

## **Dr. JaimeLee I. Rizzo Receives the NY Section's 2017 Outstanding Service Award**



*See Article on Page 5.*

## THIS MONTH IN CHEMICAL HISTORY

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

I continue my look back of a century through reviewing the Annual Reports of the Chemical Society on the Progress of Chemistry. This month's column will examine further aspects of the chemistry of 1918 through such a review. The 1918 report is a slim volume covering the final year of World War I, the Great War as it was known, when academic research in chemistry had to yield to the demands of wartime research.

It is important to recall that 1918 was less than a decade after Bohr proposed his revolutionary quantized interpretation of the structure of the hydrogen atom. The spectral calculations from the Bohr model agreed exactly with observations of the Rydberg series of lines in the hydrogen atom spectrum. Not surprisingly speculation about the electronic structures and other features of heavier atoms was widely pursued by scientists of the period. The Section on General and Physical Chemistry covers this material.

"There [has been] some reluctance in the acceptance of the view that the fundamental parameter [underlying the periodic system] is the atomic number". The article goes on to indicate that using a relationship between the atomic number and "the characteristic atomic frequency" (not defined, but I take this to refer to characteristic X-ray frequencies) the choice between the views of Rydberg, who assigns atomic number 5 to lithium, and Moseley, who assigns lithium atomic number 3, is found to be in favor of Moseley (who by this time had died in the assault on Gallipoli).

In examining high frequency spectra of atoms heavier than hydrogen "frequent attempts have been made to interpret these spectra in terms of the Rutherford model atom and the Bohr theory of emission". According to Debye (!) and Vegard the K-series of X-ray lines is probably due to an inner ring of three or possibly four electrons. Vegard further proposes that the L, I, and M series may result from two quanta being needed for the removal of constituent electrons, and that the L series derives from a ring of seven electrons, while the I and M series are attributed to eight- and nine-membered rings.

There is also speculation about the interpretation of chemical properties, in particular valence, in the light of the new views on electronic structure. Different models abound. In one a central negative core is present "in which beta-ray electrons travel in closed orbits. Positive electrons [!] move in orbits which closely surround the negative core, and outside these are the negative valency electrons which move in elongated, elliptical orbits comparable with those of comets in the solar system."

There is an interesting observation on the spectra of isotopes. Spectra of ordinary lead and lead from radium have been examined with great care, and the line at 4058 Angstroms shows a wavelength difference of 0.0043 Angstroms between the isotopes.

With our understanding of the electronic structures of atoms, gathered from a century of further work involving a number of missteps, it is easy to smile at the misunderstandings of scientists of 1918. It may be salutary to speculate on how many of our currently held views will withstand the scrutiny of another century of work.

It would take decades before such syntheses were accomplished.

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The monthly newsletter of the New York & North Jersey Sections of the American Chemical Society. Published jointly by the two sections.

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*The Indicator* (ISSN0019-6924) is published on-line monthly except July and August by the New York and North Jersey Sections of the American Chemical Society, Office of Publication, 1 Milbark Court, Homosassa, FL 34446.

All views expressed are those of the editor and contributors and do not necessarily represent the official position of the New York and North Jersey Sections of the American Chemical Society unless so stated. Distributed electronically to members through the website [www.TheIndicator.org](http://www.TheIndicator.org). Non-members are invited to read it online. Members should register their email addresses at [www.acs.org/editmyprofile](http://www.acs.org/editmyprofile).

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

## March Calendar

### NEW YORK SECTION

#### Thursday, March 1, 2018

Long Island Subsection  
See page 8.

#### Thursday, March 1, 2018

Chemical Marketing & Economics Group  
See pages 8 and 9.

#### Friday, March 9, 2018

New York Section Board Meeting  
See page 8.

#### Friday, March 9, 2018

High School Teachers Topical Group  
See page 10.

#### Monday, March 19, 2018

Biochemical Topical Group  
See page 10.

#### Wednesday, March 21, 2018

New York Society for Applied Spectroscopy  
See pages 10 and 11.

#### Wednesday, March 28, 2018

Westchester Chemical Society  
See pages 11 and 12.

*also*

#### Wednesday, April 4, 2018

MetroWomen Chemists  
See page 12 and 13.

#### Friday, April 13, 2018

Nichols Symposium  
See pages 6 and 7.

#### Friday, April 20, 2018

High School Teachers Topical Group  
See page 13.

#### Sunday, April 22, 2018

Chemists Celebrate Earth Day  
See pages 14 and 15.

#### Wednesdays, April 25, and May 23, 2018

NY/NJ Society for Applied Spectroscopy  
See page 14.

#### Saturday, May 5, 2018

Undergraduate Research Symposium  
See page 16.

#### Tuesday, June 19, 2018

Chemical Marketing and Economics Group  
See page 14.

### NORTH JERSEY SECTION

#### Monday, March 26, 2018

North Jersey Executive Committee Meeting  
See page 17.

*also*

#### Wednesdays, April 25, and May 23, 2018

NY/NJ Society for Applied Spectroscopy  
See pages 17.

#### Thursday, April 26, 2018

Drug Metabolism Discussion Group  
See page 17.

**The Indicator is posted to the web  
around the 15th of the previous month  
at**

**[www.TheIndicator.org](http://www.TheIndicator.org)**

**Deadline for items to be included in the  
April 2018 issue of *The Indicator* is**

**February 28, 2018**

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## Dr. JaimeLee Rizzo, NY Section's 2017 OSA Recipient

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Dr. JaimeLee Lolani Rizzo, Assistant Chair and Professor of Chemistry at Pace University, is the recipient of the 2017 Outstanding Service Award of the ACS New York Section. This award, created in 1976 and presented annually, recognizes the efforts of the members of the New York Section who provide their time, leadership skills and dedicated service to promote high quality programs that contribute to the excellence of the Section. Jaime has been an active and enthusiastic member of the NY Section for nearly two decades. She received the award at the Annual Sectionwide Conference, held at Pace University, NYC on January 20, 2018.

Jaime's New York Section leadership and dedication spans more than 10 years. She brings a high level of enthusiasm and knowledge to the offices that she holds and the projects she leads. The events associated with her committees have required a significant amount of work. Under her chairmanship the New York Section was honored with ACS Chemluminary awards.

Dr. Rizzo earned her Ph.D. in Organic Chemistry from the Graduate Center of the City University of New York, and has promoted excellence in chemistry among students for over 15 years. She has been awarded 15 patents and has had grants including those with Johnson & Johnson Wound Management Division, the U.S. Army Batelle, and the U.S. Army Soldier and Biological Chemical Command. Jaime had received an ACS Community Interaction Grant in 2015 and 2016 and an ACS Innovation Grant in 2012. She has proudly served as Faculty Advisor to the Chem Club at Pace since 2010 and under her guidance the Chem Club was awarded the Outstanding Student Chapter Award and Green Chapter Awards in 2017. She was named a Fellow by the ACS in 2017 at the ACS National meeting in Washington D.C. Also, in 2017 at the Middle Atlantic Regional Meeting in Hershey, PA, she accepted the E. Ann Nalley Award for Outstanding Volunteer Service to the ACS

In 2005, Jaime became a member of the New York Section's Student Activities Committee and contributed many hours to the organization of the annual Undergraduate Research Symposium. She continues as a member of this committee after serving as Co-Chair for 6 years. Jaime was the keynote speaker for the URS in 2015 and 2008. From 2007 to 2012 Jaime was a Project Leader for the annual National Chemistry Week event held in October at the New York Science Hall of Science. This highly successful event serves over 1000 guests each year.

In 2012, Jaime created the annual "Walk over the Brooklyn Bridge" that is held each April as a Chemists Celebrate Earth Day event. More than 150 people participate in this event, from over 30 colleges, high schools, middle schools, and pharmaceutical companies. The participants gather at Pace University to walk the bridge as they bring awareness of Earth Day with balloons and banners. Jaime organizes the breakfast, lunch, snacks, keynote address, and Earth Day related souvenirs that are included in successful event.

