

**CONGRATULATIONS TO THE  
2022 BRAUDE AWARD  
RECIPIENT  
DIANNE LUNING-PRAK**

**Associate Professor  
Naval Academy**



**2020 REMSEN  
AWARD LECTURE**

**OCTOBER 13, 2022  
6:30 P.M.**

**JHU  
REMSSEN  
NO. 140  
P. 9**



**Chesapeake  
chemist** *Maryland Section  
American Chemical  
Society*

Local Section Newsletter  
November 1, 2022

**ACS Maryland**

NOVEMBER  
ISSUE

**PROFESSOR  
THOMAS  
WILLIAM  
MUIR**

**DEPARTMENT  
OF CHEMISTRY**

**PRINCETON  
UNIVERSITY  
P 4**

**2020 Ira Remsen Award Recipient**

**ACS Local Section  
Maryland**

Volume 77, Issue No. 7

**THE GEORGE L. BRAUDE  
AWARD LECTURE**

**October 24, 2022, 6:30 P.M.**

**ZOOM**

## Maryland Local Section Newsletter

Editor-in-chief: [Beatrice Salazar](#)

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Princeton University

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Cover :



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*From the Editor's Desk...*

## Remsen and Braude Awards

I remember my first award when I was 5 years old. The feeling was different from receiving a birthday present, or other gift that did not involve my effort. I felt that I had done something good, and that my teacher was giving me a recognition as a result. Ever since, I love awards and the idea of giving them to deserving people; they are an important part of recognizing success.

This month, The Maryland Section of the American Chemical Society will recognize two distinguished scientists for their contributions. Professor Tom Muir from Princeton university won the Remsen Award for 2020; due to pandemic-related delays, he will present his award lecture on October 13th, at Johns Hopkins University, Homewood campus (page 9). Associate Professor Dianne Luning-Prak from the Naval Academy won the Braude Award this year and she will be giving her lecture on October 24<sup>th</sup> at the United States Naval Academy Club at Greenbury Point, 64 Greenbury Point Road, Annapolis MD 21402 (page 4). Please join us for these lectures; they are invariably wonderful learning experiences.

The Maryland Local Section is proud to sponsor six mayor awards and many other smaller ones to recognize the efforts, needs, and contributions of its members. Thank you all for the contributions, and the votes to identify deserving candidates for these awards. Please continue nominating your colleagues and letting us know about their great work.

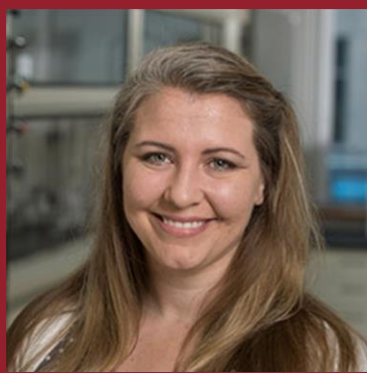
Also, in this issue we include the successful completion of the first year of a new program for high school students. It is an extension of the Project SEED program from ACS. We include academically deserving students that are interested in the benefits of the program, but their qualification differs from those of ACS. The ACS Maryland Local Section provides the funds in this case and more students have access to the summer laboratory experience. On page 14 we began presenting the research of 4 students at Towson University then, on page 16 we present the research of Srikar Bala at Morgan State University and on page 18 we present the work of Victoria Lee at UMBC. The ACS-Maryland Local Section is grateful to mentors Professor Lee Blaney (UMBC), Professor Mary S. Devadas (TU) and Professor J. Peng (Morgan) for their mentorship and contribution to the success of this program.

*Beatrice Salazar*

Editor-in-Chief, ACS Maryland Section  
[beatricesalazar1@gmail.com](mailto:beatricesalazar1@gmail.com)



# CHAIR'S MESSAGE



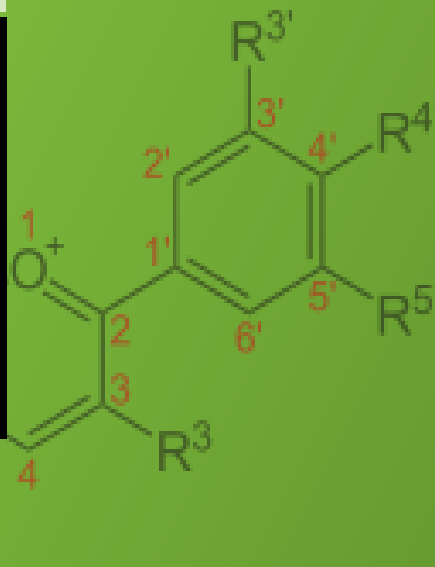
## Dr. Sarah Zimmermann Chemist, FDA

Chair, ACS Maryland Section -  
[acsmaryland.org](http://acsmaryland.org)

Sarah Zimmermann, PhD  
 Chemist FDA  
<https://www.fda.gov>  
 U.S. Food & Drug Administration  
 10903 New Hampshire Ave,  
 Silver Spring, Maryland,  
 20903, United States

(92) Sarah Zimmermann | LinkedIn

Recent publication Feb. 2021  
 Journal [ONCOLOGIST](#)



Dear Members,

I hope you all had a wonderful summer and are enjoying the start of Fall in Maryland. We have some exciting upcoming events:

- Remsen Award Lecture for the 2020 Remsen Awardee, Tom Muir from Princeton University (postponed in person talk due to covid), Thursday, October 13, 2022, 6:30 p.m. Remsen 140, Hopkins Homewood Campus. This seminar was previously postponed due to COVID concerns, but we are excited to welcome back more in-person events.
- Braude Award Lecture, Dianne Luning-Prak from Naval Academy, Monday, October 24, 2022, 6:30 p.m. on ZOOM
- Fabulous Fibers: The Chemistry of Fabrics. Join a chemist from the Army Research Laboratory and the American Chemical Society and participate in hands-on experiments exploring the chemistry of fabrics at your local library. See the full list of events on page 19.
- Launch of a webinar series focusing on how Chemistry can impact environmental issues. We will distribute more information in the near future page 20.

If you are interested in becoming more active with the Maryland Local ACS Section, or have any ideas on how we can better serve the Maryland Chemist Community, please feel free to contact us at:  
[acsmarylandsection10@gmail.com](mailto:acsmarylandsection10@gmail.com).

Thank you,

Sarah Zimmermann, PhD



## BRAUDE AWARD NOMINATION

I would like to nominate Prof. Dianne Luning-Prak for the Braude Award administered by the Maryland Section of the ACS. <https://acsmaryland.org/braude-award/>

Prof. Luning-Prak has a strong research program and has mentored more than 30 undergraduate students and 2 high school students during her time at the US Naval Academy. Our research model generally involves faculty working with 1-3 students on year-long research projects. Thus, the number of students she has mentored is impressive. Her publication record is quite strong as is apparent from her Google Scholar page (below) and the awards she has won (see nomination letter).

<https://scholar.google.com/citations?user=z3Oe6cEAAA&hl=en&oi=ao>

Judith A. Harrison, Ph. D.  
Professor and Chair  
Chemistry Department  
U. S. Naval Academy  
Annapolis, MD 21402  
[jah@usna.edu](mailto:jah@usna.edu)

v: 410-293-6606 f: 410-293-2218

<https://www.usna.edu/Users/chemistry/jah/index.php>

# MEET THE 2022 BRAUDE AWARD RECIPIENT



**Dianne J. Luning Prak**

*Curriculum Vitae*

**United States Naval Academy**  
572M Holloway Road  
Annapolis, MD 21402

**Phone: (410) 293-6339**  
**e-mail: [prak@usna.edu](mailto:prak@usna.edu)**

### EDUCATION

Ph.D. and M.S. Environmental Engineering, The University of Michigan, 1998.  
B.S. Chemical Engineering, minor Environmental Engineering, *summa cum laude*, Rensselaer Polytechnic Institute, 1989.

### PROFESSIONAL EXPERIENCE

United States Naval Academy, Annapolis, MD

**2015 – present** Professor, Chemistry Department  
**2009 – 2015** Associate Professor, Chemistry Department  
**2005 – 2009** Assistant Professor, Chemistry Department  
**2002 – 2005** Adjunct Assistant Professor, Chemistry Department  
**2001 – 2002** Postdoctoral Fellow (for Dr. Craig Whitaker), Chemistry Department

Naval Research Laboratory, Washington, DC

**1999 – 2001** Postdoctoral Fellow

Anne Arundel Community College, Arnold, MD

**1999** Chemistry and Mathematics Instructor

The University of Michigan, Ann Arbor, MI

**1991 – 1998** Research Assistant, Civil and Environmental Engineering Department

Air Products and Chemicals, Inc., Allentown, PA

**1989 – 1991** Chemical Engineer



[VIEW The Full CV](#)

# GEORGE L. BRAUDE AWARD LECTURE



Abstract

## ***Bio-based and Petroleum-based Fuels Properties, Surrogate Mixtures, and Combustion***

High fuel prices and concern over carbon dioxide emissions have led to research into alternative liquid fuels. Alternative fuels produced from different feedstocks or processing technologies will differ in chemical composition from each other and from petroleum-based fuels. These differences will impact the physical properties and combustion in diesel engines. Fuel researchers often formulate simple hydrocarbon mixtures as surrogates for the more complex fuel because the combustion of surrogates is more easily modeled than is real fuel. U. S. Naval Academy chemistry majors have worked with me to investigate petroleum-based and bio-based fuels and to develop and evaluate surrogate mixtures in an effort to build a greater understanding of fuel performance in diesel engines. This talk will present results from Navy jet fuel, JP-5, and alternative fuels including alcohol-to-jet (ATJ), hydrotreated esters and fatty acids (HEFA), and catalytic hydrothermolysis (CH) fuels.

