

## What's happening in the CSN?

October 5, 2018

Volume 4, Issue 1



### Celebrations

#### Welcome to New CSN Members

Mazel tov (congratulations) to **Zeev Rosenzweig** and family for bringing the first CSN grand-collaborator into the world! **Maya Rosenzweig** was born in July 2018.

The CSN welcomes postdocs Dr. **Clyde Daly Jr** (**Hernandez** group), Dr. **Udaya Dahal** (**Cui** group), and Dr. **Alyssa Deline** (**Fairbrother** group), and grad students **Blake Hudson** (**Mason** group), **Eric Ostovich** (**Klaper** group), and **Connor Riahin & Jennifer Klutts** (**Rosenzweig** group).



Top: Clyde, Udaya, and Alyssa. Bottom: Eric, Connor, and Jennifer



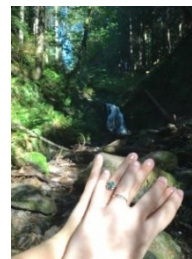
Welcome to Prof. **Juan Pablo Giraldo** from UC-Riverside, who is joining the CSN as a seed grant recipient! Juan Pablo's official start date will be November 1, but he is already discussing preliminary studies within the CSN. Check out Juan Pablo's home page [here](#).

The CSN welcomes **Prof. Greg Lowry** from Carnegie Mellon as the newest member of our External Advisory Board. Prof. Lowry is a leader in research related to the environmental implications of nanotechnology. Check out his homepage [here](#) and his Google Scholar page [here](#).



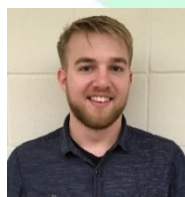
## Good news!

**Emily Tollefson (Carlson group)** reports: My partner, Amanda, and I got engaged on September 24 in one of my favorite places, Orcas Island, WA. We both had the same idea, so it turned into a surprise double engagement!



Congratulations to CSN Alum **Ian Gunsolus** (Ph.D. 2016, **Haynes group**), who accepted a position as associate director of clinical chemistry and toxicology at the Medical College of Wisconsin!

## Milestones and awards



**Andrew Northwick (Carlson group)** has been selected to receive an NIH Biotechnology Training Grant. Congratulations Andrew!

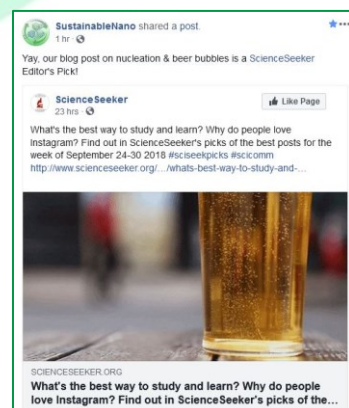
Congrats to **Izzy Foreman-Ortiz (Pedersen group)** for winning a National Organization for the professional advancement of Black Chemists and Chemical Engineers (NOBCChE) poster award, which provides \$500 and support to attend [Pittcon](#) in 2019. **Diamond Jones (Mason group)** also received an Advancing Science Conference Grant (ASCG) to cover lodging and registration costs for the NOBCChE conference (see more on their presentations in the Talks & Presentations section below).



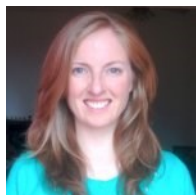
**Bo Zhi (Haynes group)** won 1st place at the 2018 IEM Annual Conference and Retreat Poster Competition at the McNamara Alumni Center, University of Minnesota - Twin Cities, for his poster entitled "Malic Acid Carbon Dots—From Super-Resolution Live-Cell Imaging to Highly Efficient Separation." The award was for graduate students in the "Emerging and Frontier" poster session. Congrats Bo!



Congrats to **Stephanie Mitchell (Carlson group)**, whose recent blog post entitled "[From Beer Bubbles to Nanoparticles: What is Nucleation?](#)" was featured as a [Science Seeker Editor's Pick](#).

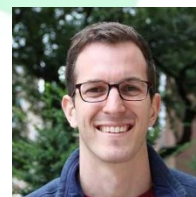


Undergraduate **Meghan Cahill** (Haynes lab) recently received a lab coat in a ceremony recognizing officially declared Chemistry majors.