In 2010, the New York Section membership elected Jaime to serve as chair-elect of the New York Section in 2011, followed by chair in 2012. As Chair she served on and also chaired the Nominating Committee and the Finance Committee. The New York Section's activities during 2012 earned the Section the ACS Chemluminary Award for Outstanding Local Section in the Very Large Category. In 2011, Jaime led the William H. Nichols Distinguished Symposium and in 2012 she hosted the Nichols Medal Award Dinner. She served for 5 years on the Nichols Medal Jury, and chaired the Jury in 2015 - when the jury selected Dr. Stephen Buchwald as the 2016 Nichols Medalist. Jaime has also been active in the Long Range Planning Committee since 2012. In 2015, Jaime was elected Councilor for the New York Section and she now serves on the ACS Committee for Economic and Professional Affairs.

The Outstanding Service Award acknowledges Jaime's enthusiasm and dedication to the activities of the ACS New York Section, to her students at Pace University and to the Community. The New York Section truly appreciates Jaime's many years of service and extends a heartfelt thank you.



## 2018 WILLIAM H. NICHOLS MEDAL DISTINGUISHED SYMPOSIUM AND AWARD DINNER

**Symposium: "THE FUTURE OF ENERGY SCIENCE ... WITHOUT CHEMICALS? UNACHIEVABLE!"**

**Award Recipient: DR. DEBRA R. ROLISON**

Date: Friday, April 13, 2018

Place: Crowne Plaza Hotel, White Plains, NY

### PROGRAM

1:00 PM	Welcome	Dr. Joseph M. Serafin 2018 Chair, ACS, New York Section St. John's University
1:05 PM	Opening of the Distinguished Symposium	Dr. Justyna Widera-Kalinowska 2018 Chair-elect, ACS, New York Section Adelphi University
1:15 PM	Designing Transition Metal Phosphide Nanoparticles and Composites for Effective Electrocatalytic and Photocatalytic Water Splitting	Dr. Stephanie L. Brock Department of Chemistry Wayne State University

Transition metal phosphides are of considerable research interest for the wide range of catalytic functions they imbue. These include hydrodesulfurization of fossil fuels, hydrodeoxygenation of biofuels, and electrocatalytic water splitting reactions, among others. However, the functionality of the phosphide is sensitively dependent on composition, structure and particle size. In order to better understand the roles of structure, electronics, and surface chemistry on catalytic activity and stability, synthetic methods that enable composition, structure, and size to be targeted, and that yield low-polydispersity samples, are needed. In this presentation, the synthesis of bimetallic manganese and ruthenium phosphide nanoparticles  $M_2-xM_nxP$  ( $M = Fe, Co$ ) and  $Ni_2-xRuxP$  will be described and their composition-dependent activity for electrocatalytic water oxidation presented. The role of structure, site occupancy, and electronic considerations on functionality will be discussed in the context of designing more active and stable electrocatalysts. Finally, as a means to translate electrocatalytic activity into photocatalytic activity, the design of porous nanoparticle assemblies that blend phosphides with light-harvesting sulfide nanoparticles will be described and their efficacy for photocatalytic water reduction discussed in light of interfacial characteristics. The talk will conclude with a discussion of the importance of rational nanomaterials synthesis and design in addressing 21st century energy and environmental needs.

2:00 PM	Modulating Proton-Coupled Electron Transfer Mechanisms for the Efficient Production of Fuels	Dr. Jillian L. Dempsey Department of Chemistry University of North Carolina-Chapel Hill
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Molecular transformations of interest for solar fuel production are underpinned by proton-coupled electron transfer (PCET) reactions. To optimize efficiency in the catalytic reactions that mediate fuel production, this proton-electron reactivity must be carefully orchestrated. Our group utilizes a combination of electrochemical methods and time-resolved spectroscopy to elucidate the mechanisms of PCET reactions in both transition metal-based hydrogen-evolving catalysts and model systems. By systematically examining the influence of various reaction parameters—including catalyst structure, ligand electronics and proton source—on the PCET mechanisms and the kinetics of their elementary reaction steps, we are revealing how the PCET reaction space can be intentionally traversed. These findings are providing the blueprints for next-generation catalyst design.

2:45 PM	Coffee Break	
3:15 PM	Operando Methods for the Study of Energy Materials	Dr. Héctor D. Abruña Department of Chemistry and Biochemistry Director, Energy Materials Center and Émile M. Chamot Professor of Chemistry

This presentation will deal with the development of operando methods for the study and characterization of fuel cell and battery materials. The presentation will begin with a brief overview of the methods employed. Particular emphasis will be placed on the use of X-ray diffraction (XRD), X-ray absorption spectroscopy (XAS) X-ray microscopy and tomography and transmission electron microscopy (TEM) all under active potential control. The utility of these methods will be illustrated by selected examples including electrocatalysts for the oxygen reduction reaction and spectroscopic studies of Li/S batteries and lithium dendrite formation dynamics. The use of operando TEM will be illustrated by studies of fuel cell catalyst degradation and coalescence and lithiation/de-lithiation dynamics of  $LiFePO_4$  via energy-filtered TEM. Finally the concept of symmetrical redox flow batteries will be demonstrated. The presentation will conclude with an assessment of future directions.

4:00 PM Architectural Design, 1D Walls, 3D Plumbing, and Painting Blind en Route to Dr. Debra R. Rolison  
 Multifunctional Nanoarchitectures for Energy Storage Head - Advanced Electrochemical  
 Materials Section, U.S. Naval Research Laboratory

Our team at the Naval Research Laboratory looks at rate-critical chemical processes where events per second are required for high performance in such technologies as energy storage, energy conversion, (electro)catalysis, and sensing. We then design next-generation systems built around pore–solid nanoarchitectures that seamlessly embody all of the requisite rate functions for high-performance electrochemistry: molecular mass transport, ionic/electronic/thermal conductivity, and electron-transfer kinetics. We have taken the lessons from 20 years of probing the operational and design characteristics of catalytic and energy-relevant nanoarchitectures to create a zinc sponge—a stand-alone, 3D-wired anode that improves current distribution within the electrode structure during charge–discharge cycling, thwarts dendrite-formation, and can challenge the energy density of Li-ion battery packs, all while using safer aqueous-based chemistry. With this breakthrough, we are now addressing the family of zinc-based rechargeable alkaline batteries: nickel–3D zinc, silver–3D zinc, MnO<sub>2</sub>–3D zinc, and even rechargeable 3D zinc–air. The route we have taken to move from a creative concept to a fabricated reality to the necessary fundamental characterization to prototype development (and ultimately commercialization by outside companies) will be described.

### MEDAL AWARD BANQUET

**5:15 p.m. Social Hour**

**6:15 p.m. Medal Award Dinner**

**Presiding:** **Dr. Joseph M. Serafin**  
 2018 Chair, ACS New York Section  
 St. John's University

**ACS Greetings:** **Dr. Peter K. Dorhout**  
 2018 President  
 American Chemical Society

**Introductory Address:** **Dr. Henry S. White**  
 University of Utah

**Presentation of the Medal:** **Dr. Joseph M. Serafin**

**Acceptance Address:** **Dr. Debra R. Rolison**  
 Nichols Medalist

For More Information: Please visit the New York Section website at [www.NewYorkACS.org](http://www.NewYorkACS.org)

Online registration using PAYPAL for payment is available at  
[www.newyorkacs.org/meetings/Nichols/2018Nichols.php](http://www.newyorkacs.org/meetings/Nichols/2018Nichols.php)

Or use the Tear Off reservation form at this line **BANQUET RESERVATIONS DEADLINE – April 4, 2018**

#### MAIL RESERVATIONS TO:

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 St. John's University, Department of Chemistry  
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 Queens, NY 11439

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		Number	Total
<b>Symposium only:</b>	<b>\$65 (\$45 for ACS Members)</b>	_____	\$ _____
Student, unemployed, retired	<b>\$30</b>	_____	\$ _____
50 year ACS member	<b>\$0</b>	_____	\$ _____
<b>Banquet only:</b>	<b>\$130 (\$120 for ACS Members)</b>	_____	\$ _____
<b>Symposium &amp; Banquet:</b>	<b>\$160 (\$130 for ACS Members)</b>	_____	\$ _____
<b>Table of 8 or more for symposium/banquet</b>	<b>\$130 per person</b>	_____	\$ _____

Reserve our table in the name of: \_\_\_\_\_

Enclosed is my check, payable to: **NEW YORK SECTION, ACS** in the amount of \$ \_\_\_\_\_

If reservations are for more than one person, please attach a list of the guests' names, and dinner selections where needed.

