

# THE Indicator

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## **Professor Stephen L. Buchwald Massachusetts Institute of Technology 2016 Nichols Medal Awardee**



*See biography on page 5.*

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## THIS MONTH IN CHEMICAL HISTORY

Harold Goldwhite, California State University, Los Angeles • [hgoldwh@calstatela.edu](mailto:hgoldwh@calstatela.edu)

In my last column I began a study of a summary of a year of chemistry of a century ago undertaken at the time by the Chemical Society of London (now the Royal Society of Chemistry) in its Annual Report reviewing the work of chemists. As a mark of a new year, and in homage to the Chemical Society, I will continue to devote some columns to Annual Reports Volume XIII covering 1916. You will recall that at this time Great Britain and her allies (though not yet the United States) was engaged in a bitter war with Germany and her allies. Consequently this is one of the slimmer volumes in the series that is ongoing.

It is interesting to the student of chemical history to establish roughly when a paradigmatic change occurs in a fundamental view of an aspect of science. The opening paragraph of the section on Inorganic Chemistry in the 1916 Annual Reports gives us such an occasion: "The last doubt must now be banished from the mind of the most pronounced sceptic as to the definite existence of isotopes with identical chemical properties, but with markedly different atomic weights. ...The enunciation of this theory by Soddy and by Fajans, and its proof by Richards and by Honigschmidt, must surely rank as one of the most striking advances that has taken place in chemistry during recent years." (A comment on the evanescence of fame seems in order; if you were asked to name the scientists most responsible for the acceptance of the existence of isotopes, how many of these four would you have included?) The work of both Richards (the first US Nobel Laureate in chemistry) and Honigschmidt was concerned with high precision determinations of the atomic weight of lead from different minerals, including some containing radioactive elements. These determinations by "wet" chemistry showed, for example, a value of 207.004 from American carnotite and 206.084 from Norwegian cleveite. Such a substantial difference was explained by different mixtures of lead isotopes in the two minerals.

Only one new atomic weight was reported in 1916, changing a "definitive" list published in 1915. The atomic weight of columbium is now set at 93.1. Columbium is the name used at that time for element number 41 now known as niobium. Its currently accepted atomic weight is 92.9. The complicated history of the naming and renaming of this element will be held over to a possible future column. In the realm of molecular weight determination a technically impressive publication reported on the molecular weights of a number of solutes dissolved in liquid bromine. Antimony bromide, stannic bromide, and iodine monobromide were found to be unimolecular; elemental sulfur existed as diatomic molecules in bromine solution.

You must permit me some personal bias in my next report citation, since much of my chemical work when I still undertook experimental chemistry was concerned with phosphorus compounds. Further studies of the allotropes of elementary phosphorus confirm the existence of black phosphorus prepared by heating white phosphorus under pressure. Red phosphorus, in contrast, seems to be a mixture the physical properties of which vary according to the method of preparation. A new possible allotrope, violet phosphorus, was prepared by heating white phosphorus containing a trace of metallic sodium as catalyst under very high pressure.

More than 7 pages are devoted to a summary of four years of results on the separation of the rare earth elements (the lanthanides) and the chemistry of individual elements. Most of the work was done on Brazilian monazite sands, a source of most of the lanthanides. A couple of quotes must suffice to give a flavor of these reports. The most active chemist in this area is the American C. James and commenting on his papers the Report says "...only the most important papers have been referred to, and it is hoped that sufficient has been said to make the story comprehensible and to create a high opinion of the value of this work." A final comment: "Reference is made to the difficulty of isolating holmium, and it is said that this is one of the most difficult problems of inorganic chemistry." With the introduction of ion exchange methods during World War II, as part of the Manhattan Project, the separation and purification of individual lanthanides became much easier.

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Society. Published jointly by the two sections.**CONTENTS**

Advertisers' Index	26
Call for Applications	22
Call for Nominations	22-23
Call for Papers	24
Call for Volunteers	23
MARM 2016 articles	18, 20-21
New York Meetings	8-12
NY Undergraduate Research Symp.	19, 24
Nichols Awardee Biography	5
Nichols Symposium	5, 10-11
North Jersey Meetings	6-7
Professional/Product Director	26

**EDITORIAL DEADLINES**

April	February 28
May	March 28
June	April 28
September	July 28
October	August 28
November	September 28
December	October 28
January 2017	November 28, 2016
February 2017	December 28, 2016
March	January 28, 2017

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Address advertising correspondence to Advertising Manager. Other correspondence to the Editor.

## March Calendar

### NEW YORK SECTION

**Wednesday, March 2, 2016**  
Westchester Chemical Society  
See pages 8-9.

**Thursday, March 3, 2016**  
Chemical Marketing & Economics Group  
See page 9.

**Thursday, March 3, 2016**  
Long Island Subsection  
See page 9.

**Friday, March 4, 2016**  
Nichols Symposium  
See pages 10-11.

**Friday, March 18, 2016**  
High School Teachers Topical Group  
See page 12.

*also*

**April-May, 2016**  
Long Island Subsection  
See page 13.

**Tentatively Thursday, April 7, 2016**  
Westchester Chemical Society  
See page 12.

**Friday, April 15, 2016**  
High School Teachers Topical Group  
See page 12.

**Tuesday, April 19, 2016**  
New York Nanoscience Discussion Group  
See page 13.

**Saturday, May 7, 2016**  
Undergraduate Research Symposium  
See page 19.

**Thursday-Sunday, June 9-12, 2016**  
MARM 2016  
See pages 18, 20-21.

### NORTH JERSEY SECTION

**Monday, March 14, 2016**  
Careers in Transition  
See page 6.

**Monday, March 21, 2016**  
North Jersey Executive Committee Meeting  
See page 6.

*also*

**Thursday, April 14, 2016**  
Drug Metabolism Discussion Group  
See pages 7.

#### PLEASE NOTE

To allow contributors more time to prepare their articles, deadline dates have changed from the 20th to the 28th of the month, 2 months prior to the issue's date.

**Deadline for items to be included in the April 2016 issue of *The Indicator* is February 28, 2016**

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



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## Biography of Prof. Stephen L. Buchwald

The ACS New York Section congratulates and extends its best wishes to Professor Stephen L. Buchwald of the Massachusetts Institute of Technology who will receive the William H. Nichols Medal Award on March 4, 2016 in White Plains, New York. The Nichols Medal is presented at an award dinner following the Nichols Distinguished Symposium. The title of the Symposium is "The Development and Applications of Modern Methods in Organic Synthesis." Professor Buchwald will receive the Nichols Gold Medal Award for "landmark contributions in organometallic chemistry, ligand design, and catalysis."

Professor Stephen L. Buchwald was born (1955) in Bloomington, Indiana. He received his Sc.B. degree from Brown University in 1977 where he worked with Kathlyn A. Parker and David E. Cane at Brown University as well as Professor Gilbert Stork at Columbia University. He entered Harvard University as a National Science Foundation Predoctoral Fellow in 1977 and received his Ph.D. in 1982. His thesis work, with Jeremy R. Knowles, concerned the mechanism of phosphoryl transfer reactions in chemistry and biochemistry. He then was a Myron A. Bantrell postdoctoral fellow at Caltech with Professor Robert H. Grubbs where he studied titanocene methylenes as reagents in organic synthesis and the mechanism of Ziegler-Natta polymerization. In 1984 Professor Buchwald began as an assistant professor of chemistry at MIT. He was promoted to Associate Professor (1989) and to Professor (1993) and was named the Camille Dreyfus Professor in 1997. In July 2015, he became Associate Head of MIT's Chemistry Department.

