

# THE Indicator

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**Professor Richard Eisenberg**  
**2013 Nichols Medalist**  
*(See pages 9 - 11.)*

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**THE INDICATOR****Manager / Editor** - LINDA ATKINS

1 Milbark Court, Homosassa, FL 34446

973-981-4383; Fax 352-503-7613

[linatkins@tampabay.rr.com](mailto:linatkins@tampabay.rr.com)**Advertising Manager** - VINCENT GALE

MBO Services, PO Box 1150

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[vincegale@mboservices.net](mailto:vincegale@mboservices.net)**INDICATOR COMMITTEE****Chair, DR. LES McQUIRE**

17 Crown Drive, Warren, NJ 07059

908-334-5473, [Les@LesMcQuire.org](mailto:Les@LesMcQuire.org)**New York Section Rep.****DR. NEIL JESPERSEN**

Chemistry Dept., St. John's University

8000 Utopia Parkway, Jamaica, NY 11439

718-990-5221

[jespersen@stjohns.edu](mailto:jespersen@stjohns.edu)**North Jersey Section Rep.****JACQUELINE ERICKSON**

GSK, 1500 Littleton Road, Parsippany, NJ 07054

973-889-2368

**e-mail: [jacqueline.a.erickson@gsk.com](mailto:jacqueline.a.erickson@gsk.com)****Web Masters**

NY Section - DR. BRIAN GIBNEY

[postmaster@newyorkacs.org](mailto:postmaster@newyorkacs.org)

NoJ Section - PAUL TUKEY

[tukey@verizon.net](mailto:tukey@verizon.net)**NEW YORK SECTION**<http://newyorkacs.org>**Chair, DR. PHILIP H. MARK**

1522 Luddington Road, East Meadow, NY 11554

516-489-7920

[philip.mark@ncc.edu](mailto:philip.mark@ncc.edu)**Chair-Elect, DR. PAMELA K. KERRIGAN**

The College of Mount Saint Vincent, Division of

Natural Sciences, 6301 Riverdale Avenue,

Riverdale, NY 10471

718-405-3402

[pamela.kerrigan@mountsaintvincent.edu](mailto:pamela.kerrigan@mountsaintvincent.edu)**Secretary, DR. JOSEPH M. SERAFIN**

Dept. of Chemistry, St. John's University

8000 Utopia Parkway, Jamaica, NY 11439

718-990-5226

[serafinj@stjohns.edu](mailto:serafinj@stjohns.edu)**Section Office**

St. John's University, Chemistry Dept.

8000 Utopia Parkway, Jamaica, NY 11439

516-883-7510; Fax 516-883-4003

[njesper1@optonline.net](mailto:njesper1@optonline.net)**NORTH JERSEY SECTION**<http://www.njacs.org>**Chair, DR. JEFFERSON TILLEY**

19 Evergreen Drive, North Caldwell, NJ 07006

973-723-6330

[tilleyjk@optonline.net](mailto:tilleyjk@optonline.net) • [tilleyjk@FDU.edu](mailto:tilleyjk@FDU.edu)**Chair-Elect, DR. MONICA SEKCHARAN**

Assistant Research Professor

RCSB Protein Data Bank

Center for Integrative Proteomics Research

Rutgers, The State University of New Jersey

174 Frelinghuysen Rd., Piscataway, NJ 08854-8087

[monicasekharan@njacs.org](mailto:monicasekharan@njacs.org)**Secretary, BETTYANN HOWSON**

49 Pippins Way, Morris Township, NJ 07960

973-822-2575

[chemphun@gmail.com](mailto:chemphun@gmail.com)**Section Office**

49 Pippins Way, Morris Township, NJ 07960

973-822-2575 • [chemphun@gmail.com](mailto:chemphun@gmail.com)**THE Indicator** 

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**CONTENTS**

Advertisers Index .....	20
Call for Nominations .....	19
New York Meetings .....	10-13
Nichols Symposium .....	9-11
North Jersey Meetings .....	6-7
Others .....	18-19
Professional/Product Directory .....	20

**EDITORIAL DEADLINES**

April	February 20
May	March 20
June	April 20
September	July 20
October	August 20
November	September 20
December	October 20
January 2014	November 20
February	December 20, 2013
March	January 20, 2014

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## March Calendar

### NEW YORK SECTION

**Thursday, March 7, 2013**

Long Island Subsection  
See page 12.

**Thursday, March 7, 2013**

Chemical Marketing & Economics Group  
See pages 12-13 .

**Friday, March 15, 2013**

Nichols Symposium  
See pages 9-11.

**Friday, March 15, 2013**

High School Teachers Topical Group  
See page 13.

**Thursday, March 21, 2013**

Long Island Subsection Board Meeting  
See page 13.

**Monday, March 25, 2013**

Biochemical Topical Group  
See page 14.

**Tuesday, March 26, 2013**

Nanoscience Discussion Group  
See page 14.

### NORTH JERSEY SECTION

**Monday, March 11, 2013**

Careers in Transition Group  
See page 6.

**Tuesday, March 12, 2013**

Mass Spectrometry Discussion Group  
See page 7.

**Tuesday, March 19, 2013**

North Jersey Chromatography Group  
See page 7.

**Tuesday, March 12, 2013**

North Jersey Executive Committee Meeting  
See page 6.

***The Indicator is  
posted to the web  
on the 15th of the  
previous month at  
[www.TheIndicator.org](http://www.TheIndicator.org)***

**Deadline for items to be included in  
the April 2013 issue of  
*The Indicator* is  
**February 20, 2013****



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## **THIS MONTH IN CHEMICAL HISTORY**

*Harold Goldwhite, California State University, Los Angeles*

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I am writing this column – such are the exigencies of the publishing process – early in January, and at the start of a new year my thoughts turn to significant anniversaries that chemists should be acknowledging in 2013. As an opera lover I know from extensive publicity that this year marks the 200th. anniversary of the birth of Giuseppe Verdi and the 100th. anniversary of the birth of Benjamin Britten, both significant composers in the development of opera. But what should chemists be taking note of? To help jog my memory I turn to “The Timetables of Science”, a chronology compiled by Alexander Hellemans and Bryan Bunch (Simon and Schuster, New York, 1988).