**DINNER CHOICES:** Chicken \_\_\_\_\_ Prime Rib \_\_\_\_\_ Salmon \_\_\_\_\_ Vegetarian \_\_\_\_\_

**Tickets will be mailed to the person designated below**

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## New York Meetings

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

### ACS, NEW YORK SECTION BOARD OF DIRECTORS

#### MEETING DATES FOR 2018

The dates for the Board of Directors Meetings of the ACS New York Section for 2018 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.

The 2018 Board Meetings will be held at St. John's University, 8000 Utopia Parkway, Queens, NY except for the January 20 Section-wide Conference and April 13 Nichols Symposium. The meeting room will be posted on the New York Section website at [www.NewYorkACS.org](http://www.NewYorkACS.org). Dr. Joseph Serafin will chair all meetings. Refreshments will be available starting at 6:00 PM and the board meeting will start at exactly 6:30 PM.

The Board Meetings dates for 2018 are:

#### Friday, March 9, 2018

Friday, June 8, 2018

Friday, September 14, 2018

Friday, November 16, 2018

Friday, April 13, 2018 - William H. Nichols Distinguished Symposium and Medal Award Banquet, Crowne Plaza Hotel, 66 Hale Avenue, White Plains, NY.

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



### LONG ISLAND SUBSECTION

#### A Facile Synthesis of Porphyrinoid Scaffolds using Dipolar Cycloadditions

*Speaker:* Dr. Junior Gonzalez  
Chemistry Department  
Hunter College of the  
City University of New York

*De novo* chlorin synthesis can be quite challenging to achieve in good yields and many chlorins are not stable to photobleaching and/or are readily oxidized, this has limited the use of these porphyrinoids in clinical research and care. Exploitation of chlorins

also depends on the availability of these chromophores, to produce valuable data in the trials for photodynamic therapy and as nano-carriers for drug delivery. The reduced symmetry of the chlorin macrocycle further complicates the addition of the exocyclic motifs. A facile approach to a stable, synthetic chlorin with a fused N-methyl pyrrolidine uses a sarcosine-based azomethine ylide and cyclo addition on 5, 10, 15, 20-tetrakis-(2, 3, 4, 5, 6-pentafluorophenyl)-porphyrin (TPPF<sub>20</sub>) is increasingly used, but this approach has limitations. We report the divergent synthesis of chlorin scaffolds starting with the same TPPF<sub>20</sub> using a glycine-based ylide. Unexpectedly, we found that careful control of the 1,3-dipolar cycloaddition reaction allows directed formation of new chlorins, including the fused N-H pyrrolidine, two dimers, and the same N-methyl chlorin product from the sarcosine ylide reaction. The mechanism begins with the formation of an alcoholic glycine, which then reacts with TPPF<sub>20</sub> to form a key N-(hydroxymethyl)-17, 18-pyrrolidinyl-chlorin intermediate. Deformylation of this intermediate affords the N-H pyrrolidine, whereas a Cannizzaro-type of reaction promotes a hydride attack to an imine chlorin cation to yield the same N-methyl chlorin as the sarcosine ylide. The exocyclic NH-pyrrolidine provides a unique hemisphere-mode of attaching chiral moieties that avoids formation of diastereomers at the bridging carbons. The mechanism also unfolds a new route to furnish a hemiaminal chlorin and (N-carbaldehyde)-17, 18-pyrrolidinyl-chlorin.

#### Date: Thursday, March 1, 2018

Time: Refreshments start 5:00 PM  
Meeting 6:00 PM

Place: S-112 Queensborough Community College  
222-05 56th Avenue  
New York, NY 11364



### CHEMICAL MARKETING & ECONOMICS GROUP

#### Bioscience Research in the Digital Age

*Speaker:* Peter Eckes, PhD  
President  
BASF Bioscience Research

#### Date: Thursday, March 1, 2018

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

For full details, see Flyer on page 9.





## Bioscience Research in the Digital Age

CME ACS NY Luncheon/Webcast • March 1, 2018 • Penn Club

### Abstract

How is BASF, the world's leading chemical company, delivering solutions to meet the needs of its customers and society at large in a sustainable way? How is that approach evolving in the face of a changing market environment?

This talk will address those questions, exploring the ways BASF is working to extend its more than 150-year history of innovation by unlocking the bold new opportunities enabled by digitalization. By combining these capabilities, and placing an even higher focus on collaborative partnerships, BASF is confident in its ability to deliver the next generation of sustainable solutions.

To support these themes, there will be an exploration of several leading-edge solutions emerging from the BASF Bioscience Labs and its Agricultural business, as well as other important areas of the global chemical giant. There will also be a discussion on the future of innovation at BASF and the company's efforts to gauge its contributions to sustainability, which is expected to become an increasingly important performance measure for all industrial companies.

Join us on March 1 to hear one of the most influential chemical industry executives discuss the opportunities and challenges ahead for the BASF R&D organization and the chemical industry at large.



**Peter Eckes, PhD**, President of BASF Bioscience Research, has over 25 years of experience in the chemical industry. He leads BASF's global competence center for life sciences located in North Carolina. In his role, he drives innovative sustainable solutions for agricultural, food and industrial applications for a better life and improved environment.

He received a PhD in organic chemistry from the University of Frankfurt and pursued post-doctoral studies at Harvard University.

He joined BASF in Ludwigshafen, Germany, in 1992 and was named Assistant to the Chief Technology Officer in 1994. In 1997, Peter joined the BASF Chemical Intermediates division as Technical Manager of Production in Geismar, Louisiana. Two years later, he became Marketing Manager for BASF's regional Intermediates business in Mt. Olive, NJ. In 2000, Peter returned to Ludwigshafen to take on the role of Vice President of New Business Development for the global Chemical Intermediates division. In 2002, he joined BASF's Crop Protection unit as Senior Vice President of Global Research and Development, based in Limburgerhof, Germany. From 2009 to 2014, he served as President of BASF Plant Science Research in RTP, North Carolina.



### Event Schedule

**Location:**  
Penn Club  
30 W 44th Street, NYC

**Event Times: (ET)**  
11:15 am - 12:00 noon  
Registration and  
Networking  
12 noon - 1 pm Luncheon  
1 pm - 2 pm Talk - Webcast  
**Luncheon Fees**  
\$120 for non-members  
\$90 for members  
Check for Early-bird savings  
**Webcast:** \$30. Free webcast  
recording for ACS members

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LEADERSHIP  
*Awards*<sup>TM</sup>  
December 4, 2018

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

## HIGH SCHOOL TEACHERS TOPICAL GROUP

### “Before They’re All Gone—The Dramatic Decline of Frogs and What Can We Do?”

*Speaker:* Robert Alvey  
US EPA

During the last half century, a steep decline in populations of frogs, toads, and other amphibians around the world has been observed and documented. This drop in the total numbers and individual species continues to accelerate but has not received the public attention and interest given to polar bears, whales, birds, bats, and many other animals. Amphibians have played an important role in sustaining the world’s ecosystems, and the effects of the population collapses are being researched. They are environmentally sensitive and show responses to a variety of environmental pollutants and contaminants. The presentation discusses reasons for the decline and efforts being done to help save some of the species, including citizen science.

**Date:** Friday, March 9, 2018

**Place:** New York University  
Silver Center Room 207  
32 Waverly Place



## BIOCHEMICAL TOPICAL GROUP — JOINT MEETING WITH THE NYAS BIOCHEMICAL PHARMACOLOGY DISCUSSION GROUP

### Cell Death Pathways in Human Health and Disease

*Organizers:* Valentina Berger, PhD  
Boehringer Ingelheim  
Ignacio J. Juncadella, PhD  
Boehringer Ingelheim  
Jim King, PhD  
Boehringer Ingelheim  
Sonya Dougal, PhD  
The New York Academy of  
Sciences  
Caitlin McOmish, PhD  
The New York Academy of  
Sciences

*Speakers:* Christopher Baines, PhD  
University of Missouri,  
Columbia

Julie Magarian Blander, PhD  
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St. Jude Children’s Research  
Hospital

This symposium will explore the physiological processes by which cell death contributes to human disease, outlining mechanisms of cell clearance, impact on pathogenesis, and implication for therapeutics.