## **THE BRAUDE AWARD LECTURE: October 24, 2022**

**Time: 6:30 P.M.**

**ZOOM** meeting: [ZOOM MEETING](#)

or use: <https://american-chemical-society.zoom.com/j/89891870207>

Professor Luning-Prak has a strong research program and has mentored more than 30 undergraduate students and high school students during her time at the US Naval Academy



## Dianne J. Luning Prak

is a Professor of Chemistry at the U.S. Naval Academy. She graduated *summa cum laude* with the B.S. in Chemical Engineering from Rensselaer Polytechnic Institute (1989) and then worked for Air Products and Chemicals, Inc. She continued her education at the University of Michigan, obtaining an M.S. and Ph.D. in Environmental Engineering (1998). Before joining the faculty at the USNA, she was an American Society of Engineering Education postdoctoral fellow at the Naval Research Laboratory (1999-2001). At USNA, she has mentored 30 undergraduate students (midshipmen) and 2 high school students, published 85 peer-reviewed publications, and contributed to 83 presentations. Dianne, after a postdoctoral position at the Naval Research Laboratory, she came to the chemistry department at USNA. She conducted research in several areas including \_ the behavior of chemicals in the environment and the mechanisms for mitigating their impact on environmental systems \_ the effect of alternative and petroleum-based fuel composition on the physical and chemical properties of the fuels including their combustion and storage stability when in contact with seawater in the ballast tank of Navy ships, \_ environmental chemistry and mechanisms for mitigating pollutants' impact on environmental systems, \_ the physical changes in 3D printed polymers in the presence of fuels and their components, and \_ pedagogical studies on the impact of in-class electronic polling (also known as clickers) on student learning. She had received several awards including an Environmental Achievement Award from Air

**In 2017, she received  
USNA Class of 1951  
Civilian Faculty Excellence  
in Research Award,**  
which is awarded to the civilian faculty member at the Naval Academy who has exhibited **“the highest quality continued scholarly achievement through research”** and whose research has **“furthered the accomplishments of the Naval Academy's mission by assisting the intellectual development of midshipmen and, additionally, have significantly increased the fund of knowledge in his or her field of scholarship.”**

products and Chemicals, a National Science Foundation Graduate Fellowship, Department of the Navy Meritorious Civilian Service Award, Kinnear Fellowship, and the 2017 USNA Class of 1951 Civilian Faculty Excellence in Research Award, which is given for high quality scholarly achievement in research and for research that assisted in the intellectual development of midshipmen.

Professor Luning-Prak, in addition to her active research program involving students while teaching at an undergraduate institution, has published 66 peer-reviewed journal articles and 19 books chapters and conference proceedings, given 29 technical presentations, and contributed to 54 other presentations.

## Research effort of Dianne and her students...

**Surfactant solubilization  
(2005-2011)**



**Solubility and photolysis of  
nitroaromatic compounds  
in seawater  
(2005-2017)**



**Petroleum-based and  
bio-based liquid fuels  
(2010-present)**



**Additive Manufacturing (AM)  
O-rings and their interactions  
with fuels and fuel components  
(2021-present)**



**Pedagogical Research Projects  
(2002-present)**

**66 References (students underlined)**

Professor Luning-Prak's projects have been funded by the Strategic Environmental Research and Development Program, Defense Reduction Agency, the Office of Naval Research, Naval Air Systems Command, Northrup Grumman, the Naval Academy Research Council, and the Kinnear Fellowship Program.

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It is a pleasure to present the Braude Award to Professor Dianne Luning-Prak, we hope she will continue her long list of deserving awards. To learn about these awards please see her full [CV](#).

The ACS Maryland Local Section

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Interested in nominating a scientist for the 2023 Braude Award? Please contact Award Chair Dr. Louise Hellwig at Morgan State University. Email: [Louise.Hellwig@morgan.edu](mailto:Louise.Hellwig@morgan.edu) or use our website for more information: <https://acsmaryland.org/braude-award/>

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Louise Hellwig  
Chemistry Department, SP 212  
Morgan State University  
1700 E. Cold Spring Lane  
Baltimore, MD 21251  
443 885 2085

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[READ THE FULL NOMINATION](#) learn about the work of Professor Luning-Prak and see lab. pictures

## IRA REMSEN AWARD LECTURE - Joins us!

The Chemistry Department at Johns Hopkins University and the ACS Maryland Local Section of the American Chemical Society invite you to Join us for **The Remsen Award pre-lecture - refreshments at 6:15 P.M. R-140**



**The Ira Remsen Lecture will start at 6:30 P.M. - Remsen No. 1**

**Post- Lecture at 7:30 P.M. wine/cheese reception - Remsen No. 140**



HISTORY... THE IRA REMSEN AWARD [List of awardees](#) - Since 1946



In 1872 Ira Remsen became one of the original faculty of [Johns Hopkins University](#). Remsen accepted the invitation of attention of [Daniel Coit Gilman](#), and founded the department of chemistry. In 1879 Remsen founded the [American Chemical Journal](#), and edited for 35 years.

"In 1879 Fahlberg, working with Remsen in a post-doctoral capacity, made an accidental discovery that changed Remsen's career. Eating rolls at dinner after a long day in the lab researching [coal tar](#) derivatives, Fahlberg noticed that the rolls tasted initially sweet but then bitter.<sup>[7]</sup> Since his wife tasted nothing strange about the rolls, Fahlberg tasted his fingers and noticed that the bitter taste was probably from one of the chemicals in his lab. The next day at his lab he tasted the chemicals that he had been working with the previous day and discovered that it was the oxidation of o-toluenesulfonamide he had tasted the previous evening. He named the substance [saccharin](#) and he and his research partner Remsen published their finding in 1880. Later Remsen became angry after Fahlberg, in patenting saccharin, claimed that he alone had discovered saccharin.<sup>[8]</sup> Remsen had no interest in the commercial success of saccharin, from which Fahlberg profited, but he was incensed at the perceived dishonesty of not crediting him as the head of the laboratory.<sup>[7] ref</sup>"

**Goal:** To acknowledge chemists of outstanding achievement in keeping with Ira Remsen's long and devoted career as an exponent of the highest standards in teaching and research in chemistry.

**Awardee** receives an honorarium, a plaque recognizing his/her scientific contributions and acknowledgement in both ACS and ACS-Maryland Local section. Each awardee presents an Ira Remsen's memory Lecture on his/ her research.

THE GEORGE L. BRAUDE AWARD



**Established** in 2003 by [Monique Colsenet Braude](#) (1925-2010) Born in Lisieux, France. She was awarded a pharmacist Diploma at the Institute of Pharmacy in Paris. Her PhD on Pharmacology is from The Ohio State University. She did pioneer research work on cannabinoid and worked at NIH national Institute on drug abuse directing the research program on the biological effects of marijuana and other drugs. Dr. Braude was a member of the GWFC Maryland Federation of Women's Clubs. 1985 began - 1994 as President and then Member of the Board of Directors. She left a generous bequest to GWIS. She was an honorary member of the ACS and created the Braude award in memory of her husband George.

George L. Braude, a Chemical Engineer, was Chair of ACS Maryland Local Section in 1962. He received the Maryland Chemist of the Year Award in 1968.

**Goal:** To support professors to do research in an academic setting.

**Awardee** receives up to \$4,000 US honorarium to support his/her research, a plaque recognizing his/her scientific contributions and acknowledgement in both ACS and ACS-Maryland Local Section. A public lecture is presented during month of October.



CONGRATULATIONS  
**PROFESSOR THOMAS W. MUIR**

2020 IRA REMSEN AWARDEE

**THE IRA REMSEN AWARD LECTURE**

**Will take place at Johns Hopkins University Remsen No. 1  
October 13, 2022 at 6:30P.M.**



Abstract

***Janus Particles: the role of molecular symmetry in epigenetic regulation***

We are broadly interested in studying protein function by integrating the tools of synthetic organic and physical chemistry with those of molecular genetics. Over the years, we have developed chemical biology approaches that allow the covalent structure of proteins to be manipulated with a similar level of control to that possible with smaller organic molecules. These protein-engineering technologies, which can be applied both in vitro and in vivo, allow the insertion of unnatural amino acids, posttranslational modifications, and isotopic probes site-specifically into proteins. The major focus of the group currently lies in the area of epigenetics, where we try to illuminate how chemical changes to chromatin drive different cellular phenotypes. Ongoing work in this area focuses on understanding how mutations to the histone packaging proteins leads to various cancers, as well as how native chromatin structure is regulated intrinsically by post-translational modifications, and by the action of large molecular machines that remodel chromatin in the nucleus. Recent progress in these areas will be discussed.