It turns out that 1913 (on the eve of World War 1) was a rich year in the progress of chemistry. On the industrial front let's look at the work of Friedrich Bergius. Born near Breslau in 1884 Bergius studied chemistry (his father owned a chemical plant) in Leipzig; Berlin, where he studied with Nernst; and Karlsruhe, where he studied with Haber. These experiences led him to examine reactions under conditions of high pressures and temperatures. In 1911 he moved to Hanover as a Privat-Dozent where he began the study of the hydrogenation of coal and oil that yielded successful results in 1913. He began his industrial career in Essen in 1914. The Bergius process produced gasoline from coal or heavy oil but was not fully developed on an industrial scale before the end of the war in 1918. It involved mixing pulverized coal and heavy oil with a metal catalyst and hydrogenating the heated mixture at around 200 atmospheres pressure. From 1000 kg of coal 750 L of gasoline was produced. The Bergius process has been used in a number of countries since, and is still of interest today. Bergius won the Nobel Prize in chemistry in 1931; he shared it with the chemical engineer Carl Bosch, both being recognized for work on high pressure synthesis, Bosch for his work with Haber on ammonia synthesis.

A new element, protoactinium, was discovered in 1913 by Kasimir Fajans. Fajans was born in Warsaw in 1887. His chemical career led him to study in Leipzig, Heidelberg, and Zurich. In 1910 he worked with Rutherford in Manchester, England on radioactivity; Henry Moseley was another colleague. With Soddy he formulated the radioactive displacement law. Returning to Karlsruhe he isolated with his colleague Oswald Goehring a radioisotope of the new element 91, protoactinium. In 1935 Fajans, of Jewish background, left Germany for England and then the United States where he became a faculty member at the University of Michigan, Ann Arbor. Among many other contributions to chemistry Fajans, Born, and Haber developed fundamental thermodynamic relationships; and when I studied inorganic chemistry we learned Fajans' rules, a way of deciding whether a chemical bond will be covalent or ionic.

Leonor Michaelis was born in Berlin in 1875 and studied medicine in Berlin. He worked in private laboratories and in clinical medicine, and was drawn to the study of bacteriology and biochemistry. He established his biochemical laboratory at the University of Berlin, where his title was “Extraordinary Professor” – a literal translation which simply marks him as not a regular member of the faculty! He began studying enzyme reactions along with his female collaborator the Canadian physician Maude Menten. In 1913 they proposed a mathematical expression to explain the rates of enzymatically catalysed reactions, the Michaelis-Menten equation, still used today.

There is more to say about the year 1913 in chemistry. Watch this space.

I have just published “A Chemical Chrestomathy: Chemical History Sketches, Vol. 1: Chemists”. It is available (at a modest price!) from Amazon.com. Just search for the title. The book contains many short sketches of the careers of chemists, slightly modified from the forms in which they first appeared in a number of ACS Local Section journals.

## North Jersey Meetings

<http://www.njacs.org>

### NORTH JERSEY EXECUTIVE COMMITTEE MEETING

The March NJACS Executive Committee meeting will be held in conjunction with the Mass Spec Topical Group.

Section officers, councilors, committee chairs, topical group chairs, and section event organizers meet regularly at the Executive Committee Meeting to discuss topics of importance to running the section and representing the membership. All ACS members are welcome to attend this meeting and to become more involved in section activities.

**Date:** Tuesday, March 12, 2013

Time: Dinner 6:15 PM

Executive Meeting 7:15 PM

Place: Holiday Inn Somerset-Bridgewater  
195 Davidson Avenue  
Somerset, NJ

Those interested in attending the dinner need to register for the meeting and can do so through the NJACS Website [www.njacs.org](http://www.njacs.org) prior to **Wednesday, March 6, 2013**.

Dinner at the Section Meeting is payable at the door. However, if you are not able to attend and did not cancel your reservation, you are responsible for the price of your dinner.

### CAREERS IN TRANSITION MEETINGS

#### Job Hunting??

We offer assistance at Students2Science to help members with their job search on the second Monday of each month. Topics at this free workshop are:

- Techniques to enhance resume effectiveness
- Interview practice along with responding to difficult questions
- Networking to find hidden jobs
- Planning a more effective job search

**Date:** Monday, March 11, 2013

Times: Meeting 5:30 - 9:00 PM

Pizza snack and soda 6:30 PM

Place: Students 2 Science, Inc.  
66 Deforest Avenue  
East Hanover, NJ

Cost: \$5.00 for pizza and soda

Reservations: at

[www.njacs.org/careers.html](http://www.njacs.org/careers.html)

A job board and networking assistance is offered at most topical group meetings. Appointments with Bill can be arranged for personal assistance at (908) 875-9069 or [billsuits@earthlink.net](mailto:billsuits@earthlink.net).

See [www.njacs.org](http://www.njacs.org) under the Career tab for Jobs hidden from sight and relevant blogs.

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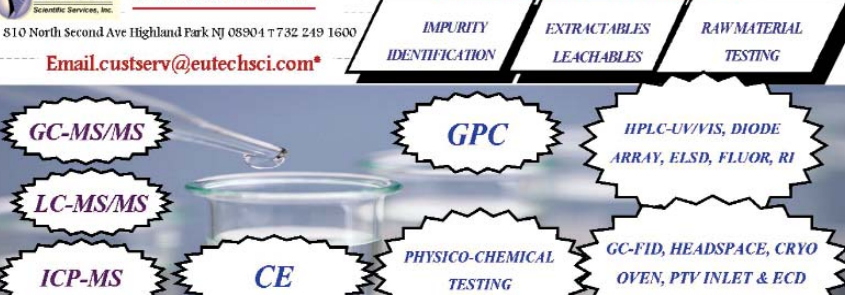
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## MASS SPECTROMETRY DISCUSSION GROUP

**Title:** TBA

**Speaker:** Rohan Thakur

**Sponsored by:** Bruker & Imabiotech SA

**Date:** Tuesday, March 12, 2013

**Time:** Dinner 6:15 PM

Meeting 7:15 PM

**Place:** Holiday Inn Somerset-Bridgewater  
195 Davidson Avenue  
Somerset NJ



## NORTH JERSEY CHROMATOGRAPHY GROUP

**The Mid-Atlantic Chromatography Organizations invite you to a night at the Union League**

On behalf of the Mid-Atlantic chromatography organizations and our community at large, I invite you to sponsor what promises to be a very special night. On the evening of Tuesday, March 19th, 2013 The Chromatography Forum of Delaware Valley, The Washington D.C. and New Jersey Chromatography Discussion groups (CFDV, WCDG, and NJCG) are planning to have the largest Pitt-Con collaboration of its kind.