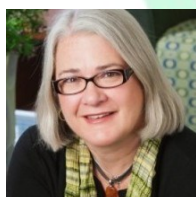


**Becky Curtis** (Klaper group) passed her written and oral preliminary examinations and presented her dissertation proposal (which was also accepted).

**Peter Clement** (Haynes group) was honored by the University of Minnesota Chemistry Department with an award to recognize his 4.0 GPA for graduate courses - not an easy feat!

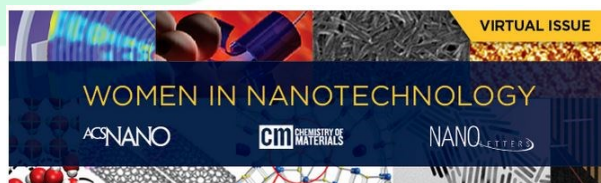


CSN evaluator **Lizanne Destefano** was named to the [STEM Education Advisory Panel](#). From the press release: "This new panel has an opportunity to bring fresh eyes and novel approaches to CoSTEM's next five-year strategic plan, which will help enhance the nation's entire STEM ecosystem," said NSF Director

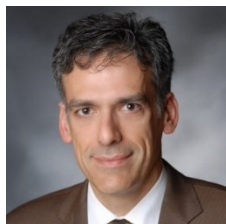


France Córdoba, who co-chairs CoSTEM. "NSF continues to generate benefits for society through STEM research. To fulfill that mission, we and our federal partners need to make strategic investments to create new generations of discoverers."

**Cathy Murphy** was recognized in the "Women in Nanotech" virtual issue of *ACS Nano*. See the full virtual issue [here](#).





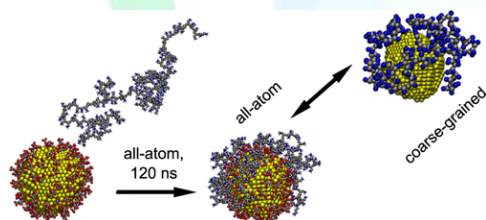
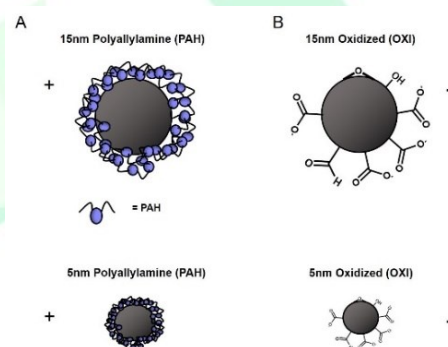


**Rigoberto Hernandez** was selected for the SERMACS (SouthEastern Regional Meeting of the ACS) [Stanley Israel Award](#) for Advancing Diversity in the Chemical Sciences. He will receive the award on November 1st, in Augusta, GA at the [SERMACS conference](#). Congratulations, Rigoberto!

## CSN Productivity

Find the most recent list of all center publications on the [CSN Google Scholar](#) page.

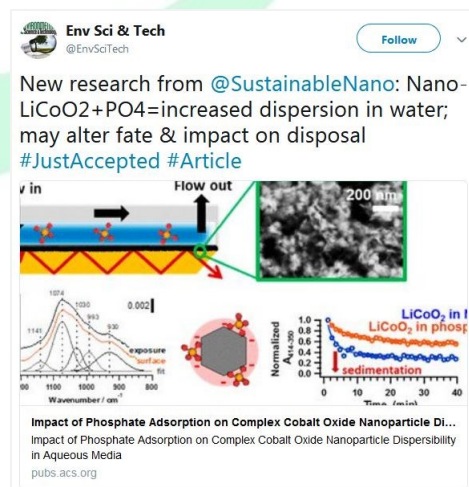
Gustavo A. Domínguez, Marco D. Torelli, Joseph T. Buchman, Christy L. Haynes, Robert J. Hamers and Rebecca D. Klaper (2018). Size dependent oxidative stress response of the gut of *Daphnia magna* to functionalized nanodiamond particles. *Environmental Research*. 167, 267-275. Read the published paper [here](#).



