Mount St. Mary, and SUNY New Paltz. Over 200 elementary school children, undergraduates, and college faculty participated in NCW events in the Hudson Valley!

**Marist College** The Marist College faculty and students entertained 25 8-12 year olds with a variety of hands on activities and demonstrations including: making paint, the Nylon rope trick, making slime, cola and Mentos, dry ice bubble, and investigating acidity of household products. Students helping out included: Jillian Lennartz, Lauren Jackson, Erin Clough, Janet Mathes, Alex Emerel, Carl Davidson, Christine Schlenk, and Katie Amodeo.



**Vassar College** Continuing a long tradition, the Vassar College faculty and students hosted a College Bowl chemistry quiz and a magic show. Teams of students from Vassar, Marist, SUNY New Paltz, and Mount St. Mary competed in the College Bowl which was organized by Vassar chemistry professor Chris Smart. Approximately 50 school-age students attended the magic show which was presented by the following Vassar College students: Steve Wells, Sam Macmillan, Sean Boley, Emily Bruce, Adam Goldman-Yassen, Phil Mulugeta, Elysa Kliman, Justin Salciccioli, Aidan Benson, and Jon Turner.

**Mount St. Mary College** The Mount St. Mary College faculty and students entertained 40 elementary school students with a variety of hands-on activities including: building paper bridges and structures, shrinky-dinks, goofy-putty, film canister rockets, cartesian divers, PVC pipe marshmallow shooters, and liquid nitrogen ice cream.

MSMC chemistry professor Lynn Maelia organized the event. She was assisted by the following students: Christopher Yambay, Dana Compton, Jeanne DeLyra, Adrienne Cruz, Kyle Steimle, Colleen Finnery, Justine Delage, Vanessa Seminara, John Ollive, Bill Maelia, Katie Goodrich, and Kristy Muscatello.

**SUNY New Paltz** The SUNY New Paltz faculty and students entertained 35 elementary school students with a variety of hands-on activities including: spaghetti strength, the foundation station, PVC marshmallow shooters, and make your own paint.

The event was organized by New Paltz student Megan Mackey, assisted by chemistry professors Pamela St. John, Dan Freedman and the following students: Igor Gembitsky, Darren Ceckanowicz, Kerry Beyrer, Elaina Chan, Jim Noble, Sarah Goulet, Jordan Sumliner, Whitney Fratello, Pedro Medina, Alison Fliegel, Kerri Kelty, and Stephanie DeRobertis.

National Chemistry Week 2007  
October 21 - 27  
"The Many Faces of Chemistry"



## VASSAR'S NEW X-RAY DIFFRACTOMETER: STRUCTURAL DIVERSITY IN NANOPOROUS TITANIUM ARYLOXIDE METAL-ORGANIC NETWORKS

**Dr. Joseph M. Tanski**  
Department of Chemistry  
Vassar College

Tuesday, February 13, 2007  
Marist College

Lecture: 7:00 PM  
Room: To Be Determined  
Donnelly Science Building

Room to be announced on the Mid-Hudson ACS listserv and at [www.midhudsonacs.org](http://www.midhudsonacs.org).

Contact Neil Fitzgerald (Marist) at 845-575-3000 ext. 2491 or by e-mail at [Neil.Fitzgerald@marist.edu](mailto:Neil.Fitzgerald@marist.edu).

**About the lecture:** Chiral nanoporous metal-organic coordination network (MOCN) materials have emerged as an active area of research in the field of crystalline materials engineering. Such materials have potential application as tunable heterogeneous asymmetric catalysts. A key feature of MOCN materials is that considerable structural predictive ability exists over traditional solid-state inorganic compounds in their design. A new CCD X-ray diffractometer has made the necessary structural work possible at Vassar. Crystallography and the instrument itself will be discussed in the context of current work on the synthesis and characterization of a unique class of covalent early transition metal aryloxide MOCN compounds. Diverse network architectures are obtained based on different 4,4'-bisphenoxide bridging ligands. The reaction of  $\text{Ti}(\text{OR})_4$  (R = isopropyl, S-(+)-2-butyl) with a dihydroxy functionalized organic spacer (4,4'-biphenol, bis(4-hydroxyphenyl)sulfide, bis(4-hydroxyphenyl)methane) in various solvents (ether, tetrahydrofuran or pyridine) at 130° C affords microcrystalline materials which have been characterized by single crystal X-ray diffraction. These include a homochiral three-dimensional coordination polymer from 4,4'-biphenol,  $\{[\text{Ti}(\text{OC}_6\text{H}_4\text{C}_6\text{H}_4\text{O})_{1.5}(\text{O}(\text{S})-(+)\text{-}2\text{-Bu})(\text{HO}(\text{S})-(+)\text{-}2\text{-Bu})]_2\}_n$ , and several polymers derived from bis(4-hydroxyphenyl)sulfide, including a three-dimensional network  $\{[\text{Ti}(\text{OC}_6\text{H}_4\text{SH}_2\text{C}_6\text{H}_4\text{O})_2]_2\}_n$ , two-dimensional sheet  $\{[\text{Ti}(\text{OC}_6\text{H}_4\text{SH}_2\text{C}_6\text{H}_4\text{O})_2(\text{THF})_2]_2\}_n$  and a one-dimensional chain,  $[\text{Ti}(\text{OC}_6\text{H}_4\text{SC}_6\text{H}_4\text{O})_2(\text{py})_2]_n$ . In order to probe how the structural features of the dihydroxy spacer ligand precursors may affect MOCN structure, the X-ray structures of Bisphenol-A (bis(4-hydroxyphenyl)-2-propane) and three of its derivatives have been determined. The results show that the  $\text{C}_{\text{aryl}}\text{-E-C}_{\text{aryl}}$  angle (where E = S, 104.21(4)°;  $\text{C}(\text{CH}_3)_2$ , 108.9(7)°;  $\text{CH}_2$ , 114.85(7)°; O, 118.8(1)°) may be integral in controlling network dimensionality and topology in metal-aryloxide networks obtained from derivatives of Bisphenol-A.