**Date** Monday, March 19, 2018

**Time:** 12:00 – 5:00 PM

**Place:** The New York Academy of  
Sciences  
7 World Trade Center  
250 Greenwich Street – 40th Floor  
New York, NY 10007

**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 \$75 (corporate), \$65 (non-profit or academic) or \$30 (students and post-docs).

For more information and to register for the event, go to: [www.nyas.org/celldeath2018](http://www.nyas.org/celldeath2018)

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



## NEW YORK SOCIETY FOR APPLIED SPECTROSCOPY

### The Unique Challenges of Forensic Science

*Speaker:* John A. Reffner, PhD  
[jareffner@cs.com](mailto:jareffner@cs.com)  
(646) 557-4894

Dr. Reffner teaches at John Jay College of Criminal Justice. He has a PhD from the University of Connecticut, Storrs, CT, and an MS from the Illinois Institute of Technology, Chicago, IL, and a BS from the University of Akron, Akron, OH.

The focus of his research is developing

microscopy, microanalysis, and imaging technology and exploring their utility in forensic science. Combining microscopy with molecular spectroscopy and applying this to the analysis of crime scene evidence is a primary interest. Meeting at Rutgers University.

**Date:** Wednesday, March 21, 2018

**Time:** Dinner and networking 5:30-6:45  
Talk 6:45-7:45

**Place:** Rutgers University, Busch Campus  
Ceramics Research building  
Room 201

Piscataway, NJ

**Cost:** For light dinner, see below.

**Directions:** <https://rumaps.rutgers.edu/>

Once you're on campus, a map of Busch Campus is here:

<http://maps.rutgers.edu/campus/busch>

From parking lot 59, keep the rear of the Student Center and the big construction site to your right and walk straight under the glass walkway until you reach a courtyard. The building in front of you will be the Center for Ceramics Research building.

For those who are familiar with Rutgers, the Ceramics Research building is next to the Chemistry building. A landmark is a big ceramic owl displayed on one of the windows facing the pathway that leads to the chemistry building.

Light Dinner: \$15 for adults, free for an SAS member who brings someone new, \$5 for students, free for Rutgers students. You must email [hmark@nearinfrared.com](mailto:hmark@nearinfrared.com) and reserve a place if you want to eat.

Important information: As the time for the meeting draws close, please check the NYSAS website ([www.nysas.org](http://www.nysas.org)) for updates, possible weather-caused cancellation or other changes to the schedule.

## WESTCHESTER CHEMICAL SOCIETY

### Special Seminar – “Achieving Global Sustainability: Huge Challenges and Opportunities”

**Speaker:** Rita K. Upmacis, PhD, FRSC  
Associate Professor  
Department of Chemistry &  
Physical Sciences  
Pace University  
New York, NY

#### Abstract:

Future generations of chemists and innovators are charged with the responsibility of developing new chemical processes and products that not only meet the needs of energy, clean water and food to sustain our growing population, but also protect human health and the environment. While some of the early industrial developments contributed to a downfall in the overall perception of chemistry, there is an ever-increasing need, and also, opportunity for chemists to solve these issues. Solutions to some of these challenges can be achieved by using Green Chemistry, which is the “utilization of a set of principles that reduces or eliminates the use or generation of hazardous substances in the design, manufacture, and application of chemical products” (P.T. Anastas and J.C. Warner, “Green Chemistry Theory and Practice,” Oxford University Press, 1998). In this presentation, I will examine some of the challenges that we face today, as well as some examples of innovative solutions that have been introduced.

*(continued on page 12)*



## Micron Analytical Services

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Web Page: [www.micronanalytical.com](http://www.micronanalytical.com)**

## WESTCHESTER CHEMICAL SOCIETY

(continued from page 11)

### Biography:

Dr. Rita Upmacis obtained her B.Sc. in Chemistry and Ph.D. in Inorganic Chemistry from the University of Nottingham, U.K. Her Ph.D. research involved the spectroscopic characterization of catalytic intermediates in liquid xenon, including early examples of metal-dihydrogen compounds. She moved to the U.S. as a postdoctoral fellow (California Institute of Technology), where she learned how to modify proteins and measure electron-transfer processes using laser spectroscopy. She was recruited by Rohm & Haas Company (now the Dow Chemical Company, PA) as a Senior Chemist, and worked on the acrylic acid process, developing polymerization inhibitors and improving the quality of acrylic acid, which resulted in 9 patents being awarded. After 6 years in industry, she returned to academia and became an Associate Research Professor (Department of Pathology & Laboratory Medicine, Weill Cornell Medical College, NY), studying how specific fatty acids and certain forms of reactive oxygen and nitrogen species are involved in inflammatory and disease processes, such as atherosclerosis. Since 2010, she has been at Pace University, where she introduced Green Chemistry as an undergraduate course. Teaching this course has sparked her interest in monitoring the global challenges and opportunities that face mankind in achieving sustainability.

**Date:** Wednesday, March 28, 2018

**Times:** Refreshments: 5:30 PM

Lecture: 6:00 PM

**Place:** Westchester Community College  
Gateway Building Room 110  
75 Grasslands Road  
Valhalla, NY 10595

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

For further information: contact Paul Dillon

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

Phone 1-914-393-6940

## 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.



### METRO WOMEN CHEMISTS

Please join us for a seminar sponsored by the NY ACS Metro Women Chemists' Committee.

#### Chemistry Through Social Contexts

**Speaker:** Dr. Bhawani Venkataraman  
Associate Professor of  
Chemistry  
Eugene Lang College of  
Liberal Arts  
The New School, NY

#### Abstract:

What happens at the molecular level dictates much of the world around us. Yet, Chemistry is a discipline that is often hard for students and the public to relate to. This presentation will start with examples of curricular materials developed to teach chemical principles through social and policy contexts. The goal is for students to recognize why a molecular scale understanding is important to address many current social and environmental challenges – for example access to safe drinking water and air quality. The talk will end by presenting a current project on the development of an interactive and visual educational tool that conducts a comparative analysis of the health, environmental, and social costs and benefits associated with the energy sources used for electrical energy. The intent of the tool is to educate individuals on the complexities of energy sources used for electrical energy and to provide objective comparisons of the

## SURPRISE

our editor by calling and saying you appreciate the quality and content of our newsletter. Our editor works hard to maintain a publication of interest to our membership. Oh, and by the way, you could also give credit to our advertisers who financially support us.

pros and cons of these energy sources.

### Biography:

Bhawani Venkataraman is Associate Professor of Chemistry at Eugene Lang College of Liberal Arts, The New School. Educated as a physical chemist, her research is in the field of chemical education and focuses on understanding ways to engage students in learning chemistry. Currently she is investigating two approaches: 1) the use of software visualization tools to assist students in “seeing” molecules and molecular interactions and in understanding how these microscopic constructs influence the macroscopic world; and 2) the use of contexts as a motivator and learning tool. Another area of her research interest is in understanding what constitutes effective communication of scientific research to non-scientists on issues such as water quality, air pollution and climate change. Bhawani received her B.Sc. in Chemistry from St. Xavier’s College, Mumbai, India. She received her M.A., M.Phil. and Ph.D. in Chemistry from Columbia University, New York.

**Date: Wednesday, April 4, 2018**

**Time: 12:15 PM – 1:15 PM**

**Place:: Pace University  
Lecture Hall North (2nd Floor)  
One Pace Plaza  
New York, NY 10038**

For further information, please contact Dr. Rita K. Upmacis ([rupmacis@pace.edu](mailto:rupmacis@pace.edu)), Chair of the Metro Women Chemists’ Committee.

