



ISOTOPICS

The Cleveland Section of the American Chemical Society

Volume 93 Issue 4

April 2017

On Deck:

Wed. May 17, 2017

Morley Lecture

Michelson&Morley
Restaurant

CWRU

April Meeting Notice

Education Night

Wednesday, April 19, 2017

Center for Innovation and Growth,
Baldwin Wallace University

4:30 – 5:30 pm	Executive Committee Meeting
5:30 – 6:15 pm	Social/Networking
6:15 – 7:00 pm	Dinner
7:00 – 8:00 pm	Awards and Presentation

Cleveland ACS Officers

Chair:

Lisa Ponton
Baldwin Wallace University
(440) 826-2314
lponton@bw.edu

Chair-Elect:

Michael Levy
mjlevy34@gmail.com

Treasurer:

Bhagya Gunasekera
Cleveland State U.
m.gunasekera@csuohio.edu

Secretary:

Drew A. Meyer
Case Western Reserve U.
dam135@case.edu

Isotopics

Editor:

Geneviève Sauvé
Case Western Reserve U.
(216) 368-3665
genevieve.sauve@case.edu

Cleveland Section Web Site:

http://www.csuohio.edu/sciences/dept/cleveland_acs/

Presentation

“The Art and Science of Paintings Conservation”

Heather Galloway, Conservator, Fellow AIC, Adjunct Prof. CWRU

Abstract: This paper will use Henry Bone’s delightful copy of Titian’s *Bacchus and Ariadne*, as a case study to examine how chemistry has informed our understanding of the aging of oil paints and varnishes, the effects of cleaning paintings and the role chemistry plays in the education of art conservators. Executed in 1811 and on display at the Cleveland Museum of Art, Bone’s enamel, with its jewel like tones, undoubtedly captures the appearance of a painting newly arrived in England and freshly cleaned. Enamel painters, like Bone, boasted that their copies of famous oil paintings could capture and preserve great works of art doomed to otherwise fail and discolor. We will also look at how the often-surprising appearance of a cleaned painting lead to public controversy and ultimately an increase acceptance of the role of the scientist in informing cleaning practices and the care of paintings. .

DINNER RESERVATIONS REQUESTED:

Please RSVP to Dr. Lisa Ponton (lponton@bw.edu) with the names and number of people in your party by 5:00 pm on Thursday, April 13th. Dinner will be Herbed Baked Chicken, Lemon Pepper Cod, Vegetable Garlic Pasta, Parsley Buttered Potatoes with a Garden Tossed Salad and Broccoli Marinade Salad. We can take credit card, checks made out to “Cleveland ACS”, or cash. The cost is \$20 for members and guests, \$10 for retirees or unemployed, and \$5 for students.

Call for nominations: CTSC Professional Awards

Each year, CTSC slautes a trio of individuals for their leadership, achievement and vision as welll as educational prowess. This year's recipients will be honored at the CTSC's 71st Annual Scholarship & Achievement Awards banquet Monday May 8, 2017 at Windows on the River. Nominations by Friday March 31st. Go to CTSC website for more info. <https://www.ctsc.org>

Meeting-in-Miniature 2017 Awards

Meeting-in-Miniature (MIM) of the Cleveland Section was held on Monday, March 13th at Cleveland State University. The local chairs of the meeting were David W. Ball and Bhagya Gunasekera. This year's plenary speaker was Dr. James Short, a retired Deputy Director of the Center for Energetic Concepts Development at the University of Maryland Energy Research Center and the current editor of the Journal of Energetic Materials.

Presenters and attendees represented many educational institutions of Ohio. Fulfilling a strategic planning objective, a number faculty and students from a leading community college attended MIM to witness their colleagues' presentations. This year's list of presenters also included working professionals, another typically underrepresented category ACS planned to reach out. Following is the list of outstanding presentations recognized for monetary awards (\$300).

Undergraduate Oral Presentation

Naviya Schuster-Little, Oberlin College: Optimization of Emulsion PCR for Aptamer Selection

Kieran Farrell, Case Western Reserve University: Unraveling the Photoprotective Mechanism of Folic Acid upon UVA Absorption.

Samantha Moores, Oberlin College: Exploring the Role of N-hydroxy Heterocycles in Synthetic Eumelanin Formation.

Graduate Oral Presentation Awardees

Erica Fatica, Cleveland State University: Flux analysis of induced pluripotent stem cell-derived cardiomyocytes to investigate metabolic alterations in Barth Syndrome.

Shashank Gorityala, Cleveland State University: Multi-omics Profiling of Exosome Cargo by LC-QTOF-MS/MS.

Regina DiScipio, Case Western Reserve University: The Energetic Journey of UV Light Through Biomolecular Pterin.

This year's awards were supported by Amalgamated Tuna Company, Department of Chemistry - Cleveland State University, Department of Chemistry and Biochemistry – Oberlin College, Dr. Dwight Chasar, Energizer Inc., and Lubrizol Foundation.

