



Vol. 83 (5) May 2007

ISOTOPICS

The Cleveland Section of the American Chemical Society

On Deck:

September Meeting
To Be Determined

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May Meeting Notice

Morley Award

Wednesday, May 30, 2007

John Carroll University, Dolan Science Center

4:30 pm	Executive Committee Meeting
6:00 pm	Social Half Hour
6:30 pm	Dinner
7:30 pm	Morley Award Presentation and Lecture
8:30 pm	Informal Discussion

A Molecular Approach to Artificial Photosynthesis and the Light Driven Generation of Hydrogen from Water

Dr. Richard Eisenberg, University of Rochester

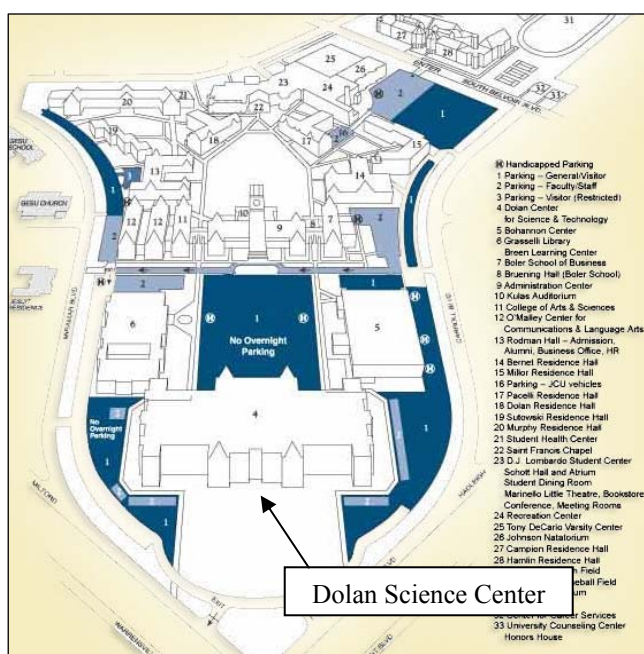
Energy for sustainable development is one of this century's great challenges. In order to meet this challenge successfully, efficient solar energy utilization must be achieved, a key facet of which is the conversion of light to stored chemical energy through artificial photosynthesis and the splitting of water driven by visible light. Photosynthesis, whether natural or artificial, relies on photoinduced charge separation (PICS) and the accumulation of charge to drive electrochemical processes. For PICS, dyad and triad systems having donors and/or acceptors linked to a charge transfer chromophore have been investigated. The chromophores in these systems are platinum complexes having long-lived charge transfer excited states. The platinum chromophores have also been used in multiple component systems containing an electron relay, an electron source and a catalyst for the reduction of aqueous protons to make H₂. Recent work has involved TiO₂ nanoparticles as both a scaffold and an electron acceptor from the photo-excited chromophores. With the use of platinized TiO₂ particles and surface bound chromophores, integrated molecular photochemical devices for hydrogen generation have been obtained.

DINNER RESERVATIONS REQUIRED: Please RSVP by contacting Dr. Lily Ng, by phone at 216-687-2467 or by e-mail at l.ng@csuohio.edu by **5 pm on Friday, May 25**. (For phone reservations, please clearly spell your last name and leave a return phone number.) Cost of the dinner is \$20 for members & guests and \$10 for students. Checks made out to "Cleveland ACS" are greatly appreciated. Vegetarian meal requests should be directed to Dr. Lily Ng.

Directions to John Carroll University

From I-271: Take I-271 to Exit 32 (Cedar/Brainard Roads). Follow Cedar Road west for 2.5 miles to South Belvoir Blvd. Turn left onto South Belvoir and travel south 0.7 miles. The entrance to campus will be on your right after crossing Washington Blvd. The Dolan Science Center is highlighted on the map below.

For directions from other locations, please see: www.jcu.edu/map.htm. For the campus map, see: http://www.jcu.edu/pubaff/ABOUTJCU/campus_map.htm.



Speaker Bio

Richard Eisenberg is the Tracy Harris Professor of Chemistry at the University of Rochester. A native New Yorker, he received his undergraduate and graduate degrees from Columbia University. In 1973, he joined the faculty of the University of Rochester after spending six years as Assistant and Associate Professor at Brown University in Providence, RI. He served as Chair of the UR Chemistry Department from 1991-'94 and was named to the Harris Chair in 1996. Eisenberg's research interests are in inorganic and organometallic chemistry, photochemistry relating to solar energy conversion, and catalysis. Some of Eisenberg's specific research activities include the study of new luminescent square planar complexes

and their incorporation into molecular assemblies for photoinduced charge separation and artificial photosynthesis, the development of parahydrogen induced polarization for hydrogen addition reactions, the discovery of new luminescent gold and platinum group element complexes for application in electroluminescent devices, and the design of new electrophilic catalysts for electrocyclizations and tandem organic transformations. He has mentored seventy Ph.D. and postdoctoral research students. Foremost among his activities in the chemistry community, Eisenberg is the Editor-in-Chief of *Inorganic Chemistry*, the leading journal in its field. He has also served as chair of the Inorganic Division, chair of the Organometallic Subdivision, chair of the Gordon Research Conference on Organometallic Chemistry and as a member of the editorial advisory boards of the *Journal of the American Chemical Society*, *Inorganic Chemistry* and *Organometallics*. He has been the recipient of a number of awards including the 2003 ACS Award for Distinguished Service in the Advancement of Inorganic Chemistry and was elected a Fellow of the American Association for the Advancement of Science in 2005. Eisenberg teaches upper-level and graduate courses in inorganic and organometallic chemistry and has taught introductory chemistry for 25 years including an innovative majors-level course presented in the context of energy and the environment.

