



# ISOTOPICS

The Cleveland Section of the American Chemical Society

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January 2018

## On Deck:

Wed. Feb. 21, 2018  
T.B.D.

## January Meeting Notice

*ACS Cleveland Past Chairs Night*

Wednesday, Jan. 24, 2018

**Bier Markt/Bar Cento/Speakeasy**

1948 West 25<sup>th</sup> Street, Cleveland, OH 44113

4:30 pm	Executive Committee Meeting
5:30 pm	Social Networking
6:00 pm	Dinner
7:00 pm	Presentation

## Cleveland ACS Officers

### Chair:

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## Isotopics

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## “Insulation Chemistry for Earth and Beyond: Polyimide and Polyamide Aerogels”

by Dr. Mary Ann Meador, NASA Glenn Research Center

**Biography:** Dr. Mary Ann Meador joined the NASA Glenn Research Center (then called NASA Lewis Research Center) in 1983 after earning a B.S. in Chemistry from Duquesne University and a PhD in Organic Chemistry from Michigan State University. Currently, she is a senior scientist in the Materials and Structures Division. Since joining NASA, her research has focused on the design, development and understanding of structure property relationships of new polymers for a variety of aerospace applications, including high temperature composites for aircraft engines and ionically conductive polymers for battery and fuel cell membranes. Most recently, she has been developing silica hybrid and polymer aerogels for use as lightweight insulation for applications such as inflatable decelerators for entry, descent and landing operations. She has coauthored over 180 publications and holds 22 patents in the fields of organic and polymer chemistry, and material science. She is the recipient of NASA Medals for Exceptional Service, Exceptional Achievement and Exceptional Technology Achievement, the Abe Silverstein Medal, three R&D 100 Awards, and two Exceptional Space Act Awards. She is also Executive Editor for ACS Applied Materials and Interfaces, and Adjunct Professor of Polymer Engineering at the University of Akron.

### DINNER RESERVATIONS REQUESTED:

Please RSVP for the dinner by emailing to Michael Levy ([mlevy@envantage.com](mailto:mlevy@envantage.com)) with the names in your party by Monday, January 22, 2018. Vegetarian options will be available. The ACS accepts credit card payments, cash, and/or checks made out to “Cleveland ACS.” The cost is \$20 for members and guests; \$10 for retirees or unemployed; and \$5 for students.

## **From the Desk of the Past Chair**

*By Lisa M. Ponton*

*Past Chair fo the ACS Cleveland Section*

It has been a pleasure serving as Chair this past year. It has been a wonderful year due, in large part, to the colleagues who have served on the Executive Committee with me. This organization truly functions as a team. For that, I cannot be more grateful!

I continued the efforts of my predecessors to push forward our goals as outlined in the 2015 Strategic Plan. We made great strides on several fronts. Several of our strategies either have been completed or have shifted into “maintenance mode”.

We have successfully designed our schedule of events so that half of them fall into the non-traditional model with the other half maintaining the traditional speaker/dinner format. October has settled into serving as our industry night where we have the opportunity to tour a local industry in the area. This past year we visited DayGlo. I came home with a wonderful DayGlo goggle safety poster for my office! We continued the fun in November where we gathered at the Cleveland Museum of Natural History for their monthly Think and Drink with the Extinct. I found it to be a relaxing evening with my colleagues.

As in past years, we held our annual Meeting in Miniature in March at Cleveland State University. In addition to the wealth of undergraduate and graduate student presentations, we had a wonderful keynote address from Dr. James Short who shared with us the history of explosives. Oberlin is up next! I look forward to heading out to the western edge of our section.

The newest non-traditional undertaking was all-Ohio family retreat at Kalahari in February, dubbed GO-CHEM for “Greater Ohio Chemistry”. This event was made possible by generous donations from the Toledo, Cleveland,

Columbus, Dayton, Cincinnati, Akron, Penn-Ohio Border, Northwest Central, and Upper Ohio Valley, local sections of the American Chemical Society, as well as an award from the ACS Local Section Committee's IPG Award Committee (formally obtained by the Toledo section). It was a busy weekend with networking opportunities, a resume/interview workshop, a poster session, and outreach activities for kids of all ages in the lobby of Kalahari. The event was capped with a keynote address from Dr. Michael Butcher who shared his research on sloths.

While I have highlighted the non-traditional meetings held this past year, we had a wide range of excellent speakers who shared their corner of the scientific world with us, including Bob Ponton (scientific glassblower), Dr. David Simmons (polymer engineer), Heather Galloway (art conservator), and Dr. Fasong Yaun (environmental geoscientist). I enjoyed hearing how chemistry is used and has influenced disciplines tangential to ours.

I would like to end the highlight of meetings this past year with our annual Morley Award winner. This award is presented every May. I continued the newly established tradition of holding the event at Case Western Reserve University at the Michelson and Morley Restaurant. Our winner last year was Dr. Frank Bright in the Department of Chemistry at SUNY-Buffalo. He shared with his research on chemical sensors allowing for real time measurements in live animals. Their goal is to develop in-vivo nanosensors to allow measurement on the single synapse level.