During Professor Buchwald's time at MIT, he received numerous honors including the Harold Edgerton Faculty Achievement Award of MIT, an Arthur C. Cope Scholar Award, the 2000 Award in Organometallic Chemistry from the American Chemical Society and a MERIT award from the National Institutes of Health. He has also been the recipient of the Bristol-Myers Squibb Distinguished Achievement Award and the CAS Science Spotlight Award, both received in 2005. He was honored with the American Chemical Society's Award for Creative Work in Synthetic Organic Chemistry as well as the Siegfried Medal Award in Chemical Methods that Impact Process Chemistry, both received in 2006. He received the Gustavus J. Esselen Award for Chemistry in the Public Interest in 2010, the Arthur C. Cope Award from the American Chemical Society in 2013 and the Linus Pauling Medal Award and the Ulysses Medal (University College Dublin) in 2014. In 2015 Professor Buchwald received an honorary doctoral degree from the University of South Florida as well as receiving the BBVA Frontiers in Knowledge Award in Basic Sciences (2014 Award). In 2000, he was elected as a fellow of the American Academy of Arts and Sciences and in 2008 was elected as a member of the National Academy of Science. He is the coauthor of over 435 published or accepted papers and 47 issued patents. Professor Buchwald serves as a consultant to a number of companies and is an associate editor of *Advanced Synthesis and Catalysis*.

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## North Jersey Meetings

<http://www.njacs.org>

### NORTH JERSEY EXECUTIVE COMMITTEE MEETING

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:** Monday, March 21, 2016

**Time:** 6:00 PM

**Place:** Brookdale Community College  
765 Newman Springs Road  
Room MAN 108  
Lincroft, NJ

Consult the NJACS website for updates

<http://www.njacs.org>

*ResMed: Residential School on Medicinal Chemistry and Biology in Drug Discovery*  
June 5-10, 2016  
Wyndham, Florham Park, NJ

This graduate level course concentrates on the fundamentals that are useful in drug discovery spanning initial target assay evaluation through clinical development. Several case histories of recent successful drug development programs will also be presented. The five-day program covers:

Principles of Med Chem	DMPK
Cheminformatics	Toxicophores
Lead ID & Optimization	GPCRs
Epigenetics	Kinase Inhibitors
Fragment-based Drug Design	Ion Channels
Structure-based Drug Design	Enzyme Inhibitors
Drug-like Properties	Bioisosteres
Plasma Protein Binding	Preclinical Tox
Molecular Modeling	Clinical Dev
Protein-Protein Interactions	Case Histories

**W. Greenlee, V. Gullo and R. Doll –Co-organizers**

For more information and application forms:

[www.drew.edu/resmed](http://www.drew.edu/resmed)

e-mail: [resmed@drew.edu](mailto:resmed@drew.edu)

phone: 973/408-3787; fax: 973/408-3504

## CAREERS IN TRANSITION MEETINGS

### Job Hunting??

Resume & LinkedIn writing and key word search rules are changing. To be found, come and utilize our latest insights. Our ACS trained Career Consultants 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 7, 2016

New from now on is a second CIT meeting in East Windsor on the third Monday. Contact Bill for details.

**Times:** Meeting 2:30 - 5:00 PM

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

**Cost:** No charge

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.



## NJACS PARTNERS WITH STUDENTS2SCIENCE

Members are encouraged to volunteer at their East Hanover facility and explore their website at [www.students2science.org](http://www.students2science.org) to learn more about this innovative program.

S2S continues to expand their exciting laboratory experience the disadvantaged children. Many of our members continue to volunteer as mentors. At their 2 million dollar analytical lab, every 40 kids are assisted by 16 professional volunteer mentors. The experiments performed really make chemistry and science come alive using state of the art analytical equipment working with students starting in 6th grade up to HS seniors. Each day is optimized for grade level and curriculum.

Now the program has further expanded with internet video and experiments performed in the classroom for 4th & 5th grades. Internet allows views of the lab in operation and relates to simpler experiments setups done in the classroom with their teacher and a partnering chemist.

North Jersey members who volunteered benefited in many ways. Those in transition expanded their network and received job finding assistance. Retired chemists met up

with old friends and made many new friends. Those with jobs used the volunteer hours as part of the company outreach programs and team training. All feel great about making a difference in the lives of the youth who may have never met a scientist or considered a career in the sciences.

Please consider volunteering and discovering more about this innovative program. If you want to learn more, you can speak with Don Truss at (908) 334-8435.

## DRUG METABOLISM DISCUSSION GROUP

### 2016 Spring Symposium and Vendor Exhibition Transforming the Assessment of Drug Disposition with Novel Methodologies

*Sponsored by:* North Jersey ACS Drug Metabolism Discussion Group

Five dynamic speakers from industry and academia have been selected to present their work. The meeting will be held at The Palace <http://palacesomersetpark.com> and chaired by Lauren Aleksunes, Rutgers University. For more information about the meeting or to learn more about the Discussion Group, please check out the Group's website <http://www.njacs.org/topical-groups/drug-metabolism> or email [aleksunes@eohsi.rutgers.edu](mailto:aleksunes@eohsi.rutgers.edu).

#### Program

- 8:00 AM Registration / Continental Breakfast / Vendor Exhibit
- 9:00 AM Introductory Remarks  
*Lauren Aleksunes, Chair, NJ DMDG*
- 9:10 AM **“Application of Engineered Mouse Models for Xenobiotic Disposition Studies”**  
*Speaker:* Xinxin Ding, PhD, Professor, Director of the Laboratory of Molecular Toxicology, SUNY Polytechnic Institute, Albany, NY
- 10:00 AM **“Challenges in Identifying Biomarkers for Transporter-Mediated Drug-Drug Interactions in Liver and Kidney”**  
*Speaker:* Raymond Evers, PhD, Preclinical ADME, PK/PD, and Drug Metabolism, Merck & Co., Kenilworth, NJ
- 10:50 AM *Vendor Exhibit & Coffee Break*
- 11:30 AM **“Microsampling in Nonclinical Studies: Where Are We Now?”**  
*Speaker:* Laura Patrone, PhD, Senior Research Investigator, Bristol-Myers Squibb Co., New Brunswick, NJ
- 12:20 PM *Lunch & Vendor Exhibit*
- 1:30 PM **“MALDI Imaging MS: Seeing Drug ADME in Tissues at Last”**  
*Speaker:* Stephen Castellino, PhD, SM Director, DMPK, Biotransformation and Drug Disposition, GlaxoSmithKline, King of Prussia, PA
- 2:20 PM *Vendor Exhibit & Coffee Break*
- 2:40 PM **“Validation of an Integrated Series of Ligand Binding Assays for the Quantitative Determination of Antibody-Drug Conjugates in Biological Matrices”**  
*Speaker:* Heather Myler, PhD, Principal Investigator, Analytical and Bioanalytical Department, Bristol-Myers Squibb, Princeton, NJ
- 3:30 PM *Program closure*

**Date:** Thursday, April 14, 2016

Times: 8:00 AM - 3:30 PM

Place: The Palace at Somerset Park, 333 Davidson Avenue. Somerset, NJ

Cost: Preregistration (**by April 7**): \$125. Registration at the door: \$150 (*Checks only*).  
Registration for students and postdocs: \$10. Registration for faculty: \$50.  
Registration is free for unemployed. To register, contact your company representative or email Lauren Aleksunes at the email address above.

## New York Meetings

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

### NEW YORK SECTION BOARD MEETING DATES FOR 2016

The dates for the Board Meetings of the ACS New York Section for 2016 have been selected and approved. The meetings are open to all – everybody is welcome. All non-board members who would like to attend any of the meetings ought to inform the New York Section office by emailing Mrs. Marilyn Jespersen at [njesper1@optonline.net](mailto:njesper1@optonline.net) or by calling the Section office at (516) 883-7510.

All 2016 Board Meetings will be held on the following dates at St. John's University, 8000 Utopia Parkway, Jamaica, NY. Dr. Alison Hyslop will chair all meetings. Refreshments will be available starting at 6:00 PM while the actual meeting will start at exactly 6:30 PM. Please check Marilyn Jespersen for the exact building and room number. You may also be added in the mailing list if you so desire.