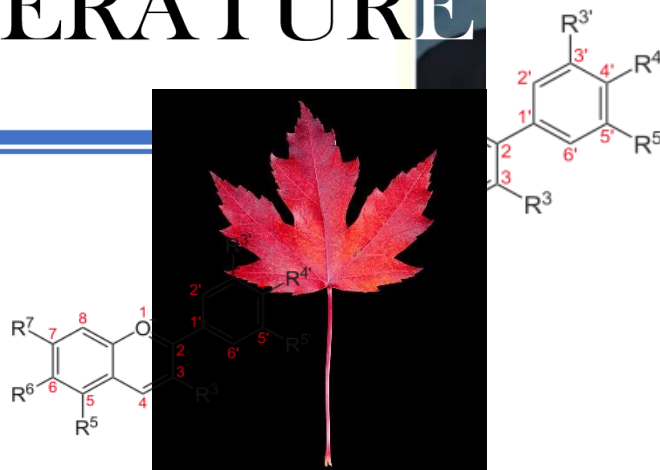
Read more about Professor Muir at the [2020 Chesapeake Chemist](#). He is a professor of chemistry at Princeton University which has ranked No.1 in 2022 among the best 443 universities in the nation. Enjoy his detailed website about [his work, research](#) and his [laboratory](#). Contact: [muir@princeton.edu](mailto:muir@princeton.edu)

Don't miss the Pre-Lecture refreshments at 6:15 P.M. and Post-Lecture reception at 7:30 P.M. Remsen-140

# CHEMISTRY LITERATURE SPOTLIGHT

## Autum Leaves...

By Beatrice Salazar



My thoughts on the Article by Professor Shakhashiri on General Chemistry, 2008: [THE CHEMISTRY OF AUTUMN COLORS](http://www.scifun.org/CHEMWEEK/PDF/Fall_Colors.pdf) [http://www.scifun.org/CHEMWEEK/PDF/Fall\\_Colors.pdf](http://www.scifun.org/CHEMWEEK/PDF/Fall_Colors.pdf):

This was a very attractive article that one can read and discuss with colleagues, learn from it, and share with curious minds. I was thinking about middle to high school grade students as I was reading the article, they will be curious about the chemistry involved in the change of colors of leaves. For this purpose, I wrote the following review using Science, technology, engineering, and mathematics, **STEM approach**.

*The change of color on leaves depends on temperature and light* - this is a first observation, we observe that the changes of leaves from green to brilliant shades of yellow, orange, and red, and brown are due to cool temperatures and lower light.

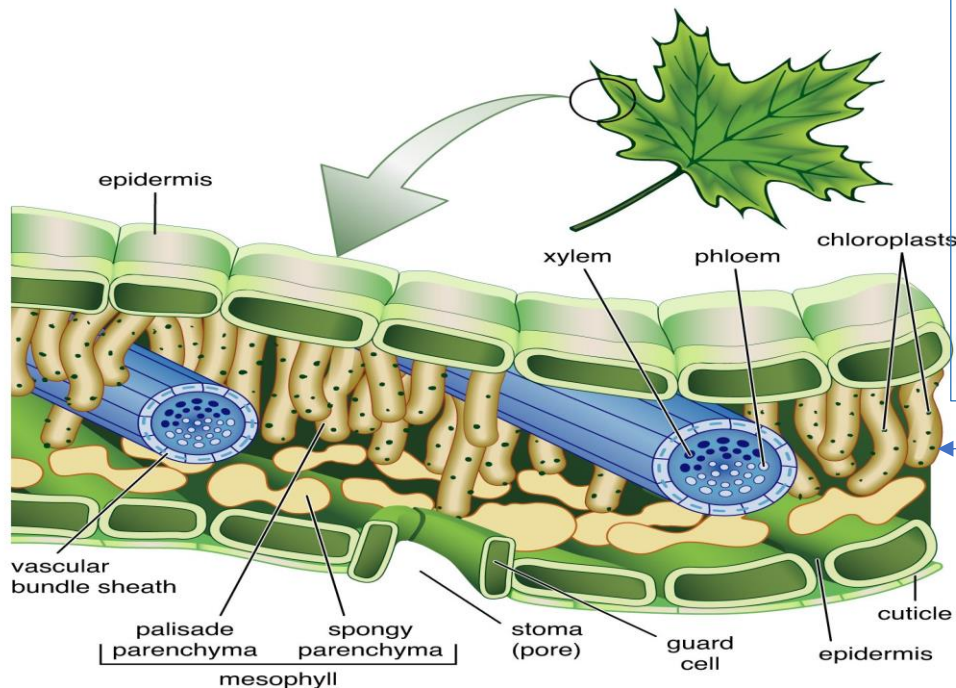
*Why do these changes occur?* These color changes are the result of transformations in leaf **pigments**.

*What are pigments and which pigments do leaves have?* - Pigments are colors that come naturally (or man-made) from foods, fruits, vegetables. There are four groups of natural pigments: **the green chlorophylls, the yellow-orange-red carotenoids, the red-blue-purple anthocyanins and the red betanin**. The pigments found in leaves are:

- One major pigment is chlorophyll, which absorbs red and blue light from sunlight and **reflects green**. There are two sub-pigments: **chlorophyll-a** ( $C_{55}H_{72}MgN_4O_5$ ) & **chlorophyll-b** ( $C_{55}H_{70}MgN_4O_6$ ). These large molecules only differ on 2 atoms of hydrogen and one atom of oxygen.
- A second class of pigments are **carotenoids**: beta-carotene ( $C_{40}H_{36}$  - hydrocarbon compound) and (C<sub>40</sub>H<sub>56</sub>O<sub>2</sub> - xanthophylls hydrocarbon compound with oxygen ex. Lutein). These leaf pigments absorb blue-green and blue light. The light **reflected is yellow**.
- A third class of pigments that occurs in leaves is the **anthocyanins**. This pigment absorbs blue, blue-green, and green light. Therefore, **light reflected appears red**.

*Where are these pigments located in in the leaf?* Let's examine the leaf parts and discover where these pigments are located.

# LEAF STRUCTURE

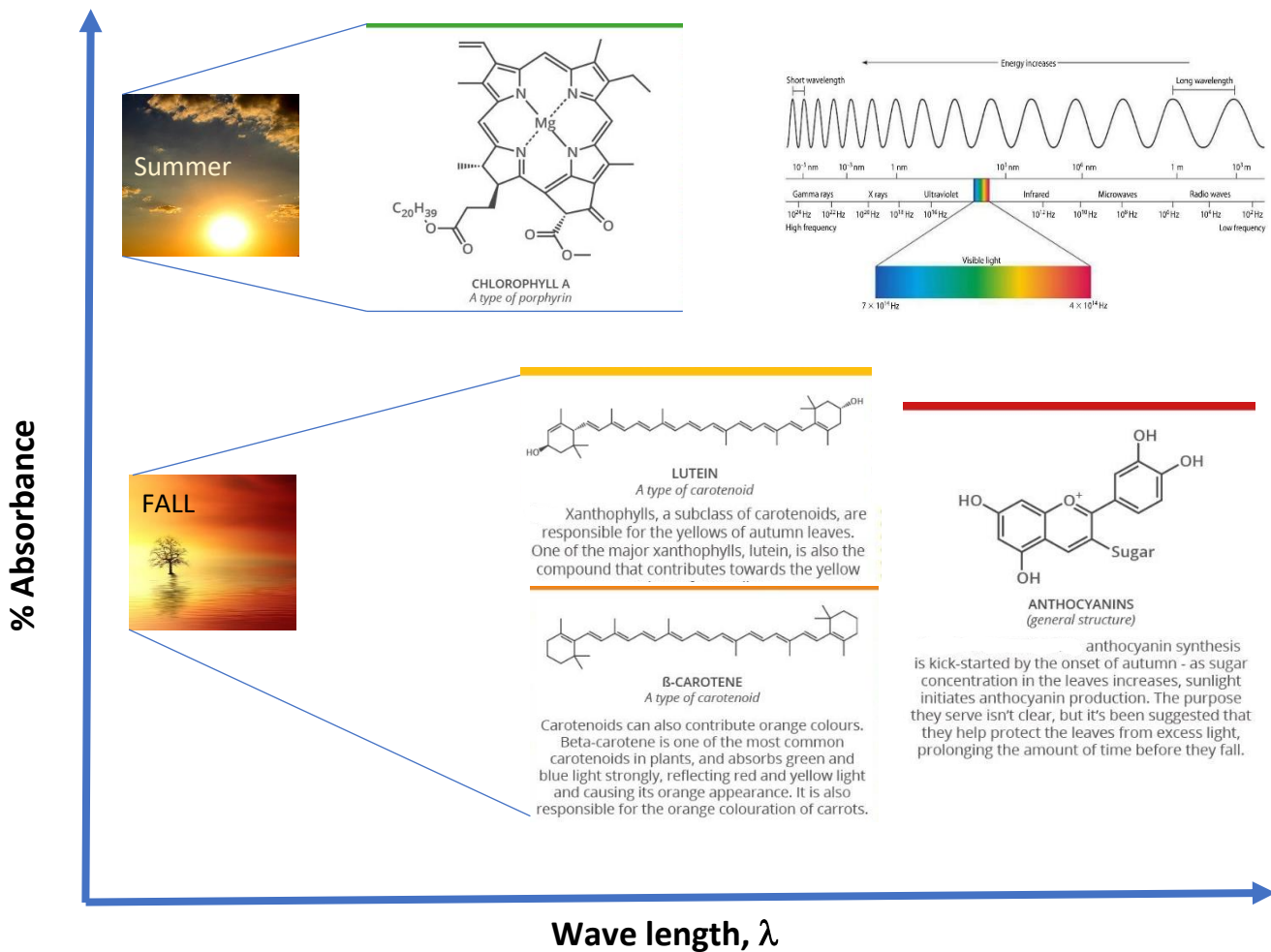


Chlorophyll molecules (the site for photosynthesis) are attached to the membrane of the chloroplasts.