**About the speaker:** Dr. Tanski earned his A.B. in chemistry from Vassar College in 1995. He received a Ph.D. from Cornell University in 2000, after working in the field of inorganic chemistry with [Peter T. Wolczanski](#). After completing a postdoctoral appointment with [Gerard Parkin](#) at Columbia University, Dr. Tanski spent time as a substitute assistant professor at the City University of New York's John Jay College of Criminal Justice before returning to Vassar as an assistant professor in 2003. Currently, Dr. Tanski is serving as a Member-At-Large of the [Mid-Hudson Section](#) of the [American Chemical Society](#) (ACS). At Vassar, Dr. Tanski is the Assistant Director of the [Undergraduate Research Summer Institute](#) (URSI), serves as a member of the [Pre-Medical Advisory Committee](#), and is the Principal Investigator on [a grant from the National Science Foundation](#) supporting a single crystal X-ray diffraction facility.

**Directions:** Marist College is located at 3399 North Road, just off Rte. 9, approximately 1 mile north of the Mid-Hudson Bridge in Poughkeepsie, NY. Detailed directions are available at [www.marist.edu/welcome/direct.html](http://www.marist.edu/welcome/direct.html).

For a campus map, please visit [www.marist.edu/welcome/map.html](http://www.marist.edu/welcome/map.html).

## AN INDUSTRIAL CHEMIST'S PERSPECTIVE OF THE ALKYLATION OF NAPHTHALENE FROM LABORATORY TO PILOT PLANT

**Mr. Richard Abramshe**  
King Industries, Norwalk CT

Wednesday, March 14, 2007  
SUNY New Paltz

Lecture: 7:00 PM  
Room: Coykendall Science Building (CSB) Rm 320

Contact: Dr. Dan Freedman (freedmad@newpaltz.edu, 845-257-3795)

**About the lecture:** Alkylated naphthalenes are a unique class of synthetic fluids with outstanding thermo-oxidative stability relative to conventional mineral base oils and many synthetic fluids, such as esters and poly-*alpha*-olefins. This talk will discuss the relationship between the general structure of the alkylated naphthalene and its physical and chemical properties. In particular, various structural characteristics, such as the alkyl chain length, alkyl chain branching, and number of alkyl groups on the naphthalene ring, will be correlated to properties such as thermo-oxidative stability, viscosity, viscosity index, pour point and solubility parameter. Additionally a general discussion of the challenges an industrial chemist encounters during transition from laboratory to the pilot plant.

**About the speaker:** Mr. Abramshe is currently employed as a Process Development chemist for King Industries located in Norwalk, Ct. In his current position he is responsible for the scale-up of industrial processes from the laboratory to pilot plant scale, up to 500 gallons. He received his BS in Chemistry from Marist College in 1995. He has previously worked for First Brands Corporation and Texaco Chemical Corporation before joining King Industries in 1996. He currently resides in Esopus, NY with his family.

**Directions to SUNY New Paltz:** Take I-87 to Exit 18 and turn left at the traffic light after the toll plaza (Rte. 299). From Rte. 299, turn left at the third traffic light onto S. Manheim Blvd. (Rte. 32 South). Turn right onto Mohonk Ave. East. For complete directions and campus map, visit <http://www.newpaltz.edu/about/directions.html>.

## 8<sup>th</sup> 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](mailto: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.

**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 TiO<sub>2</sub> 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 TiO<sub>2</sub> cells can be extended significantly into the red. We have recently fabricated tandem cells from dye-sensitized TiO<sub>2</sub>, 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 (TiO<sub>2</sub>, Si, CdSe), which allow one to separately control the length scales of light absorption and photochemical charge separation.