The board meetings dates for 2016 will be

**Friday, March 4, 2016** — William H. Nichols Symposium and Medal Award Dinner at the Crowne Plaza Hotel, White Plains, NY

Friday, April 15, 2016

Friday, June 3, 2016

Friday, September 16, 2016

Friday, November 18, 2016

More information will be posted in future monthly issues of *The Indicator* and on the New York website at

<http://www.NewYorkACS.org>



### WESTCHESTER CHEMICAL SOCIETY

**Special Seminar – “Utility of Spinel Oxide Hosts for Magnesium-ion Batteries”**

*Speaker:* Soosairay Therese, PhD  
Bronx Community College of the City University of New York  
Bronx, NY

1) Li-ion batteries have become increasingly prevalent in modern society as they power personal electronic devices and automobiles due to their high energy density. There are several issues, however, with Li-ion batteries, such as safety concerns, high cost,

and limited charge-storage capacity. With an aim to increase the capacity, much attention is focused towards multivalent cation systems ( $Mg^{2+}$ ,  $Al^{3+}$ , etc.) because of their ability to hold greater amounts of charge.

2, 3) Mg-ion batteries also offer additional advantages such as reduced cost and better safety with Mg-metal anodes.

4) However, Mg-ion batteries pose numerous challenges such as incompatibility of Mg-metal anode with non-aqueous electrolytes due to the formation of a passivating layer that blocks Mg-ion diffusion, poor kinetics of  $Mg^{2+}$ -ion diffusion, lack of electrolytes with wide stability windows, and lack of cathode hosts with high operating voltages. Significant efforts are being put into finding suitable cathodes for Mg-ion batteries, but it is challenging due to the  $2+$  charge on  $Mg^{2+}$  ions, which leads to strong interactions with the host structure ions that limit the Mg diffusion kinetics.

Soosairay Theresa is a graduate of Madurai University in India with a BS (1980), an MS (1982) and an M.Phil. (1991) in Chemistry, and a BS in Education (1985); of Annamalai University in India with an MS in Education (1995); and of The Graduate School of The City University of New York with a PhD in Chemistry (2011). She has held teaching positions at St. Theresa's Hr. Sec. School, India (Chemistry Teacher), Maduri Kamaraj University, India (Professor), Bronx Community College (Adjunct Lecturer, Chemistry Tutor, Substitute Lecturer and, since 2011 Associate Professor), and during the summer of 2011 Lehman College (Adjunct Professor). She has also been a Visiting Professor at the University of Texas in Austin during the summer of 2013 and the fall of 2015. She has done considerable research related to lithium ion batteries and the chemistry of spinels. In addition she is currently working on Suzuki coupling reactions using palladium acetate catalyst with varying phosphorous ligands on ribose and deoxyribose chloronucleosides and on stereoselective synthesis of  $\beta$ -ethynylribofuranosides.

**Date:** Wednesday, March 2, 2016

**Times:** Refreshments 5:30 PM

Lecture 6:00 PM

**Place:** Westchester Community College  
Gateway Building, Room 110  
5 Grasslands Road  
Valhalla, NY

**Cost:** Free and Open to the Public

Further Information: Paul Dillon

[PaulWDillon2@hotmail.com](mailto:PaulWDillon2@hotmail.com)

(914) 393-6940

Or:

Anthony Durante  
[anthony.durante@bcc.cuny.edu](mailto:anthony.durante@bcc.cuny.edu)  
 (718) 289-5542 or 5569

**Note: Inclement Weather: Cancellation  
 Due to Inclement Weather**

Should Westchester Community College's Valhalla campus close due to inclement weather (or has delayed opening or closes early) the meeting will be cancelled. Decisions about delay/closure are made around 6am for day courses and 3pm for evening courses. The college will communicate delays, closings or early dismissals on their website ([www.sunywcc.edu](http://www.sunywcc.edu)), Facebook, Twitter, and the (914) 606-6900 phone line.



## CHEMICAL MARKETING & ECONOMICS (CM&E) LUNCHEON/WEBCAST

### Accelerating Growth and Value through Distribution

*Speaker:* J. Erik Fyrwald  
 President and CEO  
 Univar  
 Downers Grove, IL

The global chemical distribution channel is large, fragmented and growing faster than the chemical sector. It also is going through tremendous change as distributors are gearing up to better enable chemical producers and their customers to focus more on their core activities by outsourcing more of the sales, logistics, and packaging/blending and other essential services. As this trend continues, growth in the global chemical distribution market is expected to continue to outpace overall growth in the chemical industry. But why? For more information go to [www.cmeacs.org](http://www.cmeacs.org)

J. Erik Fyrwald joined Univar as CEO in May 2012, and has since led the implementation of several transformational initiatives to drive growth, safety and operating performance. Erik has more than 35 years of experience in the chemical industry, and from December 2011 to May 2012, served as President of Ecolab, a cleaning and sanitation, water treatment, and oil and gas products and services provider. From February 2008 to December 2011, He was CEO of Nalco, and from 2003 to 2008, Erik was Group Vice President of the Agriculture and Nutrition Division of DuPont. He currently serves on the board of directors for Eli Lilly, Amsted Industries, The Society of Chemical Industry, and The Field Museum. Erik holds a bachelor's degree in chemical engineering from the University of Delaware and completed the Advanced Management

Program at Harvard Business School.

**Date: Thursday, March 3, 2016**

Times: Registration and Networking  
 11:15 AM - 12:00 noon  
 Luncheon 12:00 - 1:00 PM  
 Webcast 1:00 PM - 2:00 PM

Place: Penn Club  
 304 West 44 Street  
 New York, NY

Cost: Luncheon Fees: \$120 for Non-Members  
 \$90 for Members (check for Early-bird savings)  
 Free Webcast recording for all ACS Members



## LONG ISLAND SUBSECTION

### Heterocyclic Methodology for Natural Products Synthesis

*Speaker:* Dr. Stephen Philip Fearnley  
 City University of New York  
 York College, Jamaica, NY

As a synthetic organic chemist, my research program involves the ongoing development of new synthetic methodology for the construction of biologically active natural products. Specifically, this encompasses:

- Investigation and use of oxazolone as a useful heterocyclic scaffold for alkaloid synthesis: This has primarily involved studies of intramolecular Diels-Alder reactions with oxazolone as the dienophilic species. Extrapolation to other cycloadditions is planned. Application in the synthesis of several alkaloid targets is currently underway.
- Novel organosilane chemistry for approaches to bioactive ether targets: We have developed a rapid synthesis of cis-fused bicyclic ether arrays in which oxoni-ums undergo nucleophilic attack by vinylsilanes in a novel intramolecular annulation process. The related silyl-activated Friedel-Crafts process proceeds through an unusual combination of electronic and steric effects. A series of silicon-mediated cycloadditions are also under investigation. A wide variety of ether natural product motifs are thus accessible.

**Date: Thursday, March 3, 2016**

Times: Social – 5:30 PM  
 Seminar – 6:00 PM

Place: CUNY Queensborough  
 Community College  
 Science Building, S-112

Directions: <http://www.qcc.cuny.edu/about/driving.html>



**2016 WILLIAM H. NICHOLS MEDAL  
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**Symposium: THE DEVELOPMENT AND APPLICATIONS OF MODERN METHODS  
IN ORGANIC SYNTHESIS**

*Award Recipient:* **PROFESSOR STEPHEN L. BUCHWALD**  
Massachusetts Institute of Technology

**Date:** Friday, March 4, 2016

**Time:** 12:30 PM Registration 1:00 PM – 5:30 PM Symposium  
5:45 PM Reception 6:45 PM Award Dinner

**Place:** Crowne Plaza Hotel, White Plains, NY

**PROGRAM**

1:00 PM Welcome Professor Alison G. Hyslop  
2016 Chair, ACS, New York Section  
St. John's University

1:05 PM Opening of the Distinguished Symposium Professor Brian R. Gibney  
2016 Chair-elect, ACS, New York Section  
CUNY - Brooklyn College

1:15-2:05 PM Multistep Continuous Flow Synthesis Professor Timothy F. Jamison  
Massachusetts Institute of Technology

Flow chemistry has the potential to revolutionize the synthesis of organic molecules - operationally and conceptually. Flow systems can reduce reaction times, increase efficiency, and obviate problems often encountered in scaling up. In addition to these important practical advantages, flow chemistry expands the "toolbox" of organic reactions available to scientists engaged in the synthesis of molecules - from small-scale experiments to large-scale production. These benefits are a direct result of several features of flow synthesis that batch synthesis typically cannot achieve, for example, the ability to control fluid flow precisely, the access to temperature and pressure regimes not usually considered to be practical, and the enhanced safety characteristics of flow chemical systems. In this lecture we will discuss some of our investigations in this area in the form of case studies, wherein a specific target or family of organic molecules has served as an inspiration for the development of new methods of organic synthesis in flow.