Chlorophyll & carotenoids that protect the chlorophyll from oxidation are in the chloroplasts

© Merriam-Webster, Inc.

How is the Energy absorbed?

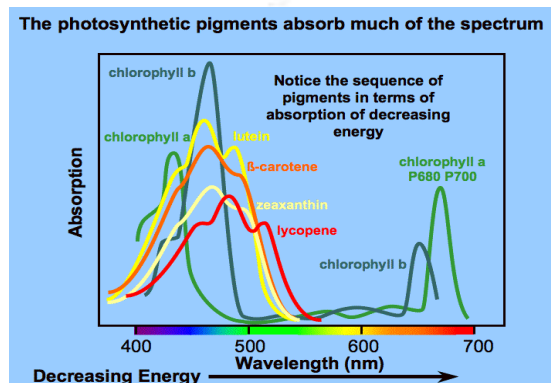
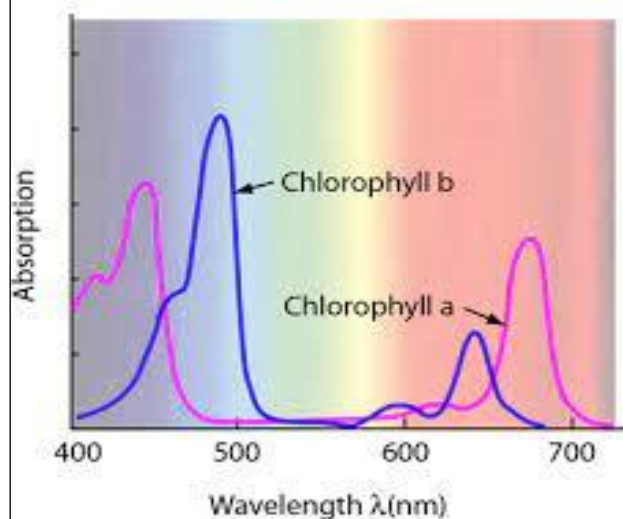
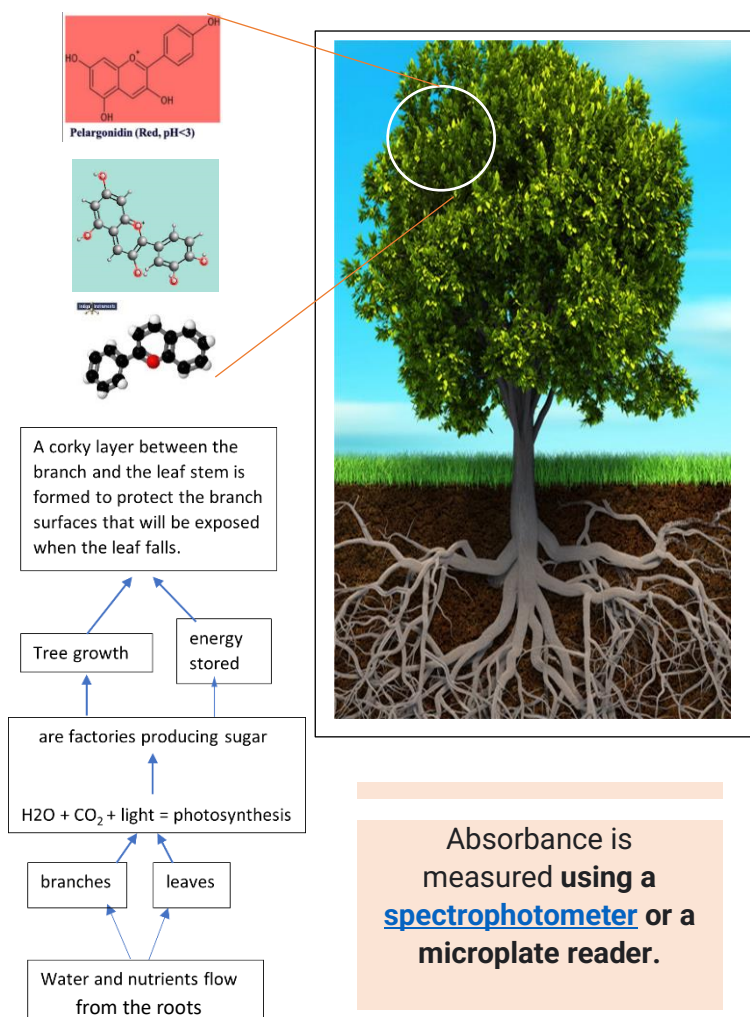
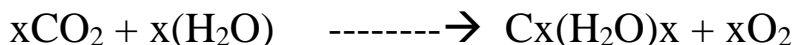




*Is there any process for food, color etc. and what technology do we use to measure energy absorbance by leaves?*

The molecules of chlorophyll are attached to the membranes of disc-like structures, called chloroplasts, inside the cells of leaves. This is the place where the process of photosynthesis occurs, in which light energy is converted to chemical energy – an endothermic process- the energy is stored in carbohydrates (sugars and starches).

The light absorbed by chlorophyll supplies the energy to transform carbon dioxide and water into oxygen and carbohydrates:



The chlorophyll absorbs the light, it requires good sunlight and warm temperatures, but in the Fall, temperatures decrease, and the sun is not as strong anymore, so the chlorophyll starts to deteriorate and reveals the carotenoids that deteriorate slower than chlorophyll. At this time, the anthocyanins begin to form changing colors from yellow to orange to red. Brown of some leaves is due to the rapid destruction of carotenoids allowing for the oxidation of tannins in the leaf. The beautiful brilliant red color of some foliage is due to low temperatures and sunny days, the low temperatures deteriorates the chlorophyll and the brightness of the sun increases the formation of the anthocyanins. [US Division of tourism.](#)

The mathematics of the Beer-Lambert Law equation for absorbance.

**Absorbance** (A) also known as optical density (OD), is the quantity of light absorbed by a solution. **Transmittance** (T) is the quantity of light that passes through a solution. Absorbance and % transmittance is often used in spectrophotometry and can be expressed by the following:

**Absorbance equation**

$$A = \text{Log}_{10} (I_0/I)$$

$$T = I/I_0 \quad \text{and}$$

$$\%T = 100 (T)$$

where  $I_0$  is the intensity of the incident light, and  $I$  is intensity of that light after it passed through the cuvette.

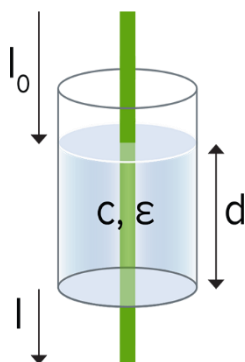
The equation that allows one to calculate absorbance from % transmittance is

$$A = 2 - \log_{10} (\%T)$$

### Determine concentration using the Beer-Lambert Law

The concentration of a sample can be calculated from its absorbance using the Beer-Lambert law, which is expressed as follows:

$$A = \epsilon * c * p$$



Where  $\epsilon$  is the molar absorptivity, or molar extinction coefficient, in  $\text{L mol}^{-1} \text{cm}^{-1}$   
 $c$  is the concentration of the solute in solution, in  $\text{mol/L}$   
 $p$  is the path length of the sample, in  $\text{cm}$ , for example 1  $\text{cm}$  for a cuvette  
 Notice that absorbance has no units!

Learn more about how absorbance is measured, and some key applications that utilize absorbance by viewing the following video explaining three interesting [problems](#) that will let you to visualize the use of the Beer-Lambert law.

Other links:

### Beer Lambert's Law, Absorbance & Transmittance -Spectrophotometry, B basic Introduction - Chemistry

In addition to the above explanations, the following PBS video touches a little on the color changes of leaves see a short interview with a science expert here:



To read a PBS Newshour commentary on fall colors click here. Time 11:32 – 26:45  
<https://www.pbs.org/video/scitech-now-episode-524-pbjhct/>

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## SUMMER PROJECT SEED PROGRAM AT MARYLAND LOCAL SECTION

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The following abstracts are from the 2022 summer research Project SEED pilot program at Towson university, TU under the direction and mentorship of Professor Mary Sajini Devadas, [mdevadas@towson.edu](mailto:mdevadas@towson.edu). All students are high school students grades 11 and 12.

### 1. Portable Surface Enhanced Raman Spectroscopy Detection of DMMP and DMCP via Gold Nanostars

Youssef TEWALA, Mary Sajini DEVADAS  
Department of Chemistry, Towson University  
Summer 2022

Organophosphates and their derivatives are dangerous compounds due to their popular use as nerve agents, compromising anywhere from 3-10% of the international pesticide poisoning deaths. As a result, detection at the micromolar scale is necessary, as even 100  $\mu\text{M}$  of many common organophosphates is enough to kill. Surface Enhanced Raman spectroscopy (SERS) detection of Dimethyl chlorophosphate (DMCP) and (DMMP), both organophosphates used in this study to mimic nerve agents due to their ability to stimulate the adsorption between G-series nerve agents, is very desirable since it allows for precise detection at very low concentrations. In this study, we used a portable Raman Spectrometer to simulate on field conditions and measure the LOD and LOQ and SDL.