Other strategies that have seen significant progress are the webpage and social media. A new webpage has been designed and will be launched very soon. I have begun maintaining our Facebook page to increase our visibility. If you are a Facebook user, please follow our page!

The section continues administering the Chemistry Olympiad exam and I thank Anne O'Connor for her contributions in keeping that alive. In addition, through Bob Fowler's leadership our National Chemistry Week

program continues to be successful. As mentioned above, this section operates as a team. We could not make as many accomplishments without the contributions of all our members.

While many of our goals in the strategic plan have seen significant progress, others still need more work. Our October meeting has been a huge success for the past several year. However, the section is looking for ways to create stronger ties with industry and increasing the involvement of our industrial members. Assisting students consistently remains a goal of our section and we look to innovative ways to support and empower them. If you have ideas, please join us for a meeting and strike up a conversation. We'd love to hear from you!

Though my time in this particular leadership role has ended, my involvement with you all is far from over. Join me in welcoming the newly elected 2018 Executive Committee:

Chair-elect – W. Chris Boyd  
 Treasurer – Regina DiScipio  
 Secretary – Drew Meyer  
 Director – Genevieve Sauve  
 Director – David Orosz

Again, it has been a pleasure. I look forward to seeing you at an upcoming meeting!

### **Announcement: 2018 Meeting in Miniature**



American Chemical Society

CLEVELAND SECTION

2018 MEETING IN MINIATURE

OBERLIN COLLEGE  
 WEDNESDAY 28 MARCH 2018

SAVE THE DATE

The call for abstract will be available soon through Facebook and Web. Stay tuned for more info!

### **Call for Applications: ACS Publications Travel Grant for ACS National Meeting in New Orleans**

ACS Publications is excited to announce that applications are now being accepted for our Travel Grant for Librarians and Library School Students to attend the ACS National Meeting in New Orleans (March 18-22, 2018).

Full details about the award and the application are available on ACS Axial at: <http://axial.acs.org/2017/12/19/travel-grant-librarians-nola/>

Applications are due Friday, January 12, 2018 at 5 PM Eastern Time. For questions, please contact Michael Qiu, [M\\_Qiu@acs.org](mailto:M_Qiu@acs.org).

Best, Michael

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### **Call for Applications: 2018 Lucille M. Wert Scholarship – Deadline: February 1, 2018**

Designed to help a person with an interest in the fields of Chemistry and Information to pursue graduate study in Library, Information, or Computer Science, the Scholarship consists of a \$1,500 honorarium. This scholarship is given yearly (to a qualified applicant) by the Division of Chemical Information of the American Chemical Society.

The applicant must have a bachelor's degree with a major in Chemistry or related disciplines (related disciplines are, for example, Biochemistry or Chemical Informatics). The applicant must have been accepted (or currently

enrolled) into a graduate Library, Information, or Computer Science program in an accredited institution. Work experience in Library, Information or Computer Science preferred.

The deadline to apply for the 2018 Lucille M. Wert Scholarship is February 1, 2018. Details on the application procedures can be found at <http://www.acscinf.org/content/lucille-m-wert-student-scholarship>.

Applications (email preferred) can be sent to: [marge.matthews@outlook.com](mailto:marge.matthews@outlook.com)

Contact address:

Marge Matthews

CINF Awards Committee

633 Dayton Rd.

Bryn Mawr, PA 19010-3801

Phone: 610-527-0686

### **From ACS Discoveries: Bringing 'Avatar'-like glowing plants to the real world**

*Nano Letters*

The 2009 film "Avatar" created a lush imaginary world, illuminated by magical, glowing plants. Now researchers are starting to bring this spellbinding vision to life to help reduce our dependence on artificial lighting. They report in ACS' journal *Nano Letters* a way to infuse plants with the luminescence of fireflies.

Nature has produced many bioluminescent organisms, however, plants are not among them. Most attempts so far to create glowing greenery — decorative tobacco plants in particular — have relied on introducing the genes of luminescent bacteria or fireflies through genetic engineering. But getting all the right components to the right locations within the plants has been a challenge. To gain better control over where light-generating ingredients end up, Michael S. Strano and colleagues recently created nanoparticles that travel to specific destinations within plants. Building on this work, the researchers wanted to take the next step and develop a "nanobionic," glowing plant.

The team infused watercress and other plants with three different nanoparticles in a

pressurized bath. The nanoparticles were loaded with light-emitting luciferin; luciferase, which modifies luciferin and makes it glow; and coenzyme A, which boosts luciferase activity. Using size and surface charge to control where the sets of nanoparticles could go within the plant tissues, the researchers could optimize how much light was emitted. Their watercress was half as bright as a commercial 1 microwatt LED and 100,000 times brighter than genetically engineered tobacco plants. Also, the plant could be turned off by adding a compound that blocks luciferase from activating luciferin's glow.

The authors acknowledge funding from the U.S. Department of Energy and the Swiss National Science Foundation.