NEOSEF ACS Awards

The 2017 Northeastern Ohio Science and Engineering Fair (NEOSEF) was held at John Carroll University March 7th, and approximately 550 students in grades 7-12 participated in the fair. During the judging session on March, volunteer judges for the Cleveland section of ACS reviewed ~90 projects entered into the Chemistry Category (CHM) and selected the award winners. In recognition of their achievements, the award winners and their families have been invited to attend the April ACS meeting, display their posters at the soicial hour, and receive their awards. Congratulations!

1st place (\$150): **Patrick McFarland**, CHM 11-12, St Vincent St Mary, "Supra Macromolecular Cages Self-Assembled by Terpyridine Based Ligands"

2nd place (\$100): **Lav Patel**, CHM 11-12, Mentor High, "The Effect of thermal Oxidative Stress on Antifoaming Fuel Efficiency in Motor Oils and Transmission Fluids"

3rd place (\$75): **Jacob Queiser**, CHM 9-10, Hudson High, "Biodiesel: Cloud Point Investigation"

Honorable mentions (\$50):

Maryam Abbas, CHM 9-10, Horizon Science Academy, "A Novel Antimicrobial Solution: The Effects of Plant-Derived Oils on Pathogenic Bacteria and Fungi"

Dominic Caparso, CHM 7-8, Assumption, "Slippery Lift"

Kesav Kosana, CHM 7-8, Solon Middle, "Which Form of Sodium Chloride is Most Efficient at Producing Drinking Water from the Atmosphere?"

Katherine Parry, CHM 7-8, St Francis of Assisi, "Are you Gelly of my Project?"

Emmaria Smith, CHM 7-8, St Dominic, "Fabric Softener and Flammability"

Announcement: May Conference

The 61st Annual May Conference will be held on Wednesday, May 24, 2017 at John Carroll University. The conference typically has 180+ attendees and 30 or more vendors and is a joint meeting that includes participation/sponsorship from a number of societies including SAS, MSNO, ACS, AVS/Ohio, and SPE. There are 30+ oral presentations from a mix of invited speakers, vendors, and students. The cost for students to attend is minimal and students are encouraged to present both papers and posters. There are monetary awards for the best papers/posters and two MSNO awards that include a trip to the national conference. The conference includes the joint SAS/ACS Yeager Award and presentation. Topics are varied and include microscopy, surface science, and spectroscopy. We also recognize the John Bell Award winners from the NEO Science & Engineering fair at the reception. The keynote speaker is George S. Bullerjahn, Professor of Research Excellence, Department of Biological Sciences, Bowling Green State University presenting: "Cyanobacterial blooms in Lake Erie – is there ANY good news?". Additional information can be found at

<http://www.msneo.org/2017-sasmsnoacsavs-may-conference.html>

Announcement: Seminar at Cleveland State U.

Dr. Mark Cesa, Immediate Past President of IUPAC (International Union of Pure and Applied Chemistry) will be giving a talk at Cleveland State U. May 5, 2017 at 2:30 pm. RM and Reception TBD. If interested in attending, please contact Dr. David Ball at 216-687-2467 or by email at d.ball@scuohio.edu.

From ACS Discoveries: Method could speed up design of more eco-friendly fabric softeners

The Journal of Physical Chemistry B

In the 1960s, the introduction of fabric softeners transformed rough, scratchy clothes into softer, more comfortable garments. But recently, the products' popularity has dipped in part due to millennials' concern for their potential environmental impact, according to recent news reports. Now one team has developed a better method for evaluating fabric softeners that could lead to potentially "greener" — and more millennial-friendly — versions. Their study appears in ACS' *The Journal of Physical Chemistry B*.

Fabric softeners' main ingredients are surfactants, which are compounds that stick to clothing during the rinse cycle and make them feel softer. Scientists have been studying fabric softeners for decades, and many believe that surfactants work by forming a lubricating layer on clothing. But to date, no one knows how the softeners work on a molecular level. So, Evdokia K. Oikonomou, Jean-François Berret and colleagues set out to devise a new method to look more closely at the interaction between cotton fabric and fabric softeners as a first step toward developing more eco-friendly products.

The researchers studied how a double-tailed cationic surfactant, which is often used in commercial fabric softeners, would combine

with natural cellulose nanocrystals — a stand-in for cotton — using multiple techniques including light scattering and optical and electron microscopy. The study showed that the concentration of surfactant affected vesicle size. The concentration of surfactant also affected how these vesicles arranged themselves, sometimes nesting within each other to form multiple layers. The researchers say their technique could speed up manufacturers' assessment of fabric softeners' efficiency and potentially help get newer, more environmentally friendly products to the market faster.

The authors acknowledge funding from Solvay, the French National Research Agency and the Commissariat à l'Investissement d'Avenir.