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### 2. Study of pNTP Using Raman Spectroscopy

Mansoor JOHNSON, Mary Sajini DEVADAS  
Department of Chemistry, Towson University  
Summer 2022

4-nitrothiophenol (pNTP) is a unique chemical compound characterized by a thiol (SH) group and a nitro (NO<sub>2</sub>) group each bonded to their respective carbon atom in a single benzene ring. The presence of sulfur in the structure of pNTP allows for the formation of a strong covalent bond with gold, allowing for high chemical enhancement in surface-enhanced Raman spectroscopy (SERS). SERS is the phenomenon yielded by the utilization of plasmonic nanostructures in the detection of an analyte: the excitation of the nanostructure's surface plasmons via the spectrometer's incident light source introduces energy into the system, causing analyte bonds to vibrate at a higher frequency, thereby amplifying Raman scattering. In the study of pNTP, the analyte was bonded to gold nanostars to employ chemical enhancement mechanisms and to gauge the efficacy of gold nanostars as substrates.



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*SUMMER PROJECT SEED PROGRAM AT MARYLAND LOCAL SECTION – Towson University cont.*

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### **3. Synthesis and Characterization of Cobalt-doped Bi-icosahedron Gold Nanoclusters**

Benjamin RAUFMAN, Mary Sajini DEVADAS  
Department of Chemistry, Towson University  
Summer 2022

Atomically precise gold nanostructures have garnered considerable research interest over recent years because of their applications in imaging, catalysis, sensing, medicine, and more. One of the most investigated gold nanostructures is the thiol capped Au<sub>25</sub> nanocluster due to its exceptional stability, facile synthesis, and the ease with which its physiochemical properties can be manipulated. The stability of this nanocluster derives from its “magic-number”, or closed outer-electron shell. Au<sub>25</sub> also exhibits superatomic properties due to its ultrasmall size and construction from an even smaller superatom: the Au<sub>13</sub> nanocluster. The Au<sub>25</sub> cluster has been synthesized in two structural varieties: the icosahedron and the bi-icosahedron forms. The icosahedron structure consists of a single Au<sub>13</sub> kernel capped by six Au<sub>2</sub>(SR)<sub>3</sub> “staples”, while the bi-icosahedron structure consists of two Au<sub>13</sub> kernels joined at a single gold vertex. Recent studies have shown this cluster can be easily doped with other metallic atoms, each offering unique properties and insights, although most of these studies focus on the icosahedron structures. In my project I synthesized and characterized a novel bi-icosahedral structure doped with paramagnetic atoms to produce gold-doped cobalt for magnetoelectronic applications.

### **4. – Purification of Au<sub>25</sub> clusters**

Tessa SNYDER, Mary Sajini DEVADAS  
Department of Chemistry, Towson University  
Summer 2022

Magic number clusters are aggregates of nanoparticles that have been studied because of their stable core and surface area to volume ratio. These clusters have a full electronic shell, which is what gives these clusters such high stability. Because of their high surface area to volume ratio, magic number clusters have been identified as a method for drug delivery. In addition, magic number clusters are very versatile because of the ability to attach different ligands to the surface that could be used to enhance properties such as the fluorescence intensity of a cluster, which in turn could be used for biological imaging. Throughout this summer, we have been working to achieve a highly purified nanocluster, in which excess ligands and other sized nanoparticles are removed through repetitive washings. This was performed on both the icosahedral and bi-icosahedral structures of Au<sub>25</sub>. I characterized them using UV and fluorescence spectroscopy and reported their extinction and quantum yield values.

**SUMMER PROJECT SEED PROGRAM AT MARYLAND LOCAL SECTION- MORGAN STATE UNIVERSITY**

**5. Investigating the anticancer properties of *Maclura Pomifera***

Srikar BALA, Dr. PERVEEN, and Dr. PENG  
 Department of Chemistry, Morgan State University  
 Summer 2022

*Maclura Pomifera*, commonly known as the Osage Orange is a tree that is found throughout the United States and Southeastern Canada. Traditionally, the branches of the Osage Orange tree were used by the Osage Indians to make bows while the fruit was used as an insect and spider repellent. The fruit of the Osage Orange is, actually, inedible to humans but not toxic. Previous research has suggested that the Osage Orange has anticancer properties and could be utilized in cancer drug development. In this study, Osage Orange fruits were extracted, and the extract was submitted to Johns Hopkins University School of Medicine to test against a lung cancer cell line A549. The goal of this paper is to present the results in a comprehensible manner and to discuss pertinent conclusions that may be surmised about these extracted chemicals based on a bioassay, including further clinical applications of this study.



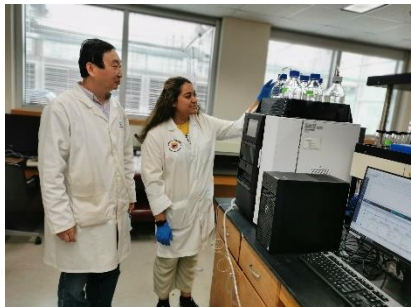
[See Student presentation - PPT](#)

[See Student paper - PDF](#)

I would like to thank Morgan State University for this enriching opportunity and Dr. Peng for his boundless patience with me and his unparalleled enthusiasm to ensure my time as an intern here is meaningful and unforgettable. I appreciate Dr. Louise Hellwig for her management of the program.

I would also like to thank Dr. Chen, and Ms. Charlene Shoetan, for their support and guidance within the lab.

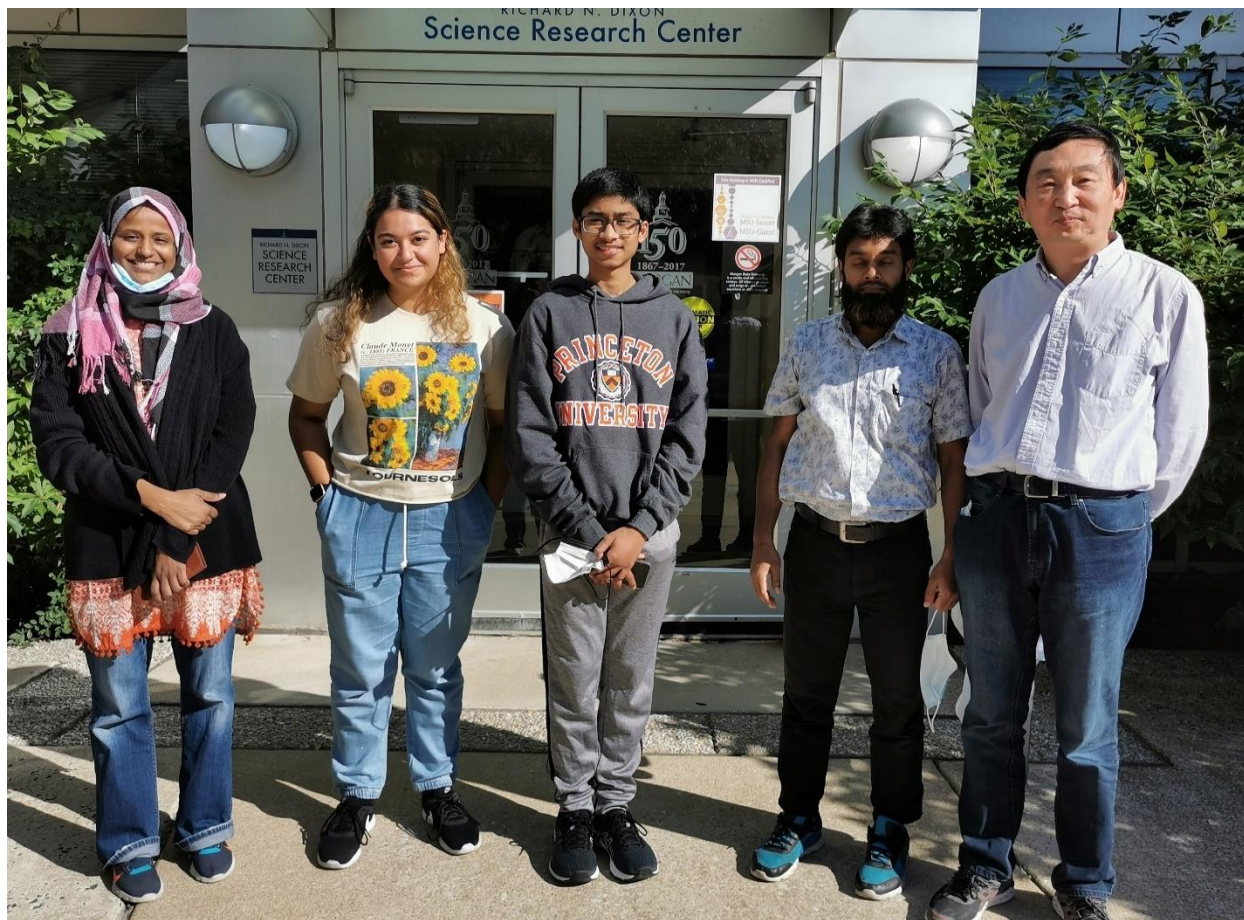
Thank you!