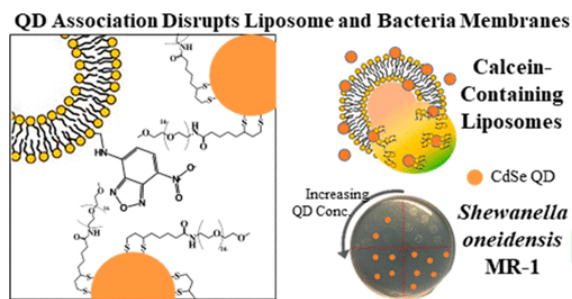
Gene Chong and Rigoberto Hernandez (2018). Adsorption Dynamics and Structure of Polycations on Citrate-Coated Gold Nanoparticles. *The Journal of Physical Chemistry C*. 122 (34), 19962-19969. Read the published paper [here](#).

Elizabeth D. Laudadio, Joseph Bennett, Curtis Green, Sara E. Mason and Robert J. Hamers (2018). Impact of Phosphate Adsorption on Complex Cobalt Oxide Nanoparticle Dispersibility in Aqueous Media. *Environmental Science & Technology*. 52 (17), 10186-10195. Read the published paper [here](#).

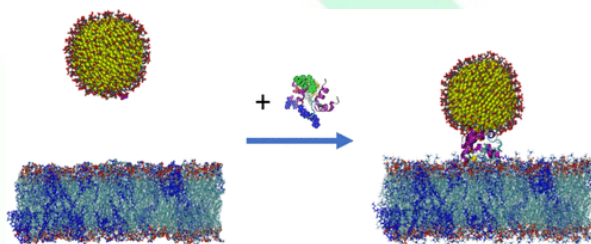
Liz's publication was also featured in a [tweet by Env. Sci. Tech.](#)



Denise N. Williams, Sunipa Pramanik, Richard P. Brown, Bo Zhi, Eileen McIntire, Natalie V. Hudson-Smith, Christy L. Haynes and Zeev Rosenzweig (2018). Adverse Interactions of Luminescent Semiconductor Quantum Dots with Liposomes and *Shewanella oneidensis*. *ACS Applied Nano Materials*. 1 (9), 4788-4800. Read the published paper [here](#).



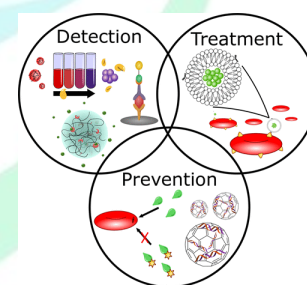
Eric S. Melby, Caley Allen, Isabel Foreman-Ortiz, Emily Caudill, Thomas R. Kuech, Ariane M. Vartanian, Xi Zhang, Catherine J. Murphy, Rigoberto Hernandez and Joel A. Pedersen (2018). Peripheral Membrane Proteins Facilitate Nanoparticle Binding at Lipid Bilayer Interfaces. *Langmuir*. 34 (36), 10793-10805. Read the published paper [here](#).



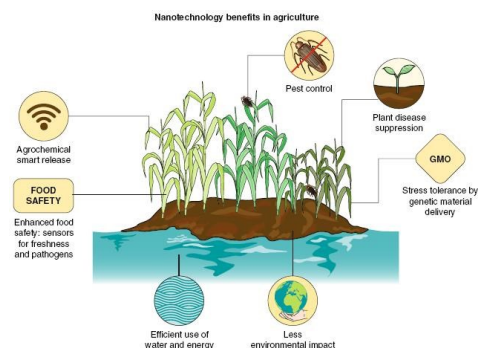
Arielle C. Mensch, Joseph T. Buchman, Christy L. Haynes, Joel A. Pedersen and Robert J. Hamers (2018). Quaternary Amine-Terminated Quantum Dots Induce Structural Changes to Supported Lipid Bilayers. *Langmuir*. Read the Just Accepted version of the manuscript [here](#).

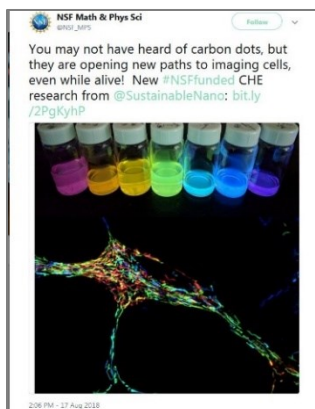


Stephanie L. Mitchell and Erin E. Carlson (2018). Tiny Things with Enormous Impact: Nanotechnology in the Fight Against Infectious Disease. *ACS Infectious Diseases*. Read the ASAP version of the perspective [here](#).



Jason C. White and Jorge Gardea-Torresdey (2018). Achieving food security through the very small. *Nature Nanotechnology*. 13 (8), 627-629. Read the published "News and Views" article [here](#).