2:10- 2:50 PM The Functionalization of C—H Bonds Professor M. Christina White  
University of Illinois Urbana-Champaign

Among the frontier challenges in chemistry in the 21st century are the interconnected goals of increasing control of chemical reactivity while synthesizing and diversifying complex molecules with higher efficiency. Traditional organic methods for installing oxidized functionality rely heavily on reactions that require extensive functional group manipulations (FGMs). In contrast, nature routinely uses allylic and aliphatic C—H oxidation methods, generally mediated by heme and non-heme iron monooxygenase enzymes, to directly install oxidized functionality into the preformed hydrocarbon framework of complex molecules. Due to their ubiquity in complex molecules and inertness to most organic transformations, C—H bonds have typically been ignored in the context of methods development for total synthesis. The exceptions to this rely on substrate directing groups to facilitate site-selectivity and reactivity. The discovery and development of highly selective oxidation methods for the direct installation of oxygen, nitrogen and carbon into allylic and aliphatic C—H bonds of complex molecules and their intermediates are discussed. Unlike Nature which uses elaborate shape or functional group recognition active sites, this chemistry harnesses the subtle electronic, steric, and stereoelectronic interactions between C—H bonds and small molecule transition metal complexes to achieve high regio-, chemo-, stereo- and site-selectivities with high substrate generality- and without the requirement for directing groups. Our current understanding of these interactions gained through empirical and mechanistic studies will be discussed. A user-friendly catalyst reactivity model that calculates and even predicts the major site of oxidation as well as the magnitude and direction of the site-selectivity in complex substrates as a function of catalyst will be delineated. Novel strategies for streamlining the process of complex molecule synthesis and diversification enabled by these methods will be presented.

3:00 PM Coffee Break

3:30-4:20 PM Drug Discovery Innovation: The Evolving Role of Medicinal Chemistry Dr. Joel C. Barrish

The Pharmaceutical Industry is facing significant challenges: a regulatory environment that has become more restrictive and where the safety bar is higher; substantial cost increases at the same time that R&D success rates have decreased and identifying highly validated targets has become even more difficult; and a system of payers worldwide trying to reduce costs and demanding more accountability. Medicinal chemists within the Industry have been particularly affected by changes made in response to these challenges. Despite the headwinds, there is reason for optimism - not only because drug therapies will

continue to be important for an aging population, but especially given considerable scientific advancements within Drug Discovery. For the medicinal chemist, the ability to rapidly evolve and adapt to new approaches and strategies will be key. This presentation will be a personal view of the key innovations where Chemistry has the opportunity for greatest impact and will also highlight the attributes and capabilities needed by the future medicinal chemist.

4:30-5:30 PM Palladium-Catalyzed Carbon-Heteroatom Bond-Forming Reactions

Professor Stephen L. Buchwald  
NICHOLS MEDALIST

Cross-coupling methodology is an indispensable part of the everyday repertoire of synthetic organic chemists. Crucial to our success in the development of new and more generally applicable methods has been our discovery and use of monodentate biaryl phosphine ligands. More recently, the invention of precatalysts based on these ligands has further increased their activity and utility. This lecture will detail our progress in formation of carbon-heteroatom bonds. Included will be: 1) An introduction to palladium-catalyzed carbon-heteroatom bond-forming reactions; 2) A description of ligand and catalyst development employing involving biarylphosphines. 3) Applications of these catalysts to the functionalization of heterocycles and the preparation of compounds of interest to medicinal chemists. 4) Application of these catalysts in PET imaging. 5) Applications of these catalysts to problems in bio-conjugation. This section will describe our work on the functionalization of peptides, proteins and antibodies as well as the preparation of stapled peptides.

5:45 PM Social Hour

6:45 PM William H. Nichols Medal Award Dinner

Professor David W. C. MacMillan (Princeton University) will introduce the Medalist

More information on the William H. 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 preferably through the New York Section website that accepts credit cards or Paypal. <http://www.NewYorkACS.org>.

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

**2016 WILLIAM H. NICHOLS DISTINGUISHED SYMPOSIUM & MEDAL AWARD BANQUET in honor of Professor Stephen L. Buchwald**

Return to: ACS, New York Section, c/o Dr. Neil D. Jespersen, Department of Chemistry, St. John's University, 8000 Utopia Parkway, Queens, NY 11439 (516) 883-7510

- Please reserve \_\_\_\_\_ places for the symposium & banquet at \$120/person
- ACS member \_\_\_\_\_ places for the symposium only at \$40/person
- \_\_\_\_\_ places for the banquet only at \$110/person
- Non-member \_\_\_\_\_ places for the symposium & banquet at \$150/person
- \_\_\_\_\_ places for the symposium only at \$60/person
- \_\_\_\_\_ places for the banquet only at \$120/person
- \_\_\_\_\_ places for the symposium only at \$25/person, Students, Unemployed
- \_\_\_\_\_ places for the symposium only complimentary for 50 year + ACS members

(For table reservations of 8 or more, use the ACS member \$120/person rate for combination tickets)

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Names of guests are:	e-mail Addresses:
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Indicate numbers in your group who choose:

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**BANQUET RESERVATION DEADLINE: FEBRUARY 19, 2016**

Please make checks payable to: ACS, NEW YORK SECTION

Check for \$\_\_\_\_\_ enclosed

## HIGH SCHOOL TEACHERS TOPICAL GROUP

### A Soupçon of Science: Culinary Pedagogy

*Speaker:* Professor Kent Kirshenbaum  
Department of Chemistry, and  
Director of Graduate Studies  
New York University  
<[kk54@nyu.edu](mailto:kk54@nyu.edu)>

and

Disan Davis  
Chemistry Teacher  
Hunter College High School  
<[disan.davis@gmail.com](mailto:disan.davis@gmail.com)>

Everyone eats. This simple fact makes food a relevant topic of scientific inquiry for the entire population. Cooking instruction is gaining popularity as entertainment and as a central focus for improving public health. A study of cooking thus provides a palatable route to foster an appreciation for the scientific method and the chemical composition of matter. The Experimental Cuisine Collective was created at New York University to provide a venue for collaborations between scientists and chefs. The Collective enables dynamic discussions of the synergies between science and cuisine. Scientific topics presented to general audiences include polymer chemistry, fermentation, pH dependence of reaction rates, and molecular neuroscience. Demonstrations are inherently multisensory, and engage students through sight, taste, texture, and aroma. We highlight the chemical investigation of foods such as: stretchy ice cream, mango caviar, and an unusual combination dessert topping/floor wax. Our objectives are to excite students about chemistry, to formulate new recipes, to encourage cooking skills at every level, to impart knowledge relevant for making dietary choices, and to improve human health.

**Date:** Friday, March 18, 2016  
**Time:** Social and Dinner — 5:45 PM  
**Place:** Social and Dinner — TBD  
**Time:** Meeting — 7:15 PM  
**Place:** Meeting — New York University  
Silver Center Room 207  
32 Waverly Place (South-east  
corner Washington Sq. East)  
New York, NY 10003

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 9:00 AM and 2:00 PM to verify that meeting is still on; (516) 385-4698 for other info.

Note: On street parking is free after 6:00 PM.



## 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.



## WESTCHESTER CHEMICAL SOCIETY

### Future Meeting

### Special Seminar – “Making Green by Being Green – Life Cycle Assessment”

*Speaker:* Joe C. Bush, PhD  
Executive Director  
The Institute for Energy and  
Sustainability  
Worcester, MA

**Tentative Date:** Thursday, April 7, 2016

(Times, Place, Cost, Other Information, see under March meeting, pages 8-9.)

## HIGH SCHOOL TEACHERS TOPICAL GROUP

### Future Meeting

“Demo Derby” — an evening of non-stop demonstrations by the attendees. (5-8 minutes max.)