Photos courtesy of Dr. J. Peng

Congratulations to all high students that participated in the 2022 Summer Project SEED program by ACS and in the 2022 Summer Research Pilot program by ACS Maryland Local Section. We are proud of you!

# Achievement



Photos courtesy of Dr. J. Peng

Thanks to all Mentors and scientists for making this project a success and for sharing your valuable time and chemistry knowledge in shaping the minds of these future chemists. Your work will be forever embedded in the hearts of these young scientists. Spreading chemistry knowledge is one of the most important goals of ACS and you made it possible!

Future students and summer research participants, please check all information and CONTACT:

<https://acsmaryland.org/acs-maryland-research-project-seed/>

Committee Chair / Program Research Coordinator [Louise Hellwig](#)  
Program Recruiter / Coordinator [Beatrice Salazar](#)  
Program Recruiter / Coordinator [Kelly M. Elkins](#)



*SUMMER PROJECT SEED PROGRAM AT MARYLAND LOCAL SECTION- UMBC*

Victoria Lee; worked with Dr. Blaney at UMBC. She was supported entirely by The ACS Maryland Local Section  
Victoria Lee <[toriale@seas.upenn.edu](mailto:toriale@seas.upenn.edu)>, Lee Blaney <[blaney@umbc.edu](mailto:blaney@umbc.edu)> [PPT](#). [Research Paper](#).

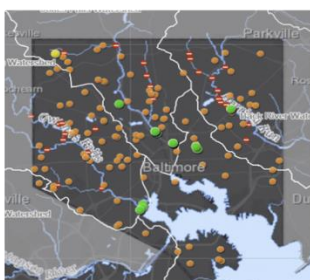
## 6. Summer Photodegradation Experiments

Victoria LEE, and Dr. Lee BLANEY

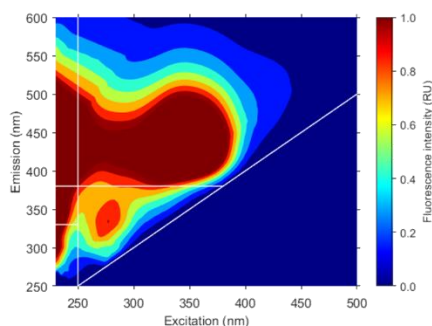
Department of Chemical, Biochemical and Environmental Engineering, UMBC

Summer 2022

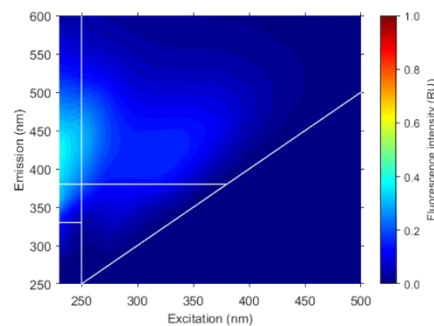
Urban sewer systems experience chronic overflows (Figure 1) and leaks that introduce raw wastewater into surface waters that are living environments for aquatic organisms and serve as potential reservoirs of drinking water. The fluorescence spectra of “natural” (Figure 2) and “wastewater-derived” (Figure 3) dissolved organic matter can serve as a potential indicator of wastewater in urban streams. These spectra are usually represented as excitation-emission matrices (EEMs) subdivided into the following regions based on their fluorescence patterns: Region 1, tyrosine-like; Region 2, tryptophan-like; Region 3, fulvic acid-like; Region 4, microbial-like; and Region 5, humic acid-like (Chen 2003). The ratio of Region 4 fluorescence to Region 5 fluorescence (R4/R5) has been proposed as a wastewater indicator. However, the stability of this ratio under environmental conditions is unknown. To improve understanding of this indicator, we conducted experiments to see how R4/R5 changed during irradiation with different wavelengths, solution pH, and wastewater contents. Our reaction kinetics analysis suggested that the R4/R5 parameter was robust in these variable environmental conditions.



**Figure 1.** Map of sanitary sewer overflows in Baltimore City.



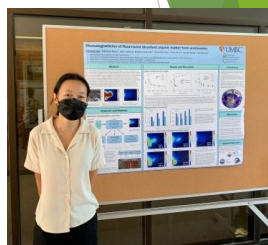
**Figure 2.** EEM of raw wastewater collected from the Eastern Avenue pumping station.



**Figure 3.** EEM developed with a sample from the Jones Falls (urban stream).

### Acknowledgements

- Blaney Lab members
- Maryland Section of American Chemical Society



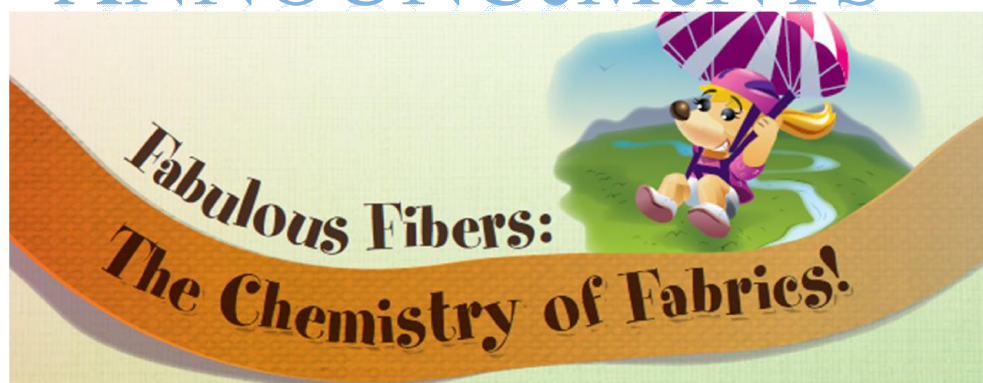
Congratulations!

Dr Hellwig,

I've finished my report and presentation culminating my summer research and attached it here. Thank you so much for the opportunity.

Thank you,  
Victoria

# ANNOUNCeMeNTS



Join a chemist from the Army Research Laboratory and the American Chemical Society and participate in hands-on experiments exploring the chemistry of fabrics.

Ages 7 & up (7-8 year olds must be accompanied by an adult); 60 min. Registration required.

## Howard County Library System

Savage Branch	Saturday 10 Sep	2pm	<a href="https://howardcounty.librarycalendar.com/event/chemistry-library-fabulous-fibers-chemistry-fabrics-ages-7-ages-7-8-adult-rg-1">https://howardcounty.librarycalendar.com/event/chemistry-library-fabulous-fibers-chemistry-fabrics-ages-7-ages-7-8-adult-rg-1</a>
Elkridge Branch	Saturday 24 Sep	2pm	<a href="https://howardcounty.librarycalendar.com/event/chemistry-library-fabulous-fibers-chemistry-fabrics-ages-7-ages-7-8-adult-rg-0">https://howardcounty.librarycalendar.com/event/chemistry-library-fabulous-fibers-chemistry-fabrics-ages-7-ages-7-8-adult-rg-0</a>
Central Branch	Saturday 01 Oct	2pm	<a href="https://howardcounty.librarycalendar.com/event/chemistry-library-fabulous-fibers-chemistry-fabrics-ages-7-ages-7-8-adult-rg">https://howardcounty.librarycalendar.com/event/chemistry-library-fabulous-fibers-chemistry-fabrics-ages-7-ages-7-8-adult-rg</a>
E. Columbia Branch	Saturday 08 Oct	2pm	<a href="https://howardcounty.librarycalendar.com/event/chemistry-library-ages-7-rg">https://howardcounty.librarycalendar.com/event/chemistry-library-ages-7-rg</a>
Miller Branch	Saturday 22 Oct	11am	<a href="https://howardcounty.librarycalendar.com/event/fabulous-fibers-chemistry-fabrics-ages-7-rg">https://howardcounty.librarycalendar.com/event/fabulous-fibers-chemistry-fabrics-ages-7-rg</a>
Glenwood Branch	Saturday 29 Oct	10:30am	<a href="https://howardcounty.librarycalendar.com/event/2022-maryland-stem-festival-chemistry-library-fabulous-fibers-chemistry-fabrics-ages-7-ages-7">https://howardcounty.librarycalendar.com/event/2022-maryland-stem-festival-chemistry-library-fabulous-fibers-chemistry-fabrics-ages-7-ages-7</a>

## Enoch Pratt Free Library

Light Street Branch	Saturday 03 Sep	2pm	<a href="https://calendar.prattlibrary.org/event/fabulous_fibers_lgh">https://calendar.prattlibrary.org/event/fabulous_fibers_lgh</a>
Central Branch	Saturday 17 Sep	2pm	<a href="https://calendar.prattlibrary.org/event/fabulous_fibers_cen">https://calendar.prattlibrary.org/event/fabulous_fibers_cen</a>
Govans Branch	Saturday 15 Oct	2pm	<a href="https://calendar.prattlibrary.org/event/fabulous_fibers_gvn">https://calendar.prattlibrary.org/event/fabulous_fibers_gvn</a>

## Anne Arundel Library System

Odenton Branch	Saturday 03 Dec	2pm	<a href="https://www.aacpl.net/event/fabulous-fibers-chemistry-fabrics">https://www.aacpl.net/event/fabulous-fibers-chemistry-fabrics</a>
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# ANNOUNCeMeNTS

Announce with us your new initiatives...