Our event will be held at the Union League, Philadelphia's most auspicious and culturally rich club, created to aid the northern effort of the civil war. Our night turns its attention to the celebration and fellowship of chromatographers from around the country. Our event will bring together over one hundred and fifty novice, seasoned and leading chromatographers. Tickets will be sold to the general public for \$50. A special rate of \$25 per ticket will be granted to sponsors who purchase more than ten prepaid tickets. We ask that you provide the intended parties' names and mailing addresses to us. We will arrange their RSVP, with a special invitation highlighting the courtesy your organization has paid to them.

The Mid-Atlantic chromatography groups are putting forth a great deal of effort to

recruit participants from sister organizations. We are welcoming all organizations with a mission to foster and communicate novel technologies throughout the field of chromatography. By providing education and focused discussions they create a focal point for the community at large. This is an opportunity to showcase your support of the chromatographic community, guaranteeing X's message being heard by your target market. I hope we can count on you to participate in a very special night.

### Talking points:

- Tuesday, March 19th, 2013 at 7pm (Pittcon is March 17th to the 21st)
- 150 Chromatographers in attendance, with an upward limit of 300
- 3 hours socializing with an open bar and food stations.
- \$1,500 for sponsorship we recommend purchasing 20 tickets, bringing the total cost to \$2K.
- Collaboration of chromatography organizations from across the country and world.
- Sponsorship allows you to purchase tickets at half the list price rate, with no maximum quantity.
- Prepaid tickets will include beautifully written letters on the best possible stock. These will express the courtesy your organization has bestowed upon them. Corporate logos will be needed for these letters.
- 10 minute walk from the convention center, or an even shorter cab ride.
- Hosted by the most exclusive club in Philadelphia (Union League)
- Logo placement and special mention during the event and with the advertising campaign leading up to it.
- A carefully selected and capped list of sponsors.
- We sincerely hope you will be next!

**Date:** Tuesday, March 19, 2013

**Time:** 7:00 PM

**Place:** The Union League  
Philadelphia, PA

**Cost:** General Public \$50

Sincerely,  
Jonathan Edelman, President  
Washington DC Chromatography DG  
(215) 850 8748

## **ANITA J. BRANDOLINI OUTSTANDING PROJECT SEED STUDENT AWARD**

The 2012 winner of the 2012 Anita J. Brandolini Outstanding Project SEED Student Award is Xavier Mwangi. The North Jersey Section of the American Chemical Society is pleased with such an excellent selection for this new section award developed to honor Brandolini, a tremendous supporter of Project SEED.

Xavier worked all summer with Dr. George Collins at New Jersey Institute of

Technology. In his recommendation letter Dr. Collins indicated that Xavier exhibited "intellectual acquisitiveness that was unusually intense for a young man who was so soft spoken," and that he was "often surprised by the depth of the questions that he would ask." We are very pleased with his success in the Project SEED experience and we wish him continued success in all of your future endeavors.

Mr. Mwangi won a \$200 cash prize and a copy of Brandolini's book, Fizz Bubble and Flash.



Xavier, on the right, is shown with Dr. Collins and Master's student, Tamilvizhi Muthalagu (center) Xavier worked closely with Tamilvizhi.

*(Photo courtesy of Amber Flynn Charlebois)*



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**PROFESSOR RICHARD EISENBERG – 2013 NICHOLS MEDALIST**

The ACS New York Section congratulates and extends its best wishes to Professor Richard Eisenberg, of the University of Rochester, who will receive the William H. Nichols Medal Award on March 15, 2013 in White Plains, New York. The Nichols Medal is presented at an award dinner following the Nichols Distinguished Symposium. Professor Eisenberg is being honored for "Contributions to Inorganic Photochemistry." The Distinguished Symposium is titled "Addressing Cutting Edge Challenges In Catalysis and Energy."



Dr. Richard Eisenberg is Professor (Research) and the Tracy Harris Professor Emeritus 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 six years as Assistant and Associate Professor at Brown University in Providence, RI. He served as Chair of the UR Chemistry Department from 1991-1994 and was named to the Harris Chair in 1996 from which he became Emeritus in 2011. Dr. Eisenberg's research interests are in inorganic and organometallic chemistry, photochemistry relating to solar energy conversion, and catalysis. Some of his specific research activities include the photogeneration of hydrogen from water, luminescent square planar complexes and their incorporation into molecular assemblies for photoinduced charge separation, the development of parahydrogen induced polarization for hydrogen addition reactions, luminescent gold and copper complexes for application in electroluminescent devices, and the design of new electrophilic catalysts for electrocyclizations and tandem organic transformations.

Professor Eisenberg has mentored more than eighty Ph.D. and postdoctoral research students. Foremost among his activities in the chemistry community, Professor Eisenberg served as the Editor-in-Chief of *Inorganic Chemistry*, the leading journal in its field, during the period 2001-2012. 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*, *Organometallics* and *Accounts of Chemical Research*. 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 shared the 2011 ACS Nobel Laureate Signature Award in Graduate Education with his student Ping-wu Du. In 2010, he received the Lifetime Achievement Award for Graduate Education from the University of Rochester. Professor Eisenberg was elected a Fellow of the American Association for the Advancement of Science in 2005, a Fellow of the American Academy of Arts and Sciences in 2009, and a Member of the U. S. National Academy of Sciences in 2010.



**2013 WILLIAM H. NICHOLS MEDAL DISTINGUISHED  
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**Symposium: Addressing Cutting Edge Challenges in Catalysis & Energy**

*Award Recipient:* **PROFESSOR RICHARD EISENBERG**

Tracy Harris Professor Emeritus at the University of Rochester.