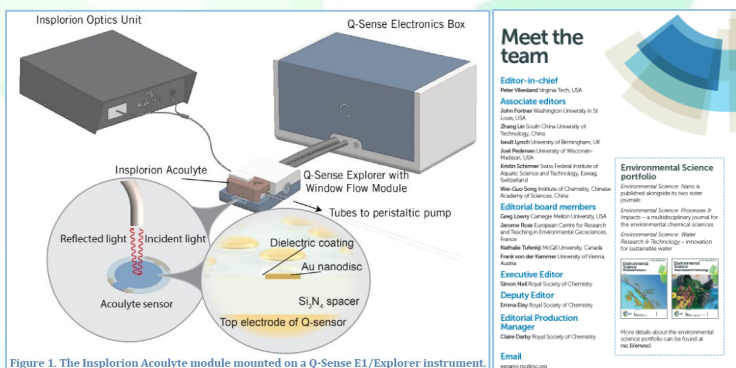


A recent CSN publication (co-first authors **Bo Zhi** and **Yi Cui**) was featured on the NSF Newsfeed. The NSF wants to highlight at least 2-3 CCI publications per month, and they used this highlight as an example of what they would like to see (they especially liked the images!).

Two recent CSN publications were featured in promotional literature.

The publication entitled “Peripheral membrane proteins facilitate nanoparticle binding at lipid bilayer interfaces” (**Eric Melby, Caley Allen et al, *Langmuir*, 2018, 34, 10793-10805**) will be featured in an Insplorion Application Note (Application Note 30).

The publication entitled “Using an environmentally-relevant panel of gram-negative bacteria to assess the toxicity of polyallylamine hydrochloride-wrapped gold nanoparticles” (**Joe Buchman et al, *Environmental Science: Nano*, 2018, 5, 279-288**) is being used in an *Environmental Science: Nano* promotional brochure.



## CSN In the News

**Sara Mason** and her lab were recently featured in an excellent profile in *Little Village Magazine* called [“A diverse team of UI researchers tackle energy, the environment and nanotechnology.”](#)



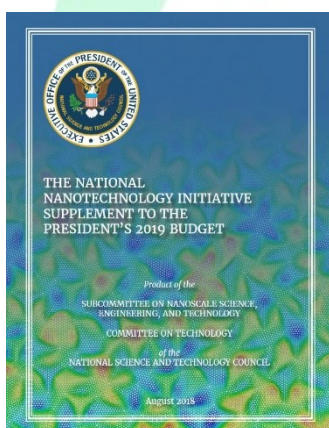




Photo: Christian Abraham / Hearst Connecticut Media

Lisa Gfeller, resident of Fairfield, CT and mother to CSNer **Liz Laudadio** (Hamers group) was reading the local newspaper when she saw the word nanoparticle! She snapped a photo to Liz, who was excited to share that she knew the people from the article and the work they were talking about! The article was entitled [“Nanoparticles, antibiotics new tools to fight plant problems”](#) and featured the CSN’s **Wade Elmer** from the Connecticut Agricultural Experiment Station (CAES)!

CSN-related work at CAES was also highlighted in the President’s Supplemental Budget Request to Congress for the National Nanotechnology Initiative in August ([see page 24 of the document here](#)). **Jason White** says, “it’s an honor to be featured in a document of this level.”

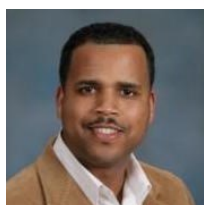


**Revolutionizing the fight against plant pathogens: Nanoscale micronutrients boost plants’ disease fighting ability**

Nearly 42% of global production of six major food crops is lost to pathogens. NIFA is supporting experiments to stimulate a plant’s own immune system to fight fungal infections by supplying nanoscale particles of essential micronutrients such as copper, zinc, and manganese. By making nutrients more available, crops such as eggplant and watermelon treated with the nanoparticle nutrient have shown several positive effects over those plants treated with bulk versions of the same nutrient, potentially increasing production without adding pesticides. In one field trial, the treatment cost an estimated at \$44 per acre, and raised the per-acre value of the yield from \$17,000 to \$28,000.<sup>57</sup> This work is continuing with additional support from the NSF-funded Center for Sustainable Nanotechnology (CSN).