## NEW:

### WEBMINAR No.1

Part of the:

**PROJECT  
EARTH DAY**

ISSUE NO 1 | APRIL 22, 2022 | VOL 1



Visit the earth day events page for the Maryland Community at [acsmaryland.org](http://acsmaryland.org) website to learn more about the recent collaboration of UMBC Graduate and undergraduate students who will discuss: ***Circular nutrient economy: Recovering nutrients from waste streams for reuse as fertilizers*** a biochemistry-environmental topic of much interest.

Panelists:

**Dr. Hui Chen** - Team-Lead Postdoctoral Research Associate, UMBC, PhD at Stonybrook University

**Dr. Utsav Shashvatt** – Postdoctoral Research Associate, UC Berkeley, PhD at UMBC, Environmental Eng. Pgm.

**Mr. Michael Fleming** – PhD Candidate, UMBC, Environmental Eng. Pgm.

**Ms. Ouriel Ndalamba** – BS student, UMBC, Chemical Engineering

**Ms. Kaylyn Stewart** – BS student, UMBC, Chemistry

Organizers: Professor Lee Blaney, UMBC and Beatrice Salazar, ACS Maryland L.S.

## NEW:

### The ACS Maryland Local Section Executive Committee Meeting No.4

Will take place virtually via ZOOM on Monday, October 10, 2022, at 7:00 P.M.

Join us! To obtain the link contact any of our administrative officers page 23.

## NEW:

### Science Café Mini-Grant

Category: Community Recognition Events & activities

Amount \$ 500.00

Deadline October 15, 2022

Contact [lsac@acs.org](mailto:lsac@acs.org)

[Apply](#)

**Purpose:** to provide a relaxed, open venue for nonscientists and scientists to discuss current topics.

To promote scientific literacy within your local community and invigorate your local section about questions of the day within scientific meaning.

At the end of the science café you must submit a summary report.

## NEW:

### Hands on experiments for children at your local library

See page 19 to find the location.

## NEW:

### Tentative program

the ACS Maryland Local Section has in mind the creation of a committee for the YOUNG CHEMIST AWARD if any ACS member from the Maryland area is interested, please contact the Chair Sarah Zimmerman and attend one of our executive committee meetings.

The next meeting is Monday October 10, 2022, at 7:00 P.M. ( ZOOM)

**Advertise  
with  
us!**

**Send your  
announcements,  
events, programs,  
or comments**

**Contact:**

**Editor**

**and**

**ACS Maryland Local  
Section**



# Councilors' Corner

Last September 22, 2022 a meeting for councilors in the form of a science café discussed the ACS strategic plan



Topic

## “ACS Virtual Strategy Café for All Councilors”

### Description

This program is being hosted by the ACS Council Policy Committee (CPC), in collaboration with the Board Committee on Strategic Planning, for all Councilors on Thursday, September 22, 2022 from 4:00-5:00 p.m. EDT virtually. The Strategy Café engages members in a discussion on key trends relating to ACS strategy. Come join us, connect with other ACS leaders, and share your thoughts on the “ACS Strategic Goals” that impact the direction of the Society. Ideas from the café’ can also be applied to your local sections, divisions, student chapters, international chapters, regional meetings, and committees. In preparation for the discussion, please review the ACS Strategic Plan at

**ACS**  
Chemistry for Life®

## ACS Strategic Plan

strategy.acs.org

**Vision**  
Improving all people's lives through the transforming power of chemistry

**Mission**  
Advancing the broader chemistry enterprise and its practitioners for the benefit of Earth and all its people

**Core Values**

- Passion for Chemistry and the Global Chemistry Enterprise
- Focus on Members
- Professionalism, Safety, and Ethics
- Diversity, Equity, Inclusion, and Respect (DEIR)

**Goals**

**Goal 1: Provide Information Solutions**  
Deliver indispensable chemistry-related information solutions to address global challenges and other issues facing the world's scientific community.

**Goal 2: Empower Members and Member Communities**  
Provide access to opportunities, resources, skills training, and networks to empower our global members and diverse member communities to thrive.

**Goal 3: Support Excellence in Education**  
Foster the development of innovative, relevant, and effective chemistry and chemistry related education.

**Goal 4: Communicate Chemistry's Value**  
Communicate — to the public and to policymakers — the vital role of chemical professionals and chemistry in addressing the world's challenges.

**Goal 5: Embrace and Advance Inclusion in Chemistry**  
Promote diversity, equity, inclusion, and respect; identify and dismantle barriers to success; and create a welcoming and supportive environment so that all ACS members, employees, and volunteers can thrive.

American Chemical Society  
As approved by the ACS Board of Directors, 12/13/2021

If you are interested in creating a science café please contact any of the councilors at ACS Maryland Local Section and we will work with you.  
Councilors: [Kelly Elkins](#) - [Beatrice Salazar](#) - [Stephanie Watson, Jan Kolakowski](#)

### ACS CHANGE DRIVERS

A Planning Tool for Staff and Volunteers  
December 2020

Copyright 2021 American Chemical Society. All rights reserved. Contact strategyplan@acs.org for more information.

#### OVERVIEW

This slide deck reviews seven Change Drivers that are most relevant to the chemical enterprise and includes a discussion guide that will help you use them to focus your work with the Society.

What is a Change Driver?  
Change Drivers are indicators of fundamental driving forces showing where important change is, or could be, happening that will impact strategic planning over the next 3 to 5 years. They are developed from research and environmental scanning.

The Change Drivers framework is a result of in-depth research into current and projected changes that are important to the chemical enterprise and the Society into the future.

Guided by Barbara Stearns, 2021 Chair, ACS Committee on Strategic Planning

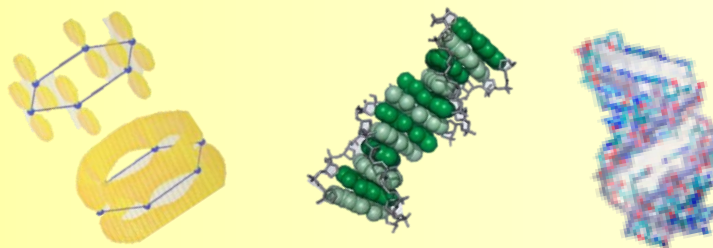
"The ACS Change Drivers and discussion guide is a useful tool for leadership throughout the Society. As we have all experienced in the past year, the environment in which our members and the Society operate is rapidly evolving. These trends show us where those changes are likely relevant to the chemical enterprise. With this encouragement and thanks to our leaders and staff to make full use of these insights in their work with ACS."

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- MARKET DISRUPTION AND ECONOMIC DOWNTURN**
  - The world is facing an economic downturn as a result of the COVID-19 pandemic.
  - Financial and operational challenges have been accelerating, leading up to 2020, creating uncertainty in investing.
  - Market disruptions and economic downturns pose a threat to the industry.
- ACCELERATING AUTOMATION OF CHEMISTRY**
  - Artificial intelligence (AI) and machine learning are increasingly being used in the design and optimization of manufacturing.
  - AI-driven research is increasingly being used to accelerate discovery.
  - Chemical engineering is a leader in the development of automation.
  - Automation is accelerating safety and security in production.
- STRAINED PIPELINE AND CHANGING WORKPLACE**
  - Economic, political, and environmental issues, along with the pandemic, are driving a shift in the workforce.
  - Millennials and Gen Z will continue to drive the workforce of the future.
  - Skills gaps in the workforce are a challenge for the industry.
  - Workforce and training issues are critical to long-term success.
- CONTINUED GLOBALIZATION OF CHEMISTRY**
  - Asia is rapidly growing and becoming the focus of the global economy.
  - Foreign investment into Asia continues to grow.
  - Consumers around the world are driving market demand.
  - Recent events have led to a re-evaluation of global supply chains.
- CHEMISTRY AND SOCIAL RESPONSIBILITY**
  - Chemistry has a role to play in addressing environmental and social issues.
  - Consumers have higher expectations for the safety, ethical, and transparent practices of the chemical industry.
  - The industry continues to invest in research and development to address these issues.
- EMERGING OPEN SCIENCE**
  - Many influential funders and policy makers support open access and require open access to research and data.
  - Open access publishing is growing, leading to the emergence of preprint publishing.
  - The COVID-19 pandemic has accelerated research in open access.
- SCIENTIFIC GOALS AND PUBLICATION IN THE U.S.**
  - Americans are critical to the success of the U.S. chemical industry and have a leading role in research and development.
  - Common challenges in research and development are being addressed.
  - U.S. leadership in research and development is being challenged by other countries.

BECOME FAMILIAR WITH GLOBAL CHEMISTRY



## Let's talk chemistry

Three great short videos from YouTube explain clearly the concept of pi-interaction. There is a beautiful relationship with the DNA molecule. We encourage all teachers of chemistry, organic chemistry or biochemistry to take advantage of these easy explanations. Students from high school or college will benefit from viewing these short videos.