## UFT HIGH SCHOOL TOPICAL GROUP & CHEMISTRY/PHYSICS CLUBS OF NY

### Demo Derby II

Attendees provide demonstrations that should be brief (5 to 8 minutes maximum). Claim your presentation order by writing your name on the board when you enter. We have moved a Demo Derby to the beginning of the academic year by popular demand because some of these demos should be useful immediately. Please provide printed instructions for attendees with contact information to help your colleagues replicate your procedures. Remember that our refurbished room 207 no longer has gas, water, or hood. You are responsible for safety, procedures, and cleanup. Please bring enough safety glasses for front row observers.

**Date: Friday, April 20, 2018**

**Times: Pre-Meeting Dinner 6:00 PM**

**Place: DoJo Restaurant  
14 West 4th Street  
(corner of Mercer Street)  
New York, NY**

**Times: Meeting 7:15 PM**

**Place: New York University  
Silver Center Room 207  
32 Waverly Place  
New York, NY**



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## COME AND JOIN US CELEBRATE EARTH WEEK

### WITH OUR 7th ANNUAL "WALK THE BROOKLYN BRIDGE" Event

This year's Chemists Celebrate Earth Week's theme is: "Dive into Marine Chemistry"

**Keynote address — "Ocean chemistry is changing: effects on marine life (and you!)"**

*Speaker:* Prof. Katriina Ilves  
Department of Biology  
Pace University

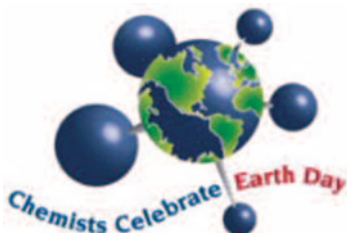
We will meet at Pace University in the Bianco Room at 11:00 AM for check-in followed by welcoming remarks, our keynote address, and our celebratory "Earth Day Parade" across the iconic Brooklyn Bridge! Participants will be provided with lunch and Earth Day gifts. The event is free and open to all, but EVERYONE must register by 4/8. Past the registration deadline there will be a \$10 onsite fee at the event (cash only). To register:

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

**Date:** Sunday, April 22, 2018  
**Time:** 11:00 AM – 3:00 PM

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

To enter our illustrated poetry contest, see page 15.



## NEW YORK/NEW JERSEY SOCIETY FOR APPLIED SPECTROSCOPY

### FUTURE MEETINGS

**"Laser-induced Breakdown Spectroscopy (LIBS) Addition to Microscopic Analyses and Raman and IR of Particles."**

*Speaker:* Dr. Markus Lankers  
Rap.ID GmbH

**Date:** Wednesday, April 25, 2018

See [www.nysas.org](http://www.nysas.org) for details.

\*\*\*\*\*

**"Application of FTIR in Understanding the Changes in Protein Secondary Structure as a Result of Stress"**

*Speaker:* Dr. John Wasyluk  
Bristol-Myers Squibb Company

**Date:** Wednesday, May 23, 2018

See [www.nysas.org](http://www.nysas.org) for details.



## CHEMICAL MARKETING & ECONOMICS GROUP

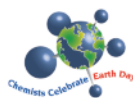
### Mark your Calendars:

**Dates:** Tuesday, June 19, 2018

**Times:** Refreshments — 7:00 PM  
Science — 7:30 PM

**Place:** New York University  
Dept. of Chemistry, Room 1003  
(10th Floor) Silver Center  
31 Washington Place (between  
Washington Sq. East & Green St.)  
New York, NY





## Chemists Celebrate Earth Day (CCED) 2018

### "Dive into Marine Chemistry" Illustrated Poem Contest

The New York City Local Section of the American Chemical Society (ACS) is sponsoring an illustrated poem contest for students in Kindergarten through 12th grade.

**Contest Deadline: April 6, 2018**

**Prizes: 1<sup>st</sup> Prize in each category receives a \$20 gift certificate  
2<sup>nd</sup> Prize in each category receives a \$10 gift certificate**

**Contact: Elmer E. Mojica, Department of Chemistry and Physical Sciences, Pace University, One Place Plaza, New York, NY 10038 (Phone: 2123461344; Email: [emojica@pace.edu](mailto:emojica@pace.edu))**

Winners of the New York City Local Section's Illustrated Poem Contest will advance to the ACS National Illustrated Poem Contest for a chance to be featured on the ACS website and to win prizes!

Write and illustrate a poem using the CCED theme, "Dive into Marine Chemistry." Your poem must be **no more** than 40 words and in the following styles to be considered:

**HAIKU - LIMERICK - ODE - ABC POEM - FREE VERSE - END RHYME - BLANK VERSE**

**Possible topics related to marine chemistry include:**

Fish    Pollution    Preservation    Remediation    Antarctica    Polar Ice Caps    Algae

**Entries will be judged based upon:**

Relevance to and incorporation of the theme  
Word choice and imagery  
Colorful artwork

#### **Contest Rules:**

Poems must conform to a particular style. No poem may be longer than 40 words.

The topic of the poem and the illustration must be related to the CCED 2018 theme.

All entries must be original works without aid from others.

Each poem must be submitted and illustrated on an unlined sheet of paper (of any type) not larger than 11" x 14". The illustration must be created by hand using crayons, watercolors, other types of paint, colored pencils, or markers. The text of the poem should be easy to read and may be printed with a computer before the hand drawn illustration is added, or

the poem may be written on lined paper which is cut out and pasted onto the unlined paper with the illustration.

Only one entry per student will be accepted.

There will be 3 categories: kindergarten-3rd grade, 4th grade -7th grade and 8th grade - 12th grade

All entries must include an entry form.

All illustrated poems and/or digital representations of the poems become the property of the American Chemical Society.

Acceptance of prizes constitutes consent to use winners' names, likenesses, and entries for editorial, advertising, and publicity purposes.



# 66<sup>th</sup>

## ANNUAL UNDERGRADUATE RESEARCH SYMPOSIUM

### The New York Chemistry Students' Association Student Affiliate Committee – New York Section American Chemical Society

**Saturday, May 5<sup>th</sup>, 2018 at York College CUNY**

**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. Dhabih V. Chulhai

Dept. of Chemistry, University of Minnesota, Minneapolis MN

Dhabih Chulhai grew up in Guyana and began his studies in chemistry at the University of Guyana. He received his B.S. in Chemistry at York College of the City University of New York (CUNY) in 2011, where he worked with Prof. Ruel Desamero, and his Ph.D. in Chemistry from The Pennsylvania State University in 2016, working with Prof. Lasse Jensen. Since then, he has been working as a postdoctoral associate with Dr. Jason Goodpaster at the University of Minnesota. Dr. Chulhai was awarded the Eugene and Jane Apple Science Graduate Fellowship at Penn State University for his contributions to the National Science Foundation's (NSF), Center for Chemical Innovation (CCI) entitled Center for Chemistry at the Space-Time Limit (CaSTL). In CaSTL he worked with a team to develop and use theoretical methods to understand chemistry at the smallest possible length and time scales. He is currently a part of the Department of Energy's Nanoporous Materials Genome Center, where his research is focused on developing and using highly accurate quantum chemical methods to guide the discovery of novel materials.



#### Keynote Address

#### Understanding Chemistry Using Theoretical Embedding Methods

**Abstract:** All of chemistry may be understood by solving the time-dependent Schrödinger equation for the relevant system, although exact solutions are often impossible or computationally too expensive. Theoretical and computational chemists seek to find and use shortcuts that are both accurate and computationally tractable to solve this equation. Luckily, most of chemistry often occurs in a small region of an otherwise complex environment. As such, we are interested in using embedding methods—where we use a highly accurate method to describe the small region of interest but describe the rest of the environment using less accurate methods—to model systems. Experiments are now able to observe chemistry happening one molecule at a time, using techniques like surface-enhanced and tip-enhanced Raman scattering. We will show how using these embedding methods allows us to gain insights into these experimental findings.

#### SIGNIFICANT DATES FOR 66<sup>th</sup> URS

Deadline for Abstract Submission - **March 15, 2018** Abstract acceptance notification – March 26, 2018  
Deadline for Symposium Advanced Registration – March 27, 2018

2018 Co-chair  
**Dr. Paul Sideris**  
Queensborough Community  
College psideris@qcc.cuny.edu

2018 Co-chair  
**Dr. Yolanda Small**  
York College - CUNY  
ysmall@york.cuny.edu

2018 Co-chair  
**Dr. Ipsita A. Banerjee**  
Fordham University  
banerjee@fordham.edu

2018 Co-chair  
**Dr. Naphtali O'Connor**  
Lehman College - CUNY  
naphtali.oconnor@lehman.cuny.edu

FREE Registration for student members of the National ACS. Faculty members who register in advance and sponsors. For non-ACS members and guests, the registration is \$99 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 Seratin, St. John's University, Department of Chemistry, 333 St. Albert Hall, Queens, NY 11439.