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## **Call for Applications for 2007 Undergraduate Student Research Awards**

The Mid-Hudson Section of the American Chemical Society invites applications for 2007 Undergraduate Research Awards from student researchers who plan to present their work at the 2007 undergraduate poster symposium. Three students will be selected to receive \$200 awards. *Applications for research awards are not a requirement for attending and presenting at the poster symposium.*

### **Rationale**

The Mid-Hudson Section wishes to reward undergraduates who participate in good quality research and plan to present at the poster symposium.

### **Criteria**

Research work should be completed by a student currently enrolled (2006-2007 academic year) as an undergraduate at one of colleges in the Mid-Hudson ACS area. Students must plan to present their work at the 2007 Mid-Hudson ACS Undergraduate Research Poster Symposium.

### **Application Procedure**

Applicants must submit a short (2 page maximum) summary of their research work aimed at an audience with college level chemistry knowledge. Applicants should include a brief background, relevant results, and possible significance of the research to the wider community. The summary should be written in normal scientific format and divided into appropriate sections (Introduction, Experimental, Results and Discussion, Conclusion, Acknowledgements, and References). Applications should be sent along with the poster abstract to Dr. Joe Tanski (Vassar College, Box 601, 124 Raymond Ave, Poughkeepsie, NY 12604, e-mail: jotanski@vassar.edu) by April 7, 2007, preferably in electronic format (as a WORD document).

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## **American Chemical Society Mid-Hudson Section College Recognition Awards**

The Mid-Hudson Section of the American Chemical Society is once again sponsoring the College Recognition Awards. The purpose of this award is to recognize achievement in the field of chemistry and to encourage further study in chemistry. One student from each college in the Mid-Hudson Section will be presented a certificate and cash award at the Undergraduate Research Symposium at Vassar College on April 25, 2007.

The chemistry faculty at each college should select one award winner on the basis of general excellence in chemistry. Four-year degree-granting colleges may wish to recognize a junior year student, while a community college may select a second-year student.

Winning selections from the faculty should be submitted by April 1, 2007. Please send the student's name, as well as the faculty advisor's name to Dan Freedman by e-mail (freedmad@newpaltz.edu).

## Microwaves for Fast, Clean, Easy Organic Synthesis

**Dr. Nicholas Leadbeater**  
Department of Chemistry  
University of Connecticut

Wednesday, May 9th, 2007  
Location to be Determined

**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>

## 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 Foundations 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 CCD's 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.

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**Marist College**  
**School of Science**  
**Chemistry Teaching Associate Faculty Position**

The School of Science at Marist College invites applications for a full-time, non tenure-track, continuing faculty position as **Chemistry Teaching Associate** in the Department of Chemistry, Biochemistry, & Physics, beginning September 1, 2007. Minimum qualifications include completion of an M.S. or M.A. in Chemistry or a closely related field, prior teaching experience, strong interest in undergraduate education and a commitment to excellence and innovation in teaching. Preferred qualifications include 2+ years of experience in academic or industrial labs and prior college-level teaching experience. Responsibilities will include 15 contact hours per week teaching laboratory sections of introductory and organic chemistry courses, and occasional introductory chemistry lecture sections; preparing materials for these labs; supervising student lab assistants; and holding eight office hours per week. The successful candidate will join a departmental culture characterized by an especially strong sense of community in which students are the central focus and faculty are both accessible and approachable. S/he will be expected to collaborate with other faculty to provide an exceptional laboratory learning experience.

Marist College is an independent, liberal arts-based comprehensive institution that embraces the teacher/scholar model, with teaching excellence as its first priority. Centrally located in the scenic and historic Hudson Valley, less than two hours north of New York City, the College enrolls about 4200 full-time undergraduates and 1800 adult students. The Department offers B.A. and B.S. degrees in Chemistry and Biochemistry, and serves a School of Science with close to 400 majors. For additional information about the College (an institutional member of the Council on Undergraduate Research), the School of Science, and the Department, please visit our web site at [www.marist.edu/science](http://www.marist.edu/science).

**Marist College is strongly committed to the principle of diversity. We are especially interested in receiving applications from members of ethnic minorities, women, disabled individuals and other under-represented groups.** To apply, please send a cover letter, resume or curriculum vita, statement of teaching philosophy, copies of all undergraduate and graduate transcripts, and three recent letters of recommendation to be sent directly by your referees. Review of applications will begin immediately and continue until the position is filled. Please address all application materials to: Chemistry Search, MPO-905, Marist College, 3399 North Road, Poughkeepsie, NY 12601-1387. Electronic submission of application materials to [human.resources@marist.edu](mailto:human.resources@marist.edu) is preferred.