**PROGRAM**

- 1:30 PM **Welcome** Professor Philip H. Mark  
2013 Chair, ACS, New York Section  
SUNY - Nassau Community College
- 1:35 PM **Opening of the Distinguished Symposium** Professor Pamela K. Kerrigan  
2013 Chair-elect  
ACS, New York Section  
The College of Mount Saint Vincent
- 1:45 PM **The Catalytic Conversion of CO<sub>2</sub>  
to Liquid Fuels** Professor Clifford P. Kubiak  
University of California – San Diego
- Catalysis of the conversion of carbon dioxide to liquid fuels using solar and electrical energy is a critical global challenge that will positively impact the carbon balance by recycling CO<sub>2</sub> as fuels. The importance of catalyst turnover frequency in the overall efficiency of the conversion of solar energy and CO<sub>2</sub> into chemical fuels will be discussed. The state of the art in natural and artificial catalysts for the chemical reduction of CO<sub>2</sub> will be reviewed. The improvement in the activities of several rhenium based catalysts, and infrared spectroelectrochemical studies that probe the mechanism of catalysis will be described. Recent improvements in CO<sub>2</sub> reduction catalyst rates and lifetimes have allowed the photochemical "splitting" of CO<sub>2</sub> to CO and O<sub>2</sub> to be achieved. The importance of proton coupled mechanisms will be discussed with respect to lowering the potentials for CO<sub>2</sub> reduction. The development of nickel complexes as artificial formate dehydrogenases will be described as one means of achieving proton coupled electron transfer in the CO<sub>2</sub>/HCOO<sup>-</sup> couple. The application of Density Functional Theory (DFT) to compute CO<sub>2</sub> binding energies will be reviewed, and the method will be applied to explain the selectivity and activity of the well-studied nickel cyclam CO<sub>2</sub> reduction catalyst system. High resolution XANES spectroscopy has been applied to several CO<sub>2</sub> reduction catalysts to probe their electronic structures and the role of non-innocent ligands in storing electronic charge. Stopped flow kinetics studies of several CO<sub>2</sub> reduction catalysts which show kinetic selectivities for CO<sub>2</sub> vs. H<sup>+</sup> reduction of >35 will be presented, and interpreted in terms of an electronic structural model that favors π-symmetry ground states for CO<sub>2</sub> reduction and α-symmetry ground states for H<sup>+</sup> reduction. The implications of these findings for further catalyst development will be discussed.
- 2:30 PM **Strong C-H and C-C Bond Cleavage Reactions  
Using Homogeneous Transition Metal Complexes** Professor William D. Jones  
University of Rochester
- Over the past 20 years substantial progress has been made in the understanding of the activation of C-H and other strong bonds by reactive metal complexes in low oxidation states. This talk will present an overview of the use of pentamethylcyclopentadienyl and trispyrazolylborate rhodium complexes for the determination of thermodynamic factors that influence the activation of arene and alkane C-H bonds. Insights into bond strengths, kinetic and thermodynamic selectivities, and the nature of the intermediates involved will be examined. The influence of substituent effects on the thermodynamics of bond activations will also be analyzed. Trends in the activation of fluoroaromatic C-H bonds will be presented. Extensions to C-C activation at nickel will also be made, demonstrating critical factors involved in C-C cleavage.
- 3:15 PM **Coffee Break**
- 3:45 PM **Molecular Constructs as [FeFe]-H<sub>2</sub>ase  
Enzyme Active Site Biomimetics for  
Proton Reduction** Professor Marcetta Y. Darensbourg  
Texas A & M University

The structurally unique diiron catalytic unit that exists in the active site of the [FeFe]-H<sub>2</sub>ase is of special interest to biomimetic/synthetic chemists as its construction exploits diatomic CO and CN<sup>-</sup> ligands, perhaps deriving from primordial iron/sulfur chemistry, rather than typical donors covalently bound to a peptide chain. Thus the torsion angles responsible for the mismatch of donor ligand-metal geometric preferences that lead to high rates of catalysis in classical transition metal biocatalysts are minimal in such organometallics. These features, along with the ease of modifying a simple precursor, (μ-S(CH<sub>2</sub>)<sub>3</sub>S)[Fe(CO)<sub>3</sub>]<sub>2</sub>, that has core features of the [FeFe]-H<sub>2</sub>ase enzyme active site (eas), and the possibility to develop base metal catalysts for fuel cell use, have attracted a new coterie of chemists to biomimetic synthesis. They bring the spectroscopic tools and structure/bonding approaches of organometallic chemistry to bear on defining the features that are the primary differences between the eas and the parent model. This lecture will describe approaches to stabilize and isolate the unusual «rotated» structure, and insight gained into Nature's choice of the diiron construct.

4:30 PM **Making Solar Hydrogen****Professor Richard Eisenberg  
NICHOLS MEDALIST**

One of this century's greatest scientific and technological challenges is the conversion of sunlight into usable energy in a sustainable and environmentally benign way on a global scale. For light to chemical energy conversion in a designed photosynthetic system, the splitting of water into its constituent elements is the key energy-storing reaction. As with natural photosynthesis, such a system relies on light absorption, charge separation, and catalysis. Recent efforts focus on new catalysts, light absorbers and system compatibility for the visible light-driven generation of hydrogen from aqueous protons. The light absorbers include metal complexes with charge transfer (CT) excited states, organic dyes and semiconductor nanoparticles. As catalysts, different sets of metal complexes have been investigated, including previously unstudied systems that exhibit high activity. The most active systems yet reported for the reductive half of water splitting will be described, as will mechanistic studies of different systems for hydrogen photogeneration.

5:45 PM **Social Hour**6:45 PM **William H. Nichols Medal Award Dinner  
Professor Harry B. Gray will Introduce the Medalist****Date: Friday, March 15, 2013**

Times: Registration 1:00 PM

Reception 5:45 PM

Symposium 1:30 PM – 5:30 PM

Award Dinner 6:45 PM

Place: Crowne Plaza Hotel, White Plains, NY

More information on the Nichols Medal Events is available on the New York Section's website at <http://www.NewYorkACS.org>.

Tickets may be reserved using the following form or through the New York Section website.

\*\*\*\*\* **RESERVATION FORM** \*\*\*\*\*

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MEDAL AWARD BANQUET in honor of Professor Richard Eisenberg**

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Please reserve \_\_\_\_\_ places for the symposium & banquet at \$120/person, ACS member  
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\_\_\_\_\_ Salmon \_\_\_\_\_

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**BANQUET RESERVATION DEADLINE: MARCH 5, 2013**

Please make checks payable to:  
ACS, NEW YORK SECTION

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## New York Meetings

[www.newyorkacs.org](http://www.newyorkacs.org)

### NEW YORK SECTION BOARD MEETING DATES FOR 2013

The dates for the Board Meetings of the ACS New York Section for 2013 were chosen and approved at the November 30, 2012 Board Meeting. The meetings are open meetings – all are welcome. If non board members would like to attend the meeting, please let the New York Section office know by emailing Mrs. Marilyn Jespersen at [njesper1@optonline.net](mailto:njesper1@optonline.net) or calling the office at (516) 883-7510.