P – P Interactions in benzene rings: <https://youtu.be/Znf2ixdhp94?t=6>



DNA Base stacking and Stability: <https://youtu.be/b7GRADBqD0E?t=5>

Base stackings stabilizes DNA: <https://youtu.be/Q2aKY2e92yM>



New Chesapeake Chemistry page created by Beatrice Salazar February 14, 2022 - "Learn from the Best, ACS"



## BOOKS...



Have you read a book lately or want to read a book soon?  
Share your thoughts and ideas with your colleagues.  
We just have the right spot for you!

## Laugh a Little...



### Quarantine Jokes

- **Do you have any jokes about Sodium?** Na!
- **Why is the world so diverse?** It is made up of alkynes of people!
- **How can you tell when an organometallic is drunk?** It's epoxidated\*
- **The optimist** sees the glass half-full  
**The pessimist** sees the glass half empty  
**The chemist** sees the glass completely full, half in the liquid state and half in the gaseous state
- **What do chemists call the benzene ring with iron atoms replacing the carbon atoms?** A ferrous wheel
- **Erwin Schrodinger brings his sick cat to the vet. After waiting several hours in the waiting room, the doctor finally comes out. So, Erwin says: Well, doc? And the doctor responds, "I have good news and I have bad news".**
- **Heisenberg is out for a drive when he's stopped by a traffic cop. The cop says: "Do you know how fast you were going?" Heisenberg replies: "no, but I know where I am".**

\*Erythropoietin

## Maryland Chemist of the Year Award

ACS Maryland Local Section is accepting nominations for the  
2022 Maryland Chemist of the Year Award.

Contact [acsmaryland.org](https://acsmaryland.org) with a name, CV, and any relevant information about the scientist you want to nominate including his/her research interest; among the requirements, he/she is resident working in Maryland and is at least 5yr. ACS member.

For more information on the award use [acsmaryland.org](https://acsmaryland.org) under "[AWARDS](#)"



## 2022 ADMINISTRATION OFFICERS

### 2022 SECTION OFFICERS

Chair 2022.....	Sarah Zimmerman, Web Master, <a href="mailto:scatzim@gmail.com">scatzim@gmail.com</a>
Vice-Chair 2022.....	Kelly Elkins <a href="mailto:Kmelkins@towson.edu">Kmelkins@towson.edu</a>
Chair-Elect (Chair 2024)....	Jiangnan Peng, <a href="mailto:jiangnanpeng@morgan.edu">jiangnanpeng@morgan.edu</a>
Secretary 2022.....	Louise Hellwig, Morgan State University, <a href="mailto:louise.hellwig@morgan.edu">louise.hellwig@morgan.edu</a>
Treasurer 2022.....	Lee J. Lefkowitz, <a href="mailto:lee_lefkowitz@hotmail.com">lee_lefkowitz@hotmail.com</a>
Past Chair (2021).....	Eric C. Cotton, Community College, of Baltimore County, <a href="mailto:cotton2@ccbcmd.edu">cotton2@ccbcmd.edu</a>

### 2022 SECTION COMMITTEE ON NOMINATIONS and ELECTIONS

Chair of the Committee on Nominations.....	James A. Saunders <a href="mailto:jsaunders@towson.edu">jsaunders@towson.edu</a>
Additional 4 members: .....	Dana Ferraris, Chair-2019, <a href="mailto:dferraris@mcdaniel.edu">dferraris@mcdaniel.edu</a>
.....	Pumtiwitt McCarthy, Chair-2020, <a href="mailto:pumtiwitt.mccarthy@morgan.edu">pumtiwitt.mccarthy@morgan.edu</a>
.....	Beatrice Salazar, Chair-2018, <a href="mailto:beatricesalazar1@gmail.com">beatricesalazar1@gmail.com</a>
.....	Sara Narayan, Stevenson University, Chair-2015, <a href="mailto:SNARAYAN@stevenson.edu">SNARAYAN@stevenson.edu</a>

### COUNCILORS/COMMITTEES

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- 2021-2023 Beatrice Salazar [beatricesalazar1@gmail.com](mailto:beatricesalazar1@gmail.com)
- 2021-2023 Jan Kolakowski [jek6042@gmail.com](mailto:jek6042@gmail.com)
- 2021-2023 Stephanie Watson [stephanie.watson@nist.gov](mailto:stephanie.watson@nist.gov)

### ALTERNATE COUNCILORS/COMMITTEES

- 2021-2023 Alexander Samokhvalov [alexandr.samokhvalov@morgan.edu](mailto:alexandr.samokhvalov@morgan.edu)
- 2021-2023 Rob Clapper [rob.clapper@scioninstruments.com](mailto:rob.clapper@scioninstruments.com)
- 2021-2023 Michele Foss [foss.michele@gmail.com](mailto:foss.michele@gmail.com)
- 2020-2022 Paul Smith [pjsmith@umbc.edu](mailto:pjsmith@umbc.edu)

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- Sara Narayan, Stevenson University, [snarayan5@yahoo.com](mailto:snarayan5@yahoo.com)

**Maryland Section on the Website:** [www.acsmaryland.org](http://www.acsmaryland.org)

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**Chesapeake Chemist Editor-in-Chief...** Beatrice Salazar, Chair-2018, [beatricesalazar1@gmail.com](mailto:beatricesalazar1@gmail.com)

**Social Media Liaison.....** Pumtiwitt McCarthy, Chair-2020, [pumtiwitt.mccarthy@morgan.edu](mailto:pumtiwitt.mccarthy@morgan.edu)

**CONTACT US:** [acsmarylandsection10@gmail.com](mailto:acsmarylandsection10@gmail.com)

### PROGRAM CHAIRS

#### AWARDS

**Braude Award**, L. Hellwig  
**Remsen Award**, D. Ferraris  
**Maryland Chemist of the Year Award**,  
 Open Position  
**Senior Chemist Award**, M. Eiss / L. Gonzalez  
**Student Award**, S. Narayan

#### PROGRAMS

**Women Chemists Committee**, S. Narayan/K. Elkins  
**Student Travel**, L. Hellwig  
**High School Outreach:** National Chemistry Olympiad & Chemists Celebrate Earth Day, B. Salazar  
**Middle and Elementary School Outreach** (National Chemistry Week, Earth Day Week), R. A. Pesce-Rodríguez  
**Publicity**, P. McCarthy / B. Salazar / R. Clapper  
**Entertainment/Tours**, M. Foss / L. Hellwig

# EVENTS CONTACT

<p>The U.S. National Chemistry Olympiad USNCO MARYLAND URL: <a href="http://www.beatricesalazarusncocoordinator.webs.com">http://www.beatricesalazarusncocoordinator.webs.com</a></p>	<p>Jan - April</p>
<p><b>Student Travel Awards</b> <a href="https://acsmaryland.org/travel-awards/">https://acsmaryland.org/travel-awards/</a> Email: Louise Hellwig &lt;<a href="mailto:Louise.Hellwig@morgan.edu">Louise.Hellwig@morgan.edu</a>&gt;</p>	<p>Jan – March</p>
<p><b>Student Award</b> <a href="https://acsmaryland.org/student-awards/">https://acsmaryland.org/student-awards/</a> Email: Sara Narayan, <a href="mailto:snarayan5@yahoo.com">snarayan5@yahoo.com</a>, <a href="mailto:SNARAYAN@stevenson.edu">SNARAYAN@stevenson.edu</a> <b>Chemists Celebrate Earth Day</b> - <a href="mailto:beatricesalazar1@gmail.com">beatricesalazar1@gmail.com</a></p>	<p>April</p>
<p><b>Senior Awards</b> Email: Merle Eiss, <a href="mailto:meiss32@aol.com">meiss32@aol.com</a> Email: Linda Gonzalez &lt;<a href="mailto:linda_gonzalez@mccormick.com">linda_gonzalez@mccormick.com</a>&gt;</p>	<p>May</p>
<p><b>National Chemistry Week / Earth Week Events</b> <a href="#">Rose Pesce-Rodriguez</a> <b>Chemists Celebrate Earth Day – Beatrice Salazar</b> <a href="http://acsmarylandevents2016.webs.com">http://acsmarylandevents2016.webs.com</a> <b>Beer &amp; Social Tours:</b> Louise Hellwig &lt;<a href="mailto:Louise.Hellwig@morgan.edu">Louise.Hellwig@morgan.edu</a>&gt; and Michele Foss &lt;<a href="mailto:foss.michele@gmail.com">foss.michele@gmail.com</a>&gt;</p>	<p>May - Sept.</p>
<p><b>Braude Award</b> <a href="https://acsmaryland.org/braude-award/">https://acsmaryland.org/braude-award/</a> Email: Louise Hellwig &lt;<a href="mailto:Louise.Hellwig@morgan.edu">Louise.Hellwig@morgan.edu</a>&gt;</p>	<p>Oct.</p>
<p><b>The Remsen Award</b> <a href="https://acsmaryland.org/remsen-award/">https://acsmaryland.org/remsen-award/</a> Email: Dana Ferraris (<a href="mailto:dferraris@mcdaniel.edu">dferraris@mcdaniel.edu</a>) &lt;<a href="mailto:dferraris@mcdaniel.edu">dferraris@mcdaniel.edu</a>&gt;</p>	<p>Nov.</p>
<p><b>The Maryland Chemist of the Year Award</b> <a href="https://acsmaryland.org/maryland-chemist-of-the-year/">https://acsmaryland.org/maryland-chemist-of-the-year/</a> Open position</p>	<p>Dec.</p>

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