Summer Chemistry Classes at CSU

Don't waste your summer - take classes and get ahead! The summer session at Cleveland State University starts on May 21. Courses available include College Chemistry I and II (for nurses and other health professionals; lecture and lab), General Chemistry I and II (for science, engineering, and pre-med majors; lecture and lab), Organic Chemistry I and II (lecture and lab), and Biochemistry. Each course will be taught in a six-week abbreviated "semester". For more information, go to www.csuohio.edu and click on the "Class Schedule" link. If you have questions, contact the undergraduate advisor, Dr. David Ball, at 216-687-2456.

51st Annual SAS/ACS/AVS May ConferenceWednesday, May 23rd at John Carroll University

Co-sponsored by the Cleveland Sections of the Society for Applied Spectroscopy, the Analytical Topics Group of the American Chemical Society, and the American Vacuum Society

Free conference registration & lunch for all students

Invited Speakers:

Jerry Mearini, *TeraPhysics*: High Powered Miniature Backward Wave Oscillator and the Potential Impact to THz Spectroscopy

Doug Rohde, *Lake County Crime Lab*: Inhalant Abuse Involving Difluoroethane

Geoffery Landis, *NASA-Glenn*: Three Years on Mars: The Mars Exploration Rovers Mission

Yeager Award: TBD**Additional Presentations:**

Laser-Induced Breakdown Spectroscopy, **Dan Willoughby**, *Ocean Optics*

High Quality Spectra and Improved Spatial Resolution: ATR Imaging, **Lou Tisinger**, *PerkinElmer*

New NMR Tools for Challenging Natural Product Samples, **Kim Colson**, *Bruker-Biospin*

Environmental Analysis of Ground, Waste and Drinking Water by Single Quadrupole GC-MS, **Terry Jeffers**, *ThermoFisher*

Standards (or lack thereof) in Capsaicinoids Research, **Robert Thompson**, *Oberlin College*

Non-hydrolytic Sol-Gel Processing of Transition Metal Sulfides, **Nathalie Pedoussaut**, *UToledo*

Applications of ICP-MS, **Paul Krampitz**, *PerkinElmer*

Whose Oil is it? –Supplier Identification by NMR, **Kurt Wollenburg**, *Lubrizol Corporation*

Spectroscopy and Photochemistry of Metaloxide Nanostructures, **Yixin Zhao**, *CWRU*

A High Field NMR-Based Approach to Identify Bioactive Compounds in Black Raspberry, **Ruiling Fu**, *UAkron*

Crystallization Studies of AA'W3O12 Compounds, **Amy Gindhart**, *UToledo*

Spectroscopy and Photochemistry of Phthalocyanines on Quantum Dots, **Yu Cheng**, *CWRU*

Spectroscopic Study of the Energy Transfer from Quantum Dots to PDT Agents, **Smita Dayal**, *CWRU*

Characterization of Poly(styrene-co-allyl alcohol) by Multidimensional NMR, **Xiaohong Li**, *UAkron*

Controlling the Particle Size of Negative Thermal Expansion Materials, **Leah Kozy**, *UToledo*

The New PHI 5000 VersaProbe XPS Microprobe, **Sankar Raman**, *Physical Electronics*

Thermoelectrics: A New Solar Energy Modality?, **Xiaofeng Qiu**, *CWRU*

Winners of the John Bell Award will be acknowledged at the banquet dinner.

Please contact Sara Freeman (freeman@ferro.com, 216-750-6655) if you interested in attending the May Conference. More information on the program can be found at: <http://www.s-a-s.org/Cleveland-local/>.

2007 NEOSEF ACS Award Winners

American Chemical Society (Cleveland Section) Special Awards selected six winning science fair projects at the Northeastern Ohio Science and Engineering Fair (NEOSEF) held at Cleveland State University on March 13, 2007. The winners are:

First Place: Elizabeth Bailey

School: Columbia High

Grade: 11-12

Project Title: Renewable oils from the flash pyrolysis of biomass

Second Place: Christiane Mhanna

School: Beaumont

Grade: 9-10

Project Title: Do high temperatures increase the amount of saturated fat in different cooking oils?

Third Place: Sara Pink

School: Shaker Hts Middle

Grade: 7-8

Project Title: To dye or not to dye: That is the question

Honorable Mention: James Duval

School: St Dominic Elem

Grade: 7-8

Project Title: Does the number of ions in different salts affect the melting of ice?

Honorable Mention: Christine Cadman

School: Madison High

Grade: 11-12

Project Title: Bio diesel

Honorable Mention: Kevin Stang

School: Mayfield Middle

Grade: 7-8

Project Title: What is in the water?

The winners were invited to the Cleveland Section of American Chemical Society Awards Night at Cleveland Skating Club on April 18, 2007 to receive their prizes.

Candidates Needed for 2008 Cleveland Section Offices

The Cleveland Section is seeking candidates to run on the fall election slate for the following offices: Chair-Elect, Secretary, Director, Councilor, Alternate Councilor, and Trustee. Elected officers would begin service in January 2008. Descriptions of the various positions may be found in the Cleveland Section Job Manual at http://www.csuohio.edu/cleveland_acs/jobmanual.pdf. Interested parties should contact Dr. Robert G. Salomon as soon as possible at rgs@po.cwru.edu or 216-368-2592.

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