**Date: Friday, April 15, 2016**



## NEW YORK NANOSCIENCE DISCUSSION GROUP

### 2015-2016 Sessions

*Hosted by the New York University  
Department of Chemistry*

Speakers to be announced.

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.

\* \* \* \* \*

### Future Meeting:

**Date: Tuesday, April 19, 2016**

Times: Refreshments — 7:00 PM

Science — 7:30 PM

Place: NYU Silver Center

Room 1003 (10th floor)

31 Washington Place (between

Washington Square East and

Greene Street)

New York, NY

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

Topical Group History:  
<http://www.nyu.edu/projects/nanoscience>



## LONG ISLAND SUBSECTION

### Future Meeting:

### LIACS Board Meeting Dates

Thursday, March 31, 2016

Thursday, April 28, 2016

### Seminars/Events

**Thursday, April 7, 2016**— Dr. Gene Hall, Department of Chemistry and Chemical Biology, Rutgers University

**Friday, April 15, 2016** — Chemistry Challenge @ QCC

**Wednesday, May 4, 2016** — High School Awards Ceremony @ NCC- speaker TBA

### PLEASE NOTE

To allow contributors more time to prepare their articles, deadline dates have changed from the 20th to the 28th of the month, 2 months prior to the issue's date.

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## **NEW YORK SECTION 50 AND 60 YEAR ACS MEMBERS CELEBRATE AT LUNCHEON**

Congratulations to the New York Section's members who marked 50 and 60 years of ACS membership in 2015. Nine members and their guests celebrated this milestone at a special luncheon at Petrossian's Restaurant in Manhattan on November 21, 2015. Dr. Ralph Stephani, co-chair of the Senior Chemists Topical Group of the New York Section, presented each honoree with an ACS Certificate award. After each award presentation, the honorees related interesting stories about their careers in chemistry and their present activities. It was a wonderful afternoon of enjoying the company of colleagues and honoring many years of ACS service. The event was organized by Dr. Ralph Stephani and Co-chair Mr. Frank Romano.



**NY ACS Members who received 50 year ACS Certificates: Dr. William G. Valance, Dr. John P. Wasacz, Dr. Lovji D. Cama, Dr. Anthony A. Galitsis, Dr. Herand M. Markarian, Dr. P. Somasundaran, Chair of Senior Chemists Topical Group Dr. Ralph Stephani who presented the awards, Dr. Diana C. Bartelt, and Dr. Linda M. Hoffman.**



**Dr. Hessa L. Taft accepting her 60 year ACS certificate from Dr. Stephani.**

*(Photos courtesy of Marilyn Jespersen)*

## **ACS, NEW YORK SECTION'S 2016 SECTIONWIDE CONFERENCE, ST. JOHN'S UNIVERSITY, QUEENS, NY**

Each year the New York Section sponsors a Sectionwide Conference for all members to meet with colleagues and new members. This year, the conference celebrated the 125th anniversary of the founding of the New York Section. The conference, held on January 16 at St. John's University in Queens, NY, began with a continental breakfast and featured award presentations for volunteerism and achievement, a keynote address by Prof. John Sharkey, poster displays of Project SEED research, planning sessions for Section activities for 2016, and a luncheon social. Prof. Alison Hyslop of St. John's University and New York Section Chair for 2016 presided over the event and opened the conference by thanking all volunteers and welcoming new members.

At the award ceremony, Prof. Paris Svoronos received the past chair pin and an ACS plaque for his outstanding work as Chair of the New York Section in 2015. During his tenure as chair, planning was initiated for MARM (Middle Atlantic Regional Meeting) 2016. The 2015 Outstanding Service Award went to Mr. George Rodriguez, who, while chairing the Chemical Marketing and Economics Topical Discussion Group, created the Global Leadership Awards Program. He has greatly enhanced the visibility of CM&E and has developed a vibrant series of events and presentations related to the chemical industry. The Section presented the Nichols Foundation Outstanding High School Chemistry Teacher Award for 2015 to Ms. Yolette Wright of Roosevelt High School, Roosevelt, NY. Mr. Stephen Radice, Chair of the Nichols Teacher Jury, introduced Ms. Wright and listed her many accomplishments and inspiring teaching methods. *(See pictures on page 17.)*

Following the awards, 2016 Chair-elect Prof Brian Gibney of Brooklyn College – CUNY and City University presented the names of the candidates for the upcoming 2016 elections and introduced the candidates who were present. He also distributed a calendar that he developed in honor of the 125th anniversary of the section that showcases the outstanding activities of the Section and the dates of 2016 events.

Since the New York Section is celebrating its 125 year Anniversary in 2016, a "trip through time" of the Section's 125 years proved to be an excellent keynote address for the conference. Prof. John Sharkey, the New York Section's Historian for many years, delivered an interesting and thorough recounting of the years from the Section's formation to the present day. Numerous slides showed the notable chemists who were instrumental in the Section's development and its success over the years.

The annual planning session for subsections, topical groups, and committees was held during the last hour of the conference, to discuss goals and activities for the upcoming year. The MARM (Middle Atlantic Regional Meeting) Committee held a special meeting to continue planning the MARM meeting scheduled to be hosted by the New York Section in 2016. Following the conference, a group of attendees enjoyed lunch at a nearby restaurant.



**Committee chairs gathered to present the results of their planning sessions. Here, led by Dr. Anne O'Brien, Chair of Program Review.**

*(All photos courtesy of Marilyn Jespersen)*

**More photos on pages 16 and 17.**

## NEW YORK SECTION'S 2016 SECTIONWIDE CONFERENCE

(continued from page 15)



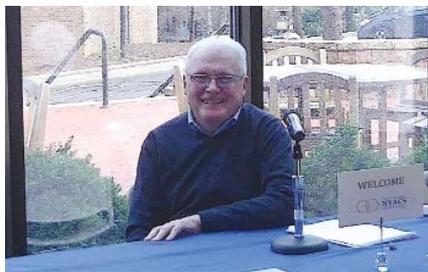
Prof. Alison Hyslop, New York Section Chair for 2016, opened the sectionwide conference with a warm welcome.



Prof. Paris Svoronos, 2015 New York Section Chair, happily accepted the Service Plaque and Pin from Prof. Hyslop.



Prof. Brian Gibney, 2016 Chair-elect, presented the candidates for the upcoming 2016 New York Section elections.



Prof. Emeritus John Sharkey of Pace University presented the keynote address titled "The ACS New York Section at 125 Years; A Celebration."



Mr. George Rodriguez received the New York Section's outstanding Service Award for 2015.



New York Section SEED students presented their research results in a poster session at the sectionwide conference. From left to right: Mrs. Nadia Makar (SEED Coordinator), Charles Ta, Emily Tumbaco, Sebastian Huamana, Jessica Alvitres and Mentor Dr. Judith Barrios.

## **YOLETTE WRIGHT RECEIVES THE NICHOLS FOUNDATION HIGH SCHOOL CHEMISTRY TEACHER AWARD FOR 2015**

Ms. Yollette Wright is the recipient of the Nichols Foundation High School Chemistry Teacher Award for 2015. It was presented to Ms. Wright at an award ceremony at the New York Section's section-wide conference on January 16 at St. John's University. This award was established in 1958 by Charles W. Nichols, Sr. for the purpose of recognizing highly effective teaching and inspirational leadership to students in chemistry within the New York Section of the ACS.

Ms. Yollette Wright received her Bachelor of Science Degree in Nutritional Sciences from Cornell University. Yolette holds two masters degrees - a Master of Science in Clinical Nutrition from New York Institute of Technology and a Master of Science in Secondary Science Education from Hofstra University. Both of these degrees came with distinction. Yolette holds New York certification in Chemistry and General Science. She also is a National Board Certified Teacher in Adolescence and Young Adulthood Science. Prior to her teaching, Yolette was a registered dietician and worked as a clinical dietician at South Nassau Communities Hospital in Oceanside New York.

Yolette is presently teaching at Roosevelt High School in Roosevelt, New York. Roosevelt High School has a population of about 800. It is a suburban, high needs, school. The school has many ELL students. Her teaching assignments have included Honors Chemistry, Forensics Science, Regents Chemistry and Advanced Placement chemistry.