**(See Call for Papers on page 22.)**



## 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 26, 2018

**Time:** 7:00 PM

**Place:** TBD

(See [www.njacs.org](http://www.njacs.org) for more details)



### CAREERS IN TRANSITION MEETINGS

There will be no Careers in Transition Meetings until further notice.



### NEW YORK/NEW JERSEY SOCIETY FOR APPLIED SPECTROSCOPY

#### FUTURE MEETINGS

“Laser-induced Breakdown Spectroscopy (LIBS) Addition to Microscopic Analyses and Raman and IR of Particles.”

**Speaker:** Dr. Markus Lankers  
Rap.ID GmbH

**Date:** Wednesday, April 25, 2018

See [www.nysas.org](http://www.nysas.org) for details.

\*\*\*\*\*

“Application of FTIR in Understanding the Changes in Protein Secondary Structure as a Result of Stress”

**Speaker:** Dr. John Wasylyk  
Bristol-Myers Squibb Company

**Date:** Wednesday, May 23, 2018

See [www.nysas.org](http://www.nysas.org) for details.

### NoJ DRUG METABOLISM DISCUSSION GROUP

Past, Present and Future of ADME Science in Academia, Industry and Regulations

**Chaired by:** Manthana Varma  
Pfizer

**Date:** Thursday, April 26, 2018

**Time:** 8:00 AM - 3:45 PM

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

<http://palacesomersetpark.com>

**Cost:** Pre-registration is \$125 and \$150 at the door. Students and postdocs are charged \$10, and faculty are charged \$50. Registration is free for unemployed.

To register, please contact your company's representative or email Manthana Varma at [Manthana.V.Varma@pfizer.com](mailto:Manthana.V.Varma@pfizer.com)

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>

Additional information will be posted on the website.

*ResMed: Residential School on Medicinal Chemistry and Biology in Drug Discovery*  
June 10-15, 2018

Drew University, Madison, NJ

This graduate level course concentrates on the fundamentals that are useful in drug discovery spanning initial target assay evaluation through clinical development. 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
Protein-Protein Interactions	Preclinical Toxicology
Molecular Modeling	Clinical Development
Antibody-Drug Conjugates	

*Bill Greenlee, Vince Gullo & Ron Doll – Co-organizers*

*Attendees will be staying at the Madison Hotel*

[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

## **NORTH JERSEY SECTION PRESENTS THE 2017 BAEKELAND AWARD TO PROFESSOR WILLIAM R. DICHEL**

The 2017 Baekeland Award was presented to Professor William R. Dichtel, the Robert L. Letsinger Professor of Chemistry, Northwestern University, at a symposium held at Rutgers University Inn and Conference Center, New Brunswick, NJ on December 8th. More than 70 industrial chemists, students, and faculty from North Jersey and surrounding sections attended. The North Jersey Section established the Baekeland Award in 1944 to commemorate the technical and industrial achievements of Leo Hendrik Baekeland, President of the American Chemical Society in 1924, and to encourage younger chemists to emulate his example.

Dr. Dichtel was recognized for his initiative, creativeness, leadership, and perseverance in pure chemistry for his pioneering work in the assembly and integration of nanostructured materials.

In his keynote address, Professor Dichtel described the covalent organic frameworks that are potentially useful for a broad range of applications, including catalysis, optoelectronics, and energy storage devices. His research team at Northwestern focuses on the tools of synthetic and supramolecular chemistry to address fundamental challenges in the assembly and integration of nanostructured materials. Other speakers included Professor Christopher Alabi, Nancy and Peter Meinig Family Investigator in the Life Sciences at Cornell University, whose

research team presents a versatile methodology for the assembly of a new class of sequence-defined macromolecules called oligoTEAs; Professor Jeffrey S. Moore, Murchison-Mallory Professor of Chemistry, University of Illinois at Urbana-Champaign, whose research interests include self-healing polymers and mechanochemistry; Professor Natalia B. Shustova, Assistant Professor of Chemistry and Biochemistry, University of South Carolina, whose team focuses on materials for sustainable energy conversion, sensing, switches, and artificial biomimetic systems; and, Professor Timothy Swager, John D. Mac Arthur Professor of Chemistry at Massachusetts Institute of Technology, whose research focuses on synthetic, supramolecular, analytical, and materials chemistry with an emphasis on the synthesis and construction of functional assemblies.

Dr. Miriam Gulotta, Symposium Chair and Chair-elect of the North Jersey Section, welcomed the guests and described the award. Dr. Landon Greene, Section Chair presented the award plaque and award check of \$5000 to Professor Dichtel. Dr. Les McQuire, NJ-ACS Awards Chair gave the closing remarks and invited attendees to send him names of individuals who deserve recognition for their scientific accomplishments and volunteerism. Visit the North Jersey Section's website, [www.njacs.org](http://www.njacs.org), for more details about its awards program.



**Professor William R. Dichtel (l) Baekeland Awardee and Dr. Landon Greene, 2017 Chair, NJACS.**

*(All Photos Courtesy of Tom Krone)*



**Symposium speakers: Jeff Moore, Tim Swager, Will Dichtel (Baekeland Awardee), Natalia Shustova, and Chris Alabi.**



**NJACS Executive Committee Members Alan Cooper, Les McQuire, and Ron Kong**

*(continued on page 20)*



**Baekeland Symposium Speakers and Planning Committee**

**Back Row:** Ron Kong, Les McQuire, Alan Cooper, Jeff Moore, Tim Swager, Will Dichtel, Natalia Shustova, Chris Alabi, Landon Greene, Amjad Ali, Luciano Mueller, Miriam Gulotta

**Front Row:** Jackie Erickson, Bettyann Howson, Diane Krone



**John Thomaides, Paul Ferm, and Shengqian Kong.**



**Jeannette Brown and Donovan Thompson.**



***Baekeland Symposium Speakers and Planning Committee***

**Back Row:** Ron Kong, Les McQuire, Alan Cooper, Jeff Moore, Tim Swager, Will Dichtel, Natalia Shustova, Chris Alabi, Landon Greene, Amjad Ali, Luciano Mueller, Miriam Gulotta

**Front Row:** Jackie Erickson, Bettyann Howson, Diane Krone

## NMR TOPICAL GROUP

The NJ-ACS NMR Topical Group held its 2018 kick-off meeting on the evening of Wednesday, January 10th at Rutgers University. A fantastic turnout of 26 attendees were present to meet the Group's new co-chair, Qi Gao, and hear a seminar describing both her graduate research at the University of Georgia and her current role in the Structure Elucidation Group at Merck & Co. Under the guidance of Professor James Prestegard at UGA, Qi used NMR techniques to characterize the interaction of glycoprotein-glycosaminoglycan (GAG) complexes, excellent work published in ACS Chemical Biology. Great food, wine, science, and door prizes were enjoyed by all!

At Princeton University on Thursday, February 8th, we will host Professor Robert Powers, PhD of the University of Nebraska-

Lincoln, Department of Chemistry. A buffet dinner will be served at 6:00 PM followed by Professor Powers' seminar at 7:00 PM, entitled "Metabolomics: a tool for drug discovery, disease diagnosis and systems biology". As an alumnus of Rutgers University, Bob is excited for this opportunity to return to New Jersey to see friends and family. Please see our website for additional information and to register for the event.

Save the date for our March 7th meeting to be held at Rutgers University, as we look forward to hosting Assistant Professor Andrew Nieuwkoop, also of Rutgers.