The 2013 Board Meetings will be held on the following Fridays at 6:30 PM at St. Johns University, D'Angelo Center, Jamaica, NY. Dr. Philip H. Mark will chair the meetings.

Friday, April 19

Friday, June 7

Friday, September 27

Friday, November 15

Also, please mark your calendar with the dates of the following major events.

#### Friday, March 15, 2013 — Nichols Symposium and Award Banquet

More information will be posted in future issues of *The Indicator* and on the New York website at <http://www.NewYorkACS.org>.



### LONG ISLAND SUBSECTION

#### Organic Synthesis in Pharmaceutical Research Incorporating Long Lived Radioactive Isotopes

**Speaker:** Matthew G. Donahue  
Janssen Research and Development  
The Pharmaceutical Companies of Johnson & Johnson

Radioactivity is the spontaneous emission of radiation from an unstable nucleus. Since the discovery of radioactivity by Becquerel, Sklodowska-Curie, and Curie (Physics Nobel Laureates in 1903) scientists have utilized radiation for biomedical research. Long lived radioisotopes such as tritium ( $t_{1/2}$  12.3 years) and carbon-14 ( $t_{1/2}$  5730 years) are powerful tools used to evaluate the potential of preclinical drug candidates for commercial development. The intrinsic properties of each isotope make them uniquely useful for

determining different absorption, distribution, metabolism and excretion (ADME) properties of a drug. In this seminar, I will discuss my experiences as a synthetic organic chemist handling radioactive materials and describe the importance of such materials in a pharmaceutical research environment.

Matthew Donahue is currently a synthetic chemist in the Isotope Synthesis group in Janssen R&D in Spring House, PA. He has held similar radiosynthesis positions at Wyeth Research (now Pfizer) and Boehringer Ingelheim. He earned his Ph.D. from The Ohio State University and did post-doctoral study at Vanderbilt University.

**Date:** Thursday, March 7, 2013

**Time:** Social 6:30 PM

Seminar 7:00 PM

**Place:** Hofstra University

Breslin Hall, Room 106

**Cost:** Seminar is free and open to all.

Dinner: following the seminar at a nearby restaurant (\$25)

Please visit the LI-ACS webpage at

[http://www.newyorkacs.org/sub\\_island.php](http://www.newyorkacs.org/sub_island.php) for details, updates, and directions.



### CHEMICAL MARKETING AND ECONOMICS GROUP

#### Making Green with Green Chemistry- Part 3

**Panel:** Paul Anastas  
Director of the Yale Center for Green Chemistry and Green Engineering  
Dr. Dick Foster  
Venture Partner at Lux Capital and a General Partner at Mansa Capital  
Kef Kasdin  
CEO at Proterro  
Neil A. Burns (moderator)  
Managing Partner  
Neil A. Burns LLC and  
CEO at P2 Science  
Rebecca Coons (moderator)  
Associate Editor  
IHS Chemical Week Magazine

Following two years of successful panels we will update with another report from the Green Chemicals market: An editor from ChemicalWeek and Neil A. Burns LLC's

managing partner will moderate a panel that will examine how to monetize the benefits of Green Chemistry. Join us and:

- Gain insights from one of the fathers of green chemistry, director of a leading research institute in the field and former EPA Assistant Administrator
- Learn about the key elements of the green chemicals market from one of the premier venture capital companies
- Experience first-hand, the experience of a green chemical start-up in biomass conversion to sugars in the fast paced world of a VC backed company

**Date: Thursday, March 7, 2013**

Times: 11:00 AM - 2:00 PM

Place: The Yale Club  
50 Vanderbilt Avenue  
New York, NY

Cost: Luncheon Fee: \$90 for non-CM&E members; \$70 for 2013 CM&E, ChemPharma members  
Webcast Fee: \$30 – check website for earlybird discounts.

Registration: [www.cmeacs.org](http://www.cmeacs.org)  
<<http://www.cmeacs.org>>



## HIGH SCHOOL TEACHERS TOPICAL GROUP

### “Current Issues in Chemical Education”

A presentation and Panel Discussion With Nichols Chemistry Teachers of the Year Winners, Stephen Radice, Steven Borneman, Dr. Ara Kahyaoglu and more.

The program will cover ideas to inspire students and ourselves. Some of these are the Chemistry Lab and Teaching Assistant Program, AP Chemistry TV show, Chem Quest, inspiring students by meeting Nobel laureates or famous scientists, Chemistry Olympiad and “molebrations.”

**Date: Friday, March 15, 2013**

Time: Social and Dinner — 5:45 PM

Place: No reservations required  
M&G Pub (Murphy and Gonzales)  
21 Waverly Place (at Green Street,  
North-east corner)  
New York, NY

Time: Meeting — 7:15 PM

Place: New York University  
Silver Center Room 207  
32 Waverly Place (South-east  
corner Washington Sq. East)  
New York, NY

Security at NYU requires that you show a picture ID to enter the building. In case of unexpected severe weather, call John Roeder, (212) 497-6500, between 9 AM and 2 PM to verify that meeting is still on; (516) 385-4698 for other info.

Note: For those who prefer indoor attended parking, it is available at the Melro/Romar Garages. The entrance is on the west side of Broadway just south of 8th Street, directly across from Astor Place. It is a short, easy walk from the garage to the restaurant or meeting room.



## LONG ISLAND SUBSECTION

### Board of Directors and Meeting Dates for Spring 2013

The Long Island subsection of the ACS New York section is pleased to announce its Board of Directors for 2013.

Chair: Alfredo Mellace  
Chair-Elect: Marlon Moreno  
Past-Chair: John Schmermund  
Secretary: Terry Brack  
Treasurer: Philip Mark  
Directors: David Lloyd, Emily Mundorff,  
Ralph Stephani, Luis Vargas

Board meetings of the Long Island subsection of the ACS New York section will be held at Nassau Community College, Life Sciences Building, room LS 220C, at 6:30 PM on the following dates.