Dr. Nubia Zuverza-Mena with eggplant harvested from field trials conducted with CSN. Image credit: Jason White, Connecticut Agricultural Research Station



**Mike Curry** was recently highlighted in a Tuskegee University press release about his Research Experience for Teachers (RET) program: [“Summer research program for teachers focuses on research training in sustainable electronics.”](#)

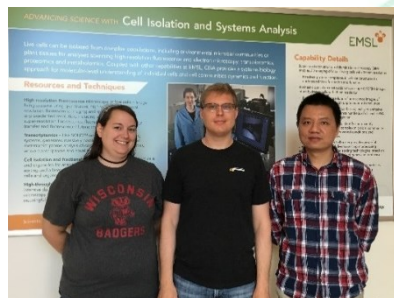
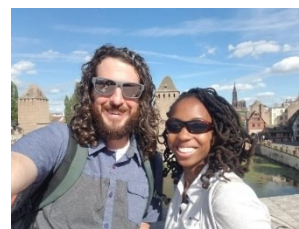
### Did You Know?

Miriam just read about a new online simulator for job exploration that may be of interest to SPRINGers: the [InterSECT Job Simulations](#) Library. See [this Science article](#) for more information, and let us know what you think if you give it a try!



## Lab Exchanges

**Ricky Brown** and **Denise Williams** (Rosenzweig lab) recently visited CSN International Collaborator Karen Lienkamp's lab in Freiburg, Germany. Ricky reports, "Denise is learning how to do MIC and hemolysis experiments to help understand how PONS-coated quantum dots interact with cells. I am working on synthesizing novel PONS polymers with integrated PEG and charged, quaternary ammonium functional groups that will allow us to systematically evaluate the relationship between surface charge, protein corona formation and membrane interaction."



**Nicholas Niemuth** (Klaper group) recently travelled to PNNL to work with **Arielle Mensch** and **Yi Cui** (Orr group) to explore the toxicity of hydrophobic quantum dots provided by **Denise Williams** (Rosenzweig group) using atomic force and fluorescence microscopies.

## CSN Talks and Presentations

**Izzy Foremean-Ortiz** (Pedersen group), **Diamond Jones** (Mason group), **Sara Mason**, and **Bob Hamers** represented the CSN at NOBCCChE. Diamond presented a podium talk entitled "Modeling the Dissolution of Compositionally-Tuned Complex Metal oxides from First Principles" and Izzy presented a poster entitled "Anionic Nanoparticles disrupt Gramicidin A (gA) Activity in Model Phospholipid Bilayers." Bob and Sarah were there recruiting students, postdocs, and prospective faculty members for CSN institutions.



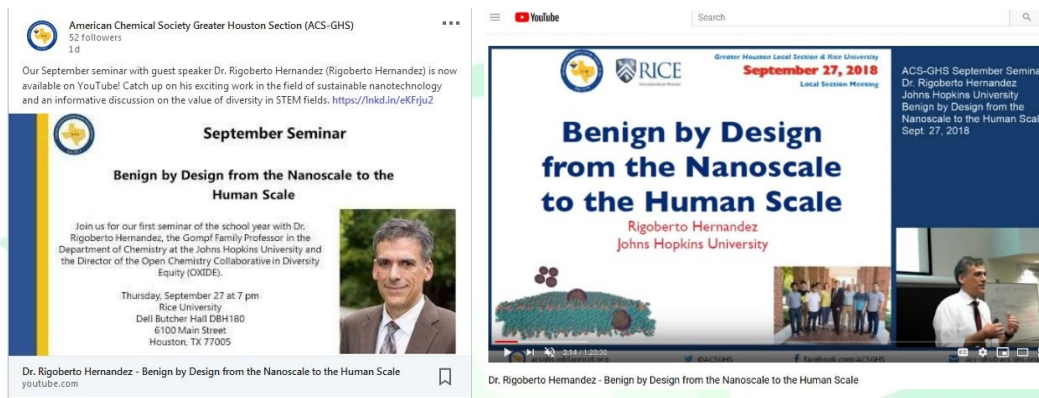
REU Student **Jen Cerda** (Carlson lab) presented a poster at the U of MN summer undergraduate poster session: "Specific Binding Interactions of Cytochrome C and MPA-coated Gold Nanoparticles."

Check out **Sara Mason** "[On the Radio](#)" as part of a series from the Center for Global and Regional Environmental Research called "Iowa Environmental Focus".