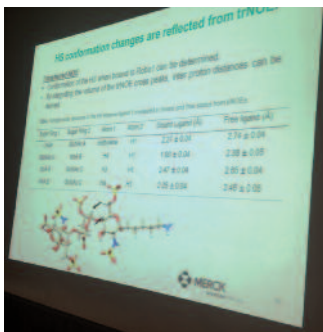
We are actively updating our email contact list and need your help! If you wish to receive our emails or know an NMR enthusiast who would, please contact Mary Harner ([mary.harner@bms.com](mailto:mary.harner@bms.com)).



Buffet dinner served during NMR Topical Group's January meeting at Rutgers University.



NMR Topical group co-chair and January speaker, Qi Gao.



Qi Gao shared a presentation describing her graduate work at the University of Georgia.



Fantastic event participation with 26 attendees for the NMR Topical Group's January meeting.

*(Photos courtesy of Luciano Mueller)*

# Call for Papers



**ACS**  
Chemistry for Life™

# 66<sup>th</sup>

## ANNUAL UNDERGRADUATE RESEARCH SYMPOSIUM

**Call for Papers** for the 66<sup>th</sup> 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. The program includes a keynote address by Dr. Dhabih Chulhai, Department of Chemistry, University of Minnesota, presentation of student papers, followed by a luncheon. Abstracts of original research in chemistry will be accepted.

**Date: Saturday, May 5<sup>th</sup>, 2018**

**Place: York College, The City University of New York, Queens, NY**

To:

1. Submit an abstract on-line (Please strictly follow the abstract template format)
2. Print a flyer for posting - Click "Download Flyer" in the blue frame
3. Obtain directions to York College CUNY

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

### SIGNIFICANT DATES FOR 66<sup>th</sup> URS

Abstract submission and online registration opens - February 1, 2018

Deadline for abstract submission - March 15, 2018

Notification of the abstract acceptance – March 26, 2018

Deadline for early registration – April 15, 2018

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" and sent to:  
Prof. Paul Sideris, Queensborough Community College, Science Building S-445, 222-05  
56<sup>th</sup> Avenue, Bayside, NY 11364

If you have any questions, please contact: [nyacsurs2018@gmail.com](mailto:nyacsurs2018@gmail.com)

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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. Neil Jespersen, at [jespersn@stjohns.edu](mailto:jespersn@stjohns.edu)



### NoJ AWARD FOR CREATIVITY IN MOLECULAR DESIGN AND SYNTHESIS

The ACS North Jersey Section is soliciting nominations for the 2018 Award for Creativity in Molecular Design & Synthesis. The award recognizes initiative, creativity, leadership, and perseverance in pure and/or applied chemistry. Nominees must have had broad impact in the areas of chemical synthesis, method development, bioorganic/medicinal chemistry, pharmaceutical sciences, and/or molecular recognition.

Nominations should include a letter describing the nominee's achievements, a brief biography and curriculum vitae, and a list of the nominee's important published works. Supporting letters are strongly encouraged.

Please submit materials **by March 23** to Susan Zultanski at [Susan.Zultanski@merck.com](mailto:Susan.Zultanski@merck.com). The award is presented by the section every two years, and the prize consists of a crystal plaque and a \$5,000 honorarium.

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## National

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### ACS COUNCIL MEETING

The agenda for this meeting with supporting documents is also available online at [www.acs.org/councilors](http://www.acs.org/councilors). This material is sent to you so that you may be fully informed of Council business and have as much information as possible to explain actions taken at the meeting. Please note that immediately after each national meeting we send all Councilors a summary of actions taken by the Board and Council at that meeting. Please ask a Councilor for this summary if you would like to report on the actions taken at the meeting.

Non-councilors again are invited to observe the Council meeting. The space set aside for this purpose will be available to ACS members on a first-come, first-served basis. We urge you to take advantage of this opportunity if you are planning to be in New Orleans for the national meeting.

**Date: Wednesday, March 21, 2018**

**Time: 8:00 AM**

**Place: Hilton New Orleans Riverside Hotel  
Grand Ballroom A-D  
New Orleans, LA**

Sincerely yours,  
Flint H. Lewis  
Secretary and General Counsel  
American Chemical Society

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## Others

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### STUDENTS 2 SCIENCE: BUILDING TOMORROW'S STEM LEADERS, TODAY



Students 2 Science, a 501(c)(3) model program in New Jersey that bridges the needs of the public and private sectors has a mission to inspire, motivate, and educate elementary, middle and high school students to pursue careers in science, technology, engineering and math (STEM subjects).

#### About Us

Take a look at our About Us Video: <https://students2science.wistia.com/medias/hbxylzpw5o>.

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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 2Science (S2S) is seeking volunteers to support its V-Lab program. S2S has a series of elementary, middle, and high school experiments that run in various schools across New Jersey. Members are especially needed to mentor students in participating schools to help with experiments. It's great fun, a wonderful way to give back, and only requires 1-2 hours of your time. Experiments include CO<sub>2</sub> to the Rescue, Curious Crystals, Mystery of M&Ms, Thermochemistry: *Exothermic and Endothermic Chemical Reactions*, and *Glow it Up: The Chemistry of Luminol*. All are age-appropriate and volunteers are provided with instructions on how to support in the classroom prior to your scheduled volunteer day.

For more information, contact Cyndi Roberson, Director of Corporate Relations, at (973) 947-4880 ext. 516 or visit the website to register for the upcoming school year: [www.students2science.org](http://www.students2science.org).



### SEMINAR SPEAKERS WANTED

The New York Section of the ACS is in search of speakers that we can add to our Speakers Bureau database of interested local area speakers who are available for Section-wide seminars and symposia. If you have an area of research or interest that would provide an interesting talk appropriate for our Section members, and would like to be included in our Speakers Bureau, please contact the New York Section Office at (516) 883-7510 or send an email to [njesper1@optonline.net](mailto:njesper1@optonline.net) with the following information that will be posted on the Section's website: your name, affiliation, a title, and 5-6 words briefly summarizing your area of specialty. We look forward to hearing from you about topics that you wish to share with our other members!

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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 Pippens 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



## Call for Applications

### OPEN-NJ Scholarship Program Department of Chemistry and Biochemistry



**MONTCLAIR STATE**  
UNIVERSITY

Receive one of the scholarships (\$10,000/year for 2 or 3 years) to enter one of the following programs at Montclair State University

- *Masters in Pharmaceutical Biochemistry*
- *Masters in Chemistry*
- *Masters in Chemistry with a Concentration in Biochemistry*

*This program is open for the following majors: Biochemistry, Chemistry, Physics, Molecular Biology, Biology, Environmental Sciences, and related degrees (B.A., B.S.).*

*Summer Research Stipends available for highly qualified students.*

*Information: <https://www.montclair.edu/csam/open-nj/>*

*<https://www.montclair.edu/graduate/news/article.php?ArticleID=16127>*

#### Requirements for Program

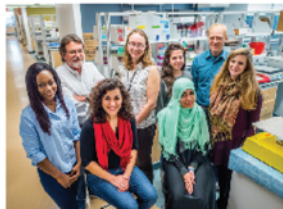
- Minimum overall 3.0 GPA (B.S. or B.A. degree)
- Completed General Chemistry I (with lab), General Chemistry II (with lab), Organic Chemistry I (with lab), Organic Chemistry II, Calculus I and II and a year of Physics.
- US citizen, national, admitted refugee or permanent resident
- Enrolling full time in an MSU Department of Chemistry and Biochemistry M.S. program
- Financial aid eligible as determined by the Office of Financial Aid.
- Committed to participating in all OPEN-NJ meetings including networking events.

#### Apply

Apply to the Graduate Program at Montclair State University (<http://www.montclair.edu/graduate/>) AND email Dr. Nina Goodey ([goodeyn@mail.montclair.edu](mailto:goodeyn@mail.montclair.edu)) to indicate interest in the OPEN-NJ Scholarship Program. The OPEN-NJ Selection Committee will use your graduate school application.

#### Questions?

Please, email Dr. Nina Goodey ([goodeyn@mail.montclair.edu](mailto:goodeyn@mail.montclair.edu)).



## In the News

### EFSA NEWS

#### Updates on *Salmonella Agona* outbreak

The withdrawal and/or recall of infant formula produced by a single French processing company will significantly reduce the risk of more infants being infected by *Salmonella Agona*, say EFSA and ECDC as a result of a rapid outbreak assessment.