Yolette uses effective techniques to capture the interest of her students. She believes that all chemistry lessons should be engaging, giving pupils a reason to want to learn. She motivates students by encouraging them to see chemistry and science in the world around them. As a dietician, she knows a key to a teenagers heart... "food." Yolette uses a healthy orange clock for electrochemical cells, gatorade for properties of solutions, and, when teaching the periodic table, she has students study vitamin supplemental labels to discuss the metals and nonmetals we ingest for good health. As you can imagine the kids really "eat up her lessons."

Many of Yolette's students struggle with English Language Skills. One of her goals as an educator is "to provide her students the opportunity to develop their literacy skills so that their understanding of chemistry and other sciences will be enhanced." Yolette increases student understanding of English by using guided reading, thinking maps for vocabulary and Cornell note taking.

Another way she challenges students is as a science club advisor. At the club, students do enrichment labs based on student interest. Her students participate in the annual forensics CSI challenge where students in her forensics class process a crime scene using chromatography, refractive index, serology and soil pH analysis.

*(continued on page 18)*



**Nichols Teacher Jury Chair Stephen Radice with Awardee Yolette Wright**



**Yolette Wright received the Nichols Foundation High School Chemistry Teacher Award for 2015 from New York Section Chair Alison Hyslop and Nichols Teacher Jury Chair Stephen Radice.**

*(Photos courtesy of Marilyn Jespersen)*

## **NICHOLS FOUNDATION HIGH SCHOOL CHEMISTRY TEACHER AWARD**

*(continued from page 17)*

One way that Yollette challenges and inspires her Chemistry students is by having her AP chemistry students teach lessons to Regents Chemistry Classes. Also, this past year, the students worked with 3 D printers as a teaching aid. One can imagine how excited the students were to use this modern technology, that combines their artistic interest with their scientific interest. The students researched the curriculum, created pre and post exams and produced a 3D model in their presentation. As an example, 3D models for the topic of kinetics showed molecules with effective and ineffective collisions. For the topic of phase change, 3D models of heating and cooling curves were created.

Besides chemistry Yolette is an integral part of the school community. She oversees 40 students as the student government advisor where she coordinated events including homecoming parade, breast cancer walk, and food and coat drives. She is a mentor that monitors students' progress and provides guidance and support.

Yolette's Principal writes "her lessons are designed with clear and measurable goals... and are a mixture of technology and multicultural learning so her students are always engaged... she not only has wonderful rapport with the students inside the classroom but she is an asset to the school community."

The parent of one of Yolette's students writes: "we have a population where less than 2% of the students go to a four year college. Ms. Wright came determined to give back to her community, particularly in science. My first encounter with her was with my son in her Regents chemistry class. He complained about extra class work. I wrote to Ms. Wright and told her to give him more. By the time my son left Ms. Wrights chemistry class he had a huge appetite for Science... My son along with his friend took her AP chemistry class. My son is now an engineering student at Binghamton University... and his friend is a student completing the Sophie Davis medical program... from city college ... Ms. Wright is a teacher made in heaven and a rarity whose devotion to her students encompass what the core value of a traditional teacher ought and should be."

Congratulations Yolette. You truly have the right stuff!!!!

Written by Stephen Radice, Chair, Nichols Foundation Teacher Award Jury



### **Eastern Scientific**

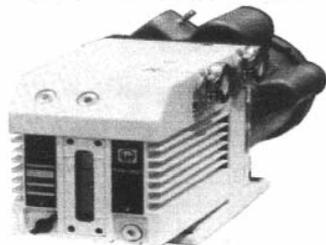
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## NEW YORK SECTION — MIDDLE ATLANTIC REGIONAL MEETING 2016

Theme: “Chemistry: Past, Present,  
and Future”

**New York – A Chemistry State of Mind**

Sponsored by: New York Section of the  
American Chemical Society

The 44th Middle Atlantic Regional Meeting (MARM 2016) of the American Chemical Society (ACS) will be hosted by the New York Section of the ACS and held at the College of Mount Saint Vincent in Riverdale New York from **Thursday, June 9 to Sunday, June 12, 2016**. MARM 2016 coincides with the 125th Anniversary of the American Chemical Society – NY Section.

For information regarding MARM 2016, please visit: <http://www.marmacs.org/2016>

- Questions regarding the event should be directed to the MARM 2016 General Co-Chairs:

Pamela Kerrigan: [pamela.kerrigan@mountsaintvincent.edu](mailto:pamela.kerrigan@mountsaintvincent.edu)

Daniel Amarante: [daniel.amarante@mountsaintvincent.edu](mailto:daniel.amarante@mountsaintvincent.edu)

- Interested speakers or individuals seeking to become Session Chairs should contact the MARM 2016 Program Co-Chairs:

Paris Svoronos: [PSvoronos@qcc.cuny.edu](mailto:PSvoronos@qcc.cuny.edu)

Sujun Wei: [SWei@qcc.cuny.edu](mailto:SWei@qcc.cuny.edu)

For a current list of sessions visit: <http://www.marmacs.org/2016/program.html>

- Potential exhibitors and sponsors may contact the MARM 2016 Exhibits and Sponsorship Co-Chairs:

Fitzgerald Bramwell: [jerry@empirescience.com](mailto:jerry@empirescience.com)

Ping Furlan: [furlanp@usmma.edu](mailto:furlanp@usmma.edu)

Urszula Golebiewska: [UGolebiewska@qcc.cuny.edu](mailto:UGolebiewska@qcc.cuny.edu)

**Dates: Thursday-Sunday,  
June 9-12, 2016**

**Place:** College of Mount Saint Vincent  
Riverdale, NY

*See Call for Volunteers on page 23  
and more extensive information on  
pages 20 and 21.*

## COME AND JOIN US CELEBRATE EARTH DAY WITH OUR 5th ANNUAL “WALK THE BROOKLYN BRIDGE”!



### Climate Change and Evidence for its Impact in a Tropical Forest

*Keynote Speaker:* Prof. Bill Eaton  
Chair, Dept. of Biology  
Pace University



We will meet at Pace University in the Bianco Room at 11:00 AM and begin our celebratory “Earth Day Parade” across the iconic Brooklyn Bridge at 12:00 noon. Participants will be provided with breakfast and Earth Day gifts. To register and for more information go to:

<http://www.newyorkacs.org/meetings/EarthDay/CCED.php>

**Date: Sunday, April 24, 2016**

**Time: 11:00 AM – 2:00 PM**

Contact: Prof. JaimeLee Rizzo  
CCED Coordinator  
[jrizzo@pace.edu](mailto:jrizzo@pace.edu)

**SUNDAY, APRIL 24, 2016**





# 64<sup>th</sup>

## ANNUAL UNDERGRADUATE RESEARCH SYMPOSIUM

### The Student Activities Committee of the New York Section of the American Chemical Society

**Saturday, May 7<sup>th</sup>, 2016 at Lehman College**

**8:00 am – 3:00 pm (breakfast, luncheon and award reception included)**

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

**Keynote Speaker: Dr. Scott D. Edmondson**  
Merck and Co. Inc



Dr. Scott Edmondson got his start in Chemistry at Cornell University where he attained an A.B. in Chemistry in 1991. He obtained his Ph.D. in Chemistry in 1996 from The Ohio State University where he worked with renowned organic chemist Professor Leo Paquette on the application of anionic oxy-Cope rearrangements to the synthesis of terpene natural products. Next, he was an NIH postdoctoral fellow with Professor Samuel J. Danishefsky at Columbia University where he worked on alkaloid natural product total syntheses.

In 1998, Dr. Edmondson joined Merck and Co. where he has worked on a broad range of therapeutic areas including obesity, diabetes, urology, cardiovascular disease, and most recently infectious disease. He is a co-inventor of Januvia<sup>TM</sup>, a DPP-4 inhibitor currently used to treat patients with type 2 diabetes and he led a team of scientists to discover a compound currently in Phase 3 clinical trials for the treatment of overactive bladder. Dr. Edmondson is a co-author of more than 40 publications, 4 book chapters, and 40 patents/patent applications. Currently, he is Director of Discovery Chemistry at Merck in Kenilworth, NJ.