#### Thursday, March 21

Thursday, April 25

Monthly seminars will be held on the following dates, with a social gathering at 6:30 PM followed by the seminar at 7:00 PM.

#### Thursday, March 7

Hofstra University  
room 106, speaker Matthew G. Donahue

Thursday, April 4

Hofstra University  
room TBA and speaker

Thursday, May 2

Hofstra University  
room and speaker TBA

The LI-ACS Chemistry Challenge will be held on Friday, April 26th at Queensborough Community College and the High School Awards are scheduled for May.

Please check the LI-ACS webpage at [www.newyorkacs.org/sub\\_island.php](http://www.newyorkacs.org/sub_island.php) for updates.

**BIOCHEMICAL TOPICAL  
GROUP – JOINT MEETING  
WITH THE NYAS BIOCHEMICAL  
PHARMACOLOGY DISCUSSION  
GROUP**

**Treatment-Resistant Depression:  
Glutamate, Stress-Hormones and their  
Role in the Regeneration of Neurons**



**Treatment-Resistant Depression:  
Glutamate, Stress-Hormones  
and their Role in the Regeneration  
of Neurons**

- Organizers:** Robert Martone  
Covance Biomarker Center  
of Excellence
- Harald Murck, MD, PhD  
Covance Neuroscience  
Medical and Scientific  
Services
- Luca Santarelli, MD  
Roche, Pharma Research &  
Early Development
- Jennifer Henry, PhD  
The New York Academy of  
Sciences
- Speakers:** Ron Duman, PhD  
Yale University
- Guosong Liu, MD, PhD  
MIT
- Luca Santarelli, MD  
Roche, Pharma Research &  
Early Development  
Switzerland
- Simone Sartori, PhD  
University of Innsbruck  
Austria
- Carlos Zarate, MD  
National Institute of Mental  
Health  
NIH

Major depression is a devastating illness; current therapies based upon monoamine neurotransmitters are beneficial for only one in ten patients. This program reviews a paradigm shift in treatment targeting the glutamatergic neurotransmitter system.

- Date:** Monday, March 25, 2013  
**Time:** 12:00 – 4:00 PM  
(reception to follow)
- Place:** The New York Academy of Sciences  
7 World Trade Center  
250 Greenwich Street – 40th Floor  
New York, NY
- Cost:** This event is FREE for ACS and NYAS members. Please select the appropriate non-member Registration Category and use the Priority Code ACS. Non-members may attend for a fee of \$30, or \$15 for students and post-docs.

For more information and to register for the event, go to: [www.nyas.org/TreatmentResistantDepression](http://www.nyas.org/TreatmentResistantDepression)

To become a Member of the Academy, visit [www.nyas.org/benefits](http://www.nyas.org/benefits)



**NEW YORK NANOSCIENCE  
DISCUSSION GROUP**

- Speakers:** Dan Steingart  
CCNY Chemical Engineering
- Aron Pinczuk  
Columbia Physics
- Ned Seeman  
NYU Chemistry

Hosted by the Department of Chemistry,  
New York University

The NYNDG is an ACS Topical Group that meets in the New York University Department of Chemistry. Sessions feature three 30-minute presentations on nanoscience, one each with strong orientation in biology, chemistry, and physics/applied mathematics. Presentations will be focused on discussion of recent work, although speakers will place the work in a context understandable to a broad audience.

- Date:** Tuesday, March 26, 2013.  
**Times:** Champagne Toast and Refreshments 7:00 PM to mark the 10th Anniversary of the group!  
Meeting 7:30 PM
- Place:** NYU Silver Center  
31 Washington Place, between  
Washington Square East and  
Greene Street, room 1003  
(10th floor)  
New York, NY

For more information, contact: James Canary ([james.canary@nyu.edu](mailto:james.canary@nyu.edu))

<http://www.nyu.edu/projects/nanoscience>

## WESTCHESTER CHEMICAL SOCIETY

### Special Seminar — “Modeling Protein-DNA Interactions at Electrified Interfaces”

*Speaker:* Keeshan Williams\*  
The Polytechnic Institute of NYU  
Department of Chemical and  
Biological Engineering  
Brooklyn, NY

Coupling self-assembled monolayer (SAM) techniques with biodiagnostic applications has led to custom made electrochemical sensors that can be produced with relative ease, in multiplexed formats, and at low cost. For example, DNA monolayers have been used to detect complementary sequences within complex sample matrices as well as to elucidate the thermodynamic and kinetic parameters of binding various species (e.g. proteins, small molecules) to DNA. Here, electroactively labeled, double stranded DNA (dsDNA) monolayers are interrogated using alternating current voltammetry (ACV) to monitor association between a transcription factor protein and the monolayer. Various ACV input frequencies are tested to determine those most sensitive to protein binding, and concentration series are performed to generate Langmuir-type binding isotherms for quantitative determination of binding affinities. Because the DNA binding reaction is coupled to protein dimerization in solution a model that accounts for coupling between the two equilibria is needed to fully characterize the experimental data. This presentation will discuss optimization of the experimental approach as well as model-based extraction of thermodynamic parameters for protein-DNA interactions using a classical biomolecular systems derived from bacteriophage lambda.

Mr. Williams received a B.A. degree in Chemistry from Queens College, City University of New York, Flushing, NY, in 2005. Upon graduation, he worked as a Chemist for a materials testing laboratory in College Point, NY. While pursuing his Masters of Science in Chemical Engineering at NYU-Poly he also worked as a Materials Engineer for the Port Authority of New York and New Jersey. In 2008, he started pursuing a Ph.D. degree in Chemical and Biological Engineering at NYU-Poly.

\* *Coauthor: Rastislav Levicky, Polytechnic Institute of NYU.*

**Date:** Thursday, April 11, 2013

**Times:** Refreshments 5:30 PM

Lecture 6:00 p.m.

**Place:** Westchester Community College

Gateway Building Room 110  
75 Grasslands Road  
Valhalla, NY

**Cost:** Free and open to the public

For more information, contact Paul Dillon:

E-Mail [PaulWDillon2@hotmail.com](mailto:PaulWDillon2@hotmail.com)

Phone (914) 393-6940

[http://www.newyorkacs.org/sub\\_west.php](http://www.newyorkacs.org/sub_west.php)

**Errata:** On page 7 of the February issue of *The Indicator*, under the Westchester Chemical Society announcement, the last sentence of the abstract should read: “Data analysis reveals an average forward step of 39.9 nm ( $\pm 1.98$  nm, N = 143 steps) taking 2.60 seconds ( $\pm 0.20$  seconds) for each step with an average speed of 98.7 nm/s ( $\pm 34.7$  nm/s).”