An outbreak of *S. Agona* linked to the consumption of infant formula has been ongoing in France since August 2017. So far the outbreak has affected 37 children under one year of age in France. Whole genome sequencing (WGS) analysis confirmed that a Spanish case is closely related to the outbreak in France. A probable case has been identified in Greece. The last case was notified on 2 December 2017.

EFSA and ECDC recommend that competent authorities in affected Member States keep sharing information on the epidemiological, microbiological and environmental investigations and issue relevant notifications in the Rapid Alert System for Food and Feed (RASFF) and the Early Warning Response System (EWRS).

To prevent infections using infant formulas, both in infants and caregivers, Member States should consider providing advice to the public regarding:

Not to use any of the infant formulas involved in this outbreak;

Hand washing before and after the preparation of the bottle;

Bottles should not be prepared in advance and the contents should be discarded if not consumed within two hours.

What is a rapid outbreak assessment?

In case of multi-country foodborne outbreaks coordination at EU level is important. A Rapid Outbreak Assessment is jointly prepared by EFSA and ECDC in close cooperation with affected countries. The ROA gives an overview of the situation in terms of public health and identifies the contaminated food vehicle that caused the infections. It also includes trace-back and trace-forward investigations to identify the origin of the outbreak and where contaminated products have been distributed. This is crucial to identify the relevant control measures in order to prevent further spread of the outbreak.

Link to report: Multi-country outbreak of *Salmonella Agona* infections linked to infant formula

Media contacts:  
EFSA Media Relations Office  
Tel. +39 0521 036 149  
E-mail: [Press@efsa.europa.eu](mailto:Press@efsa.europa.eu)

### ORGANIC PEROXIDE

#### AkzoNobel launches €12 million organic peroxides expansion in Mexico

AkzoNobel Specialty Chemicals is investing more than €12 million to expand production capacity and upgrade its organic peroxides facility in Los Reyes, Mexico. Organic peroxides are essential ingredients in the manufacturing of a wide range of polymers.

The project involves construction of a new facility to make Perkadox CH-50 organic peroxides, which are sold primarily into the thermoset resin market, where the company is a global market leader. One of the key growth segments for this market is ambient temperature curing of acrylic resins, which are used in road marking, resurfacing and roofing applications.

The investment is the latest in a series of recent investments at the Los Reyes site by the company's Polymer Chemistry business. Last January, it finalized a €22 million organic peroxides expansion, followed in June by the completion of a project which increased overall peroxyester capacity in North America by 40%. The latest expansion project is expected to be completed by May 2019.

"We have a growing portfolio of customers, so continued investment to increase production capability at Los Reyes is critical to ensure we continue to meet demand while positioning ourselves for sustainable growth," explains Johan Landfors, Executive Committee Member responsible for Polymer Chemistry. "Mexico is an important market for us. Expanding our operations in Los Reyes also means we will need to hire more people, which is good news for the local economy."

Over the last three years, the Polymer Chemistry business has invested more than €100 million to better serve its customers in the polymer industry, upgrading technologies, increasing capacity, and repositioning its global manufacturing footprint at sites in Mexico, the Netherlands, Belgium, China, Italy, Brazil, and the US.

"The investments have reinforced our leadership position in the global market for chemicals to the polymer industry," says Werner Fuhrmann, CEO of AkzoNobel Specialty Chemicals. "We are committed to investing in production capabilities across all our businesses so we can support the growth of our customers in key markets around the world."

## PROGRAMMABLE DROPLETS

**Using electric fields to manipulate droplets on a surface could enable high-volume, low-cost biology experiments.**

*Written by Larry Hardesty, MIT News Office*

CAMBRIDGE, Mass. -- MIT researchers have developed hardware that uses electric fields to move droplets of chemical or biological solutions around a surface, mixing them in ways that could be used to test thousands of reactions in parallel.

The researchers view their system as an alternative to the microfluidic devices now commonly used in biological research, in which biological solutions are pumped through microscopic channels connected by mechanical valves. The new approach, which moves solutions around in computationally prescribed patterns, could enable experiments to be conducted more efficiently, cost-effectively, and at larger scales.

"Traditional microfluidic systems use tubes, valves, and pumps," says Udayan Umaphathi, a researcher at the MIT Media Lab, who led the development of the new system. "What this means is that they are mechanical, and they break down all the time. I noticed this problem three years ago, when I was at a synthetic biology company where I built some of these microfluidic systems and mechanical machines that interact with them. I had to babysit these machines to make sure they didn't explode."

"Biology is moving toward more and more complex processes, and we need technologies to manipulate smaller- and smaller-volume droplets," Umaphathi says. "Pumps, valves, and tubes quickly become complicated. In the machine that I built, it took me a week to assemble 100 connections. Let's say you go from a scale of 100 connections to a machine with a million connections. You're not going to be able to manually assemble that."

With his new system, Umaphathi explains, thousands of droplets could be deposited on the surface of his device, and they would automatically move around to carry out biological experiments.

The system includes software that allows users to describe, at a high level of generality, the experiments they wish to conduct. The software then automatically calculates droplets' paths across the surface and coordinates the timing of successive operations.

"The operator specifies the requirements for the experiment — for example, reagent A and reagent B need to be mixed in these volumes and incubated for this amount of time, and then mixed with reagent C. The operator doesn't specify how the droplets flow or where they mix. It is all precomputed by the software."

Umaphathi and his coauthors — Hiroshi Ishii, the Jerome B. Wiesner Professor of Media Arts and Sciences at MIT; Patrick Shin and Dimitris Koutentakis, MIT undergraduates working in Ishii's lab; and Sam Gen Chin, a Wellesley undergrad in the lab — describe their new system in a paper appearing this month in the online journal *MRS*

*Advances.*

In the past 10 years, other research groups have experimented with "digital microfluidics," or electrical manipulation of droplets, to conduct biological experiments. But their chips were manufactured using high-end etching techniques that require controlled environments known as clean rooms. Umaphathi and his colleagues have focused on getting costs down. Their prototype uses a printed circuit board, a commodity electronic device that consists of a plastic board with copper wiring deposited on top of it.

The researchers' chief technical challenge was to design a coating for the surface of the circuit board that would reduce friction, enabling droplets to slide across it, and that would prevent biological or chemical molecules from sticking to it, so that they won't contaminate future experiments. The circuit board is patterned with an array of electrodes. In the prototype, the researchers coat the board with a much denser array of tiny spheres, only a micrometer high, made from a hydrophobic (water-repellent) material. Droplets skate across the tops of the spheres. The researchers are also experimenting with structures other than spheres, which may work better with particular biological materials.

Because the device's surface is hydrophobic, droplets deposited atop it naturally try to assume a spherical shape. Charging an electrode pulls the droplet downward, flattening it out. If the electrode below a flattened droplet is gradually turned off, while the electrode next to it is gradually turned on, the hydrophobic material will drive the droplet toward the charged electrode.

Moving droplets requires high voltages, somewhere between 95 and 200 volts. But 300 times a second, a charged electrode in the MIT researchers' device alternates between a high-voltage, low-frequency (1-kilohertz) signal and a 3.3-volt high-frequency (200-kilohertz) signal. The high-frequency signal enables the system to determine a droplet's location, using essentially the same technology that touch-screen phones do.

If the droplet isn't moving rapidly enough, the system will automatically boost the voltage of the low-frequency signal. From the sensor signal, the system can also estimate a droplet's volume, which, together with location information, allows it to track a reaction's progress.

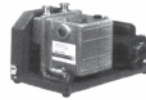
Umaphathi believes that digital microfluidics could drastically cut the cost of experimental procedures common in industrial biology. Pharmaceutical companies, for instance, will frequently conduct many experiments in parallel, using robots equipped with dozens or even hundreds of pipettes, little measuring tubes that are rather like elongated eye droppers.

"If you look at drug discovery companies, one pipetting robot uses a million pipette tips in one week," Umaphathi says. "That is part of what is driving the cost of creating new drugs. I'm starting to develop some liquid assays that could reduce the number of pipetting operations 100-fold."

# Professional/Product Directory



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- <http://newyorkacs.org/jobs.html>
- <http://njacs.org/jobs.html>

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