### Stories of Drug Discovery: Discovery of Januvia<sup>TM</sup> (Sitagliptin) For Diabetes And Vibegron For Overactive Bladder

Inhibition of dipeptidyl peptidase 4 (DPP-4) is now an established method for the treatment of type 2 diabetes. At Merck, the DPP-4 inhibitor program was initiated in 1999 and shortly thereafter the medicinal chemistry team began optimization of two distinct classes of inhibitors derived from either  $\alpha$ -amino amides or  $\beta$ -amino amides. Importantly, early research from our laboratories illustrated that the selection of DPP-4 inhibitors for clinical development should take into account selectivity over related enzymes DPP8 and DPP9 which have been associated with toxicity in preclinical species. Optimization of the  $\beta$ -amino amide series led to the discovery of JANUVIA<sup>TM</sup> (sitagliptin), the first DPP-4 inhibitor approved for the treatment of type 2 diabetes.

$\beta_3$  Adrenergic receptor (AR) agonists were studied in the 1990's as a treatment for obesity, but development of early compounds was terminated due to a lack of sustained efficacy in humans for obesity. Subsequent preclinical studies suggested that  $\beta_3$ -AR agonists could be repurposed as a treatment for overactive bladder (OAB), and the recent approval of mirabegron confirmed that  $\beta_3$ -AR agonists are effective in humans for this indication. Although an early  $\beta_3$ -AR agonist from Merck (MK-0634) was successful in the clinic for the treatment of OAB, further development of the compound was halted due to toxicities in preclinical species. A back-up program identified vibegron (MK-4618) as a potential best-in-class  $\beta_3$ -AR agonist that addresses many of the liabilities associated with MK-0634 and is currently in Phase 3 clinical trials for the treatment of OAB.

This presentation will describe biology, medicinal chemistry, and clinical development of JANUVIA<sup>TM</sup> (sitagliptin) and vibegron.

#### SIGNIFICANT DATES FOR 64<sup>th</sup> URS

Deadline for Abstract Submission - **March 18, 2016** Abstract acceptance notification – April 4, 2016

Deadline for Symposium Advanced Registration – April 8, 2016

2016 Co-chair <b>Dr. Ipsita A. Banerjee</b> Fordham University banerjee@fordham.edu	2016 Co-chair <b>Dr. Meredith Foley</b> St. John's University FoleyM1@stjohns.edu	2016 Co-chair <b>Dr. Paul Sideris</b> Queensborough CC - CUNY psideris@qcc.cuny.edu
--	--	--

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 should be made out to: "NY ACS URS" and sent to: Prof. Paul Sideris, Queensborough Community College, Department of Chemistry, Science Building S-445, 222-05 56<sup>th</sup> Avenue, Bayside, NY 11364.

*See Call for Papers on page 25.*

## MIDDLE ATLANTIC REGIONAL MEETING 2016

## New York—A Chemistry State of Mind

## SPONSORSHIP AND EXHIBIT OPPORTUNITIES

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	Diamond Sponsor	Platinum Sponsor	Gold Sponsor	Silver Sponsor	Bronze Sponsor	Donor In Kind
Fee	\$3,000- \$10,000	\$2,000- \$2,999	\$1,000- \$1,999	\$500- \$999	\$250- \$499	Any
Sponsorship*	Session/Event /General	Session/Event /General	Session/Event /General	Session/Event /General	General	NA
Table at Expo	Yes	No	No	No	No	NA
Signage	All	All	Event Placard	Event Placard	No	NA
Meeting Program	Cover	Full Page	1/2 Page	1/4 Page	Logo	Appreciation
Website Logo/link	Yes	Yes	Yes	Yes	Yes	Appreciation
Email blasts	Logo	Logo	No	No	No	NA
Certificate	Diamond	Platinum	Gold	Silver	Bronze	Appreciation
Registration	4	2	2	1	1	NA

\* Events include but are not limited to workshops, luncheons, social events, coffee breaks, and raffle. Full payment by April 15, 2016 to ensure full benefits.

## Exhibit Categories

Entity	Size (feet)	Cost*		Included
		Early	Regular	
Commercial	8x10	\$800	\$1000	Power, 6-ft rectangular table, two chairs, two registrations, meeting attendee contact info, logo on website & program
Commercial	8x10	\$500	\$700	6-ft rectangular table, two chairs, two registrations, meeting attendee contact info, logo on website & program
Academic	8x10	\$350	\$450	6-ft rectangular table, two chairs, one registration, logo on website & program
Academic	Shared 8x10	\$150	\$200	½ 6-ft rectangular table, one chair, logo on website & program
Unattended	8x10	\$275	\$350	6-ft rectangular table, meeting attendee contact info, logo on website & program
Unattended	Shared 8x10	\$175	\$225	½ 6-ft rectangular table, meeting attendee contact info, logo on website & program

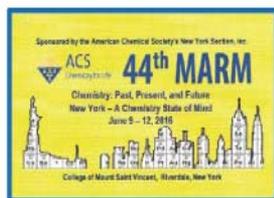
\*Early Bird by March 1, 2016; full payment by April 15, 2016 to ensure full benefits; reduced price for combined registration with 2016 NERM is available (please call for information).

## Advertisement

Categories*	Cost
Program ¼ page with web logo/link	\$500
Program ½ page with web logo/link	\$300
Program business card with web logo/link	\$125
web logo/link	\$45

\* Full payment by April 15, 2016 to be included in the Program. Call for prices for other options





American Chemical Society's New York Section, Inc.  
Middle Atlantic Regional Meeting 2016  
<http://marmacs.org/2016/>

### Exhibits/Sponsorship Chairs

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### General Chairs

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### MARM Executive

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**Paul Tukey**  
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**ACS Meeting  
Planning Partner**  
**Kimberly Savage**  
[K\\_Savage@acs.org](mailto:K_Savage@acs.org)

Dear Potential Exhibitor/Sponsor:

We invite your organization to take advantage of the many benefits of MARM 2016 as an Early Bird sponsor. There is the opportunity to connect with 30,000 chemists, biochemists and science educators in the Middle Atlantic Region (Washington DC to New York and of course all points in between). At MARM 2016, we anticipate 1,000 attendees from area industry, government labs, colleges and universities, public schools, and clinical labs. (Indeed, you are invited to review our program information at our website, <http://www.marmacs.org/>) MARM 2016 will run at the College of Mount Saint Vincent in Riverdale, NY on Thursday, June 9 through Sunday, June 12, 2016.

Your investment in the MARM 2016 Exposition as an Early Bird sponsor will maximize your interaction with attendees: either decision makers or prospective workforce employees. Among the incentives offered to Early Bird sponsors are:

- a special discount on exhibition space;
- targeted break (networking) sessions with industrial or academic decision makers;
- access to approved data bases for students; access to approved data bases for decision makers.

Here are some additional aspects of our plan that will assure the success and economy of your sponsorship:

- Early bird sponsors can rent exhibit space with or without power at a **significantly reduced rate.**
- Exhibit spaces available for Early Bird sponsors will be located in high traffic areas and include:
  - Standard power (120 V) is available along the walls.
  - 8 x 10-ft space including a 6-ft rectangular table, two chairs, and a trashcan.
  - No cost wireless internet access available throughout the College of Mount Saint Vincent.
- Complimentary registration fees.
- BBQ, Raffle Draw, and sponsored Coffee Breaks that target potential workforce employees, or decision makers will be set up in the exhibit areas.
- Complimentary hot link posting to your company on the MARM 2016 website.

MARM conference registration will be set up in the exhibit areas. Exhibit areas are located near the technical sessions and with the poster sessions. **Register before March 1, 2016 to take advantage of the Early Bird Rates, and register by April 15, 2016 to ensure full benefits.** Exhibit space is limited and spots will be reserved on a first come basis. In addition to benefiting your organization, your participation will help make this the best MARM meeting ever!

If you have any questions, please feel free to contact us.