## NY SECTION'S SECOND ANNUAL EARTH DAY PARADE

### Walk the Brooklyn Bridge

The New York Section's Second Annual Earth Day Parade, “Walk the Brooklyn Bridge” will be hosted by Pace University on **Saturday, April 20, 2013!**

Dr. JaimeLee Rizzo, 2012 Immediate Past Chair of the Section and Coordinator of the Earth Day Event will organize the parade. Earth Day was first officially recognized on April 22, 1970 as a way to demonstrate support for a healthy environment, raise awareness about environmental issues, and remind people that we all need to contribute to a sustainable planet. Each year, ACS highlights one of four general topics (water, air, plants/soil or recycling) and chooses a specific “theme name” under the topic to focus the CCED celebration.

This year's theme is, “**Our Earth: Handle with Care!**”

ACS local sections, Student Member Chapters, and divisions are encouraged to take part in the celebration, particularly the annual community event. To register for the “Walk the Brooklyn Bridge, for more information, and to see photos from last year's event please go to our official Earth Day website: <http://www.newyorkacs.org/meetings/EarthDay/CCED.php>

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## ACS NY SECTION—61st ANNUAL UNDERGRADUATE RESEARCH SYMPOSIUM (URS)

**Research Adventures in Molecular Biophysics: fungal, vegetable and animal tales**



*Keynote Speaker:* Prof. Ruth Stark  
Dept. of Chemistry  
City University of  
New York (CUNY)

Ruth Stark received her A.B. degree in Chemistry at Cornell University and her Ph.D. in Physical Chemistry at the University of California, San Diego. A faculty member at the City University of New York (CUNY) since 1985, Dr. Stark was designated as Distinguished Professor in 2006 and has been honored as a Fellow of the American Association for the Advancement of Science and with New York City's Sloan Public Service Award. Currently, she directs the 8-campus CUNY Institute for Macromolecular Assemblies and leads a 13-person City College research team who span high school through senior postdoctoral levels. Drawing on training at the interface of chemistry, physics, and biology, her current research program focuses on the molecular structure and development of biopolymers that protect fruits and vegetables, the solution-state structure and signaling mechanisms of nutritionally important fatty acid-binding proteins, and the molecular development of melanin pigments associated with virulence and drug resistance of human fungal pathogens.

From cellular signaling networks that regulate human development to environmentally

responsive surface composites that control plant integrity, spatial and temporal interactions among large assemblies of biological macromolecules rule the roost. To examine the molecular composition and architecture of these assemblies at atomic or near-atomic resolution; we use technologies that include molecular biology, chromatography, magnetic resonance spectroscopy, surface microscopy, and computational modeling. Examples of ongoing research will focus on three biological targets: melanin pigments associated with microbial virulence and drug resistance; plant polymers that offer mechanical support and protection from dehydration; fatty acid-binding proteins involved in lipid metabolism in health and disease.

The Keynote Address will be followed by original research presentations given by students from colleges and universities throughout the tri-state area.

**Date: Saturday, April 27, 2013.**

Times: 8:00 AM - 3:00 PM  
(breakfast, luncheon and award reception included)

Place: CUNY City College of New York  
New York, NY

Sign up as an attendee at <http://www.newyorkacs.org/meetings/urs/urs.php>

Conference Registration Window:  
**February 2, 2013 to March 14, 2013**

E-mail questions to:  
[nyacsurs2013@gmail.com](mailto:nyacsurs2013@gmail.com)

### **SIGNIFICANT DATES FOR 61st URS**

Deadline for Abstract Submission - **March 15, 2013**

Notification of the abstract acceptance –  
**March 26, 2013**

Deadline for Symposium Advanced  
Registration – **March 27, 2013**

FREE Registration for student members of the National ACS, faculty mentors who register in advance and sponsors. For non-ACS members and guests, the registration is \$35 in advance. All on-site registration is \$45 for faculty, staff and guests. Checks for the registration fee should be made out to: "NY ACS URS" and sent to:

Prof. Joseph Serafin, St. John's University,  
Department of Chemistry, 333 St. Albert  
Hall, Queens, NY 11439.



**ADELPHI UNIVERSITY****2013 Henry Drysdale Dakin Memorial Lecture — “From Basic Research to Advanced Antibiotics”**

*Speaker:* Professor Ada E. Yonath  
The Martin S. and Helen Kimmel  
Professor of Structural Biology  
Director, The Helen and Milton  
A. Kimmelman Center for  
Biomolecular Structure and  
Assembly  
Weizmann Institute of Science  
Rehovot, Israel  
2009 Nobel Laureate in  
Chemistry

Ribosomes are the universal cellular apparatuses that translate the genetic code into proteins. Composed of proteins and RNA, among which the RNA moieties perform almost all functional tasks, they possess spectacular architecture accompanied by inherent mobility that facilitate their smooth and efficient performance. The stunning level of conservation of a pocket-like region containing the site for peptide bond formation hints that a remnant of a prebiotic bonding entity is functioning in the contemporary ribosomes.

Owing to their fundamental role, ribosomes are targeted by many antibiotics, each paralyzing the ribosomes by binding to a specific functional site. Their binding modes, inhibitory action and synergism pathways have been elucidated. The mechanisms leading to bacterial resistance to ribosomal antibiotics and issues concerning the ways towards combating the resistance will be discussed.

**Date:** Monday, April 29, 2013

**Time:** 7:00 PM

**Place:** Thomas Dixon Lovely Ballroom  
University Center  
Adelphi University

**Cost:** Free and open to the public

**Travel Directions:** <http://www.adelphi.edu/visitors/directions.php>

**Additional Information:** Contact Professor Stephen Z. Goldberg, (516) 877-4147 or [goldberg@adelphi.edu](mailto:goldberg@adelphi.edu)



## **EMPLOYMENT AND PROFESSIONAL RELATIONS COMMITTEE OF THE NEW YORK SECTION**

### **To Human Resources Departments in Industry and Academia**

The Employment and Professional Relations Committee maintains a roster of candidates who are ACS members seeking a position in the New York metropolitan area. If you have job openings and would like qualified candidates to contact you, please send a brief job description and educational/experience background required to [hessytaft@hotmail.com](mailto:hessytaft@hotmail.com).

Candidates from our roster who meet the requirements you describe will be asked to contact you.

## Others

### **NUJIT — OTTO H. YORK DEPARTMENT OF CHEMICAL, BIOLOGICAL AND PHARMA- CEUTICAL ENGINEERING**

#### **Graduate Seminar Series — Spring 2013**

*Sponsors:* Infineum USA L.P. and  
ConocoPhillips Bayway  
Refinery

#### **March 4**

"Downstream Process Development for  
Monoclonal Antibodies"

*Dr. Nihal Tuycu*

Merck & Co. Inc.

Department of Chemical Engineering

Michigan Technological University

Houghton, MI

#### **March 11**

"Small Scale Rheology for Screening Scarce  
Materials"

*Professor Eric M. Furst*

Director, Center for Molecular and

Engineering Thermodynamics

University of Delaware, Newark, DE

#### **March 25**

"Thermochemistry and Elementary Reaction  
Kinetic Models for Reactions of Mercury with  
Halogens, NO<sub>x</sub> and SO<sub>x</sub>: Atmospheric and  
Combustion Environments"

*Ms. Itsaso Auzmendi-Murua*

PhD Candidate

Dept. of Chemical, Biological &  
Pharmaceutical Engineering, NJIT

#### **April 1**

"An Industry Perspective on Materials  
Characterization Techniques at the  
Molecular, Particulate and Bulk Level in  
Support of Pharmaceutical Product  
Manufacturing"

*Dr. Steven Conway*

Merck & Co., Inc.

Whitehouse Station, NJ

#### **April 8**

"Intermetallic Base-Metal Catalysts for  
Chemoselective Reactions: Viable  
Replacements for Monometallic and  
Bimetallic Precious Metal Catalysts"

*Professor Robert M. Rioux*

Friedrich G. Hefflerich Professor

Dept. of Chemical Engineering

The Pennsylvania State University

#### **April 15**

"Catalysis and the Nature of Mixed Metal  
Oxides at the Nanometer Level"

*Dr. Dario J. Stacchiola*

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Dept. of Chemistry  
Brookhaven National Laboratory

#### April 22

"What Can a Materials Scientist Do to Improve Catalysts?"

*Dr. Guang Cao*

Section Head of the Catalytic Systems  
Section at the Corporate Strategic Research  
Labs

ExxonMobil Corp.

#### April 29

"Nanomaterials for Energy Devices"

*Professeur Laberty-Robert*

Polytech Paris Laboratoire de Chimie de la  
Matiere Condensee de Paris UPMC

#### May 6

"Nanoclusters of Boron and Gold"

*Professor Lai-Sheng Wang*

Dept. of Chemistry

Brown University

OPEN TO PUBLIC

Times: Refreshments 2:30 PM

Seminars 2:45 PM

Place: Room 117, Kupfrian Hall  
NJIT

Seminar Coordinator: Professor Reginald  
Tomkins, (973) 596-5656,  
[tomkinsr@njit.edu](mailto:tomkinsr@njit.edu)

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## Call for Nominations

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### **WILLIAM H. NICHOLS MEDAL AWARD FOR 2014**

The New York Section is accepting nominations for the William H. Nichols Medal Award for the year 2014. This distinguished award, established in 1902 by Dr. William H. Nichols, for the purpose of encouraging original research in chemistry, is the first award authorized by the American Chemical Society. It is presented annually in recognition of an outstanding contribution in the field of chemistry, and consists of a gold medal, a bronze replica and \$5000. The medals are presented at the William H. Nichols Meeting that consists of a Distinguished Symposium related to the medalist's field of expertise and a Medal Award Dinner.

Investigators who have published a significant and original contribution in any field of chemistry during the five calendar years preceding the presentation meeting are eligible for consideration by the Nichols Medal Jury. The New York Section encourages nominations from academia, government and industry.

Each nomination requires a completed nomination form, biographical and professional data, and seconding letters. Since the nomi-

nation process utilizes the New York Section website, please access the nomination form and instructions at <http://www.newyorkacs.org/meetings/Nominations/Nichols.php>

Nominations must be received by **May 31, 2013**. The Nichols Medal Award Jury will meet in June 2013 to select the Nichols Medalist for 2014.

Questions regarding the nomination procedure should be directed to the ACS, New York Section Office, at [njesper1@optonline.net](mailto:njesper1@optonline.net).



### **EDWARD J. MERRILL AWARD FOR OUTSTANDING HIGH SCHOOL CHEMISTRY TEACHER FOR 2013**

Now is the time to begin thinking about nominations for the Edward J. Merrill Award, North Jersey Section, for Outstanding High School Chemistry Teacher for the year 2013.

Go to the web site, [njacs.org](http://njacs.org) under education and obtain your preliminary nomination form and guidelines. The full packet takes time to do a good job!

We all know an outstanding high school chemistry teacher. Perhaps one from your town, your son's or daughter's teacher or just one that you have heard about or worked with at some point. The award carries \$500 for the teacher, \$500 in supplies for the teacher's classroom and a plaque to display at home or in the classroom.

Any questions or help needed contact Bettyann Howson, [chemphun@gmail.com](mailto:chemphun@gmail.com).



### **METRO WOMEN CHEMISTS COMMITTEE**

#### **Gift of Mentoring Award**

The Metro Women Chemists Committee is now accepting nominations for the 4th annual Gift of Mentoring Award. Please share your stories with us if you have benefited from mentorship or you have had positive influence over other people's lives or careers. Please write your stories with no more than 300 words and send them to Sarah Carberry at [sbolton@ramapo.edu](mailto:sbolton@ramapo.edu).  
**Deadline: March 25th.**

The mentoring awards will be presented at the MWCC event in April Farleigh Dickinson University in Madison. For further details as the event approaches please check our website (<http://njacs.org/metrowomen.html>) or email Sarah Carberry ([sbolton@ramapo.edu](mailto:sbolton@ramapo.edu)).

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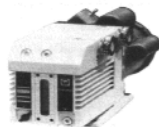
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Vacuubrand, Inc.	7

**GENERAL**

ACS-NY/NoJ Sections	15
ACS-NY/NoJ Sections	20
ACS-NY/NoJ Sections	20