Sincerely,

*Fitzgerald B. Bramwell*

*Urszula Golebiewska*

*Ping B. Furlan*

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## Call for Applications

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### FREDDIE AND ADA BROWN AWARD

This Award recognizes and encourages high achieving middle- and high-school students, of African American and Native American heritage, to further develop their academic skills, with views on careers in the chemical sciences

#### Award Amounts

Middle School \$100.00 Check and \$50.00 gift certificate : High School \$200.00 Check and \$100.00 gift certificate

#### Who is Eligible

Middle School students enrolled in a science class : High School students who have completed a chemistry course

#### Grades

Middle School B Average or better in Science, B Average overall : High School B Average in Chemistry, B Average overall

#### Letter of Recommendation

Math or Science/Chemistry Teachers or Guidance Counselor

#### Statement

Middle School "Why I Like Science" : High School "Why I Like Chemistry"

#### Selection Criteria

Applicants must be African American (Black) or Native American (including Pacific Islander) or of mixed race.

#### Transcript

Official transcript required.

#### Financial Need

Not Required.

Applications available on the web: [www.njacs.org/freddieadabrown](http://www.njacs.org/freddieadabrown) or from your school guidance office.

#### Return Application To

Freddie and Ada Brown Award, NJACS Section Office, 49 Pippen Way, Morristown, NJ 07960

#### Due Date

Completed Applications must be post-marked no later than **March 31 Annually**

**Questions:** Contact Jeannette Brown [Jebrown@infionline.net](mailto:Jebrown@infionline.net) or (908) 239-1515

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## Call for Nominations

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### COMMITTEE ON THE HISTORY OF THE NEW YORK SECTION

Over the past twenty-three years the New York Section has participated in the designation of seven National Historic Chemical Landmarks and four New York Section Historic Chemical Landmarks. A brief description of these National and local section landmarks may be found on the NY Section Home Page at [newyorkacs.org](http://newyorkacs.org), under the Committee on the History of the NY Section. These landmark programs recognize achievements in the chemical sciences and related areas, in order to enhance public appreciation for the contributions of the chemical sciences to modern life.

Please consider making a nomination for an historic chemical landmark. The Committee on the History of the NY Section will consider all nominations. In addition to a particular achievement, an historic library, building or association may be worthy of this distinction.

Please send your nomination, with supporting documentation, to the Chair of the Committee, Dr. John B. Sharkey, at [johnbsharkey@me.com](mailto:johnbsharkey@me.com).



### ACS FELLOWS PROGRAM

Dear colleagues,

Happy Holidays – I hope you are all enjoying a few days off with family and friends

Which local ACS members have made significant contributions to the Society and in their professional lives and would thus be potential candidates to be ACS Fellows? We need to collect your ideas and suggestions now.

I am attaching the guidelines for the ACS Fellows program along with a listing of all of the current Fellows and a link to the Fellows site on the National ACS web-site (<http://www.acs.org/content/acs/en/funding-and-awards/fellows.html>). Nominees must have both a scientific/professional and vol-

(continued on page 24)

## ACS FELLOWS PROGRAM

(continued from page 23)

unteer track record, the latter within ACS sponsored activities. The application process is described in the attached document and requires a list of personal information, a 200 word synopsis and three letters of recommendation from ACS members, at least one of which must come from outside their primary place of employment.

Please consider people in your committee or topical group as well as those others (co-workers, meeting attendees, educators, academic or other contacts/collaborators etc. etc.) who may meet the criteria for nomination. We would like to have list of candidates for review no later than early Feb as we need to have the nomination material in-hand **by mid-March** so it can be entered into the nomination system (a non-trivial process). Please send me the name and any information you may have collected about possible nominees.

Any ACS member can nominate another member as an ACS Fellow but the Section can make multiple nominations and is willing to anyone help anyone nominate a deserving chemist.

This is a great opportunity to recognize our colleagues, so please think carefully about whose contributions we can recognize.

Please distribute and share with other local ACS members and leaders.

Best regards and thanks,  
Les

Cell: (908) 334-5473

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## Call for Volunteers

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### OPPORTUNITY FOR ACS MEMBERS TO AID STUDENTS 2 SCIENCE IN A HYBRID VIRTUAL LAB PROGRAM

Can you spare a few hours of your time? Do you like working with students and would you like the opportunity to share your science knowledge in a classroom? Students 2 Science is seeking volunteers to aid in our Virtual Lab program. We have a series of elementary, middle, and high school experiments that we will be running in various schools across New Jersey. Members are especially needed to help with the North Jersey section's IPG funded project to bring hands-on science to South Jersey. We need professionals to help in the classroom with the students. It's great fun, a wonderful way to give back, and only requires a few hours of your time. Opportunities begin in November. For more information, contact Fran Nelson, [frannelson@students2science.org](mailto:frannelson@students2science.org) and visit our website at [Students2Science.org](http://Students2Science.org)



### MARM 2016

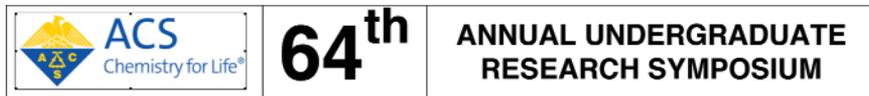
The New York Section will be hosting MARM 2016, **June 9-12, 2016** at the College of Mount Saint Vincent, Riverdale, NY 10471. The section will be celebrating its 125th Anniversary during its event. The theme is Chemistry: Past, Present, and Future. The General Chairs for this meeting are Dr. Pamela Kerrigan and Dr. Daniel Amarante from the College of Mount Saint Vincent's Division of Natural Sciences. To volunteer in planning and/or for further information, please contact them at the following emails:

[Pamela.kerrigan@mountsaintvincent.edu](mailto:Pamela.kerrigan@mountsaintvincent.edu)

or

[Daniel.amarante@mountsaintvincent.edu](mailto:Daniel.amarante@mountsaintvincent.edu)

## Call for Papers



**Call for Papers for the 64th ANNUAL UNDERGRADUATE RESEARCH SYMPOSIUM** sponsored by the Student Activities Committee of the New York Section of the American Chemical Society. The symposium provides an excellent opportunity for undergraduate chemistry students in the NY metropolitan area to present the results of their research. Abstracts should demonstrate appropriateness of topic for a chemistry symposium. The program includes a keynote address by Dr. Scott D. Edmondson, Merck and Co. Inc, presentation of student papers, and a luncheon.

**Date: Saturday, May 7th, 2015**

**Place: Lehman College, Bronx, NY**

To:

1. Submit an abstract on-line (1-2 student presenters max per abstract; use the online abstract template form and follow included instructions)
2. Print a flyer for posting - Click "Download Flyer" in the blue frame
3. Obtain directions to Lehman College

Go To: <http://www.newyorkacs.org/meetings/urs/urs.php>

### **SIGNIFICANT DATES FOR 64th URS**

Abstract submission and online registration opens - **February 1, 2016**

Deadline for abstract submission - **March 18, 2016**

Notification of the abstract acceptance – **April 4, 2016**

Deadline for early registration – **April 8, 2016**

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. Students can obtain a discounted 1-yr membership to the ACS for \$25 by visiting <http://undergrad.acs.org/>

Checks for the registration fee should be made out to: "NY ACS URS" and sent to:

Prof. Paul Sideris, Queensborough Community College, Department of Chemistry, Science Building S-445, 222-05 56th Avenue, Bayside, NY 11364

If you have any questions please contact: [nyacsurs2016@gmail.com](mailto:nyacsurs2016@gmail.com)

2016 Co-chair  
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2016 Co-chair  
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## Ad Index

### ANALYTICAL

Micron Inc. ....	4
NuMega Resonance Labs. ....	26
Quantex ....	5
Robertson Microlit Labs ....	13

### EDUCATION

Drew University. ....	6
-----------------------	---

### EQUIPMENT

Eastern Scientific Co. ....	18
-----------------------------	----

### GENERAL

ACS-NY/NoJ Sections ....	9
ACS-NY/NoJ Sections ....	26
ACS-NY/NoJ Sections ....	26
ACS-NY/NoJ Sections ....	26