**Rigoberto Hernandez** was the keynote speaker, talking about Dynamical Consistency in Sustainable Nanoparticles, at the (Fifth) [Young Research Conference](#) hosted by Alliance for Diversity in Science and Engineering. Rigoberto was also the featured speaker for the ACS Greater Houston Section ([ACS-GHS](#)) monthly seminar. Rigoberto's talk is now available [on Youtube](#)!



**Christy Haynes** was interviewed on Facebook Live during the Blavatnik Awards for Young Scientists ceremony. Check out her interview on Facebook [here](#)!



## New CSN Capabilities

**Rigoberto Hernandez** and **Sara Mason** were each awarded XSEDE (the Extreme Science and Engineering Discovery Environment) allocations. Congrats to both!

**Jaya Borgatta** (Hamers group) has a grow tent at UW-Madison (see image to the right) for her project investigating fundamental interactions of nanoparticles with plant leaf surfaces!



## Latest from Sustainable Nano

See [sustainable-nano.com](https://sustainable-nano.com) for all the CSN blogs and podcasts



Instagram

**We're on Instagram!** Follow us at <https://www.instagram.com/sustainablenano/> and contact Miriam or **Zack Jones** (Hamers group) if you have CSN-related images you're willing to share.

### Blog posts and podcast episodes since the last newsletter

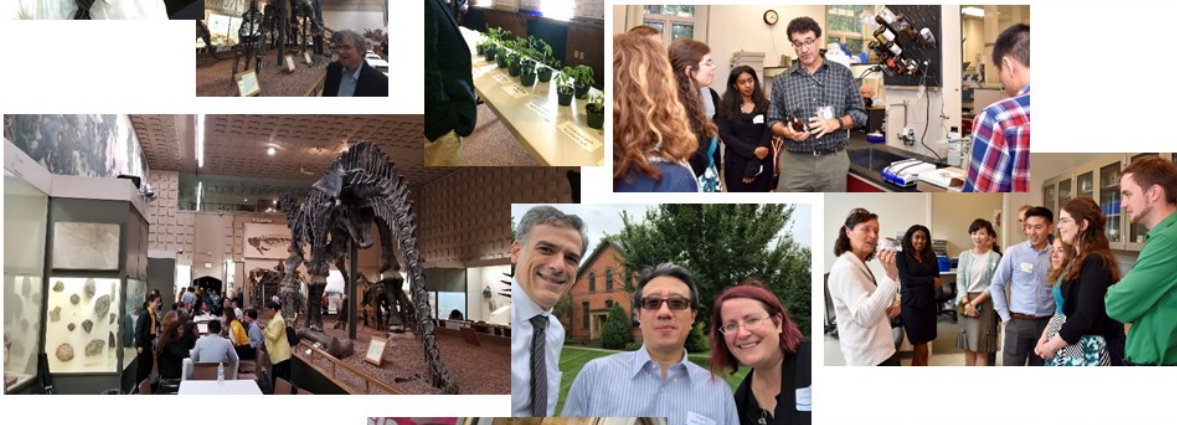
- July 10: [How does nanoscale chemistry make fireflies glow brightly?](#) by Laura Satterfield
- July 19: [Las nanopartículas pueden adherirse a las bacterias, pero ¿significa que a mayor adhesión de nanopartículas, mayor toxicidad?](#) (translation of "Nanoparticles can stick to bacteria, but does more nanoparticle sticking mean more toxicity?" by Joe Buchman)
- July 20: [Breaking News: Slime Time Chemistry Slip-Up!](#) by Alicia McGeachy
- August 1: [¿Cómo se transforman los nanomateriales de los desechos electrónicos en agua? La química computacional ayuda a encontrar la respuesta](#) (translation of "How do nanomaterials from e-waste transform in water? Computational chemistry helps find the answer" by Joe Bennett)
- August 3: [What to expect at your first international science conference](#) by Alicia McGeachy
- August 10: [How Natural Organic Matter May Change How Nanoparticles Affect Bacteria](#) by Arielle Mensch (public-friendly article summary)
- August 16: [Últimas noticias: La Química comete un error contra el Slime](#) (translation of "Breaking News: Slime Time Chemistry Slip-Up" by Alicia McGeachy)
- August 17: [A Quick Peek Into Computational Chemistry](#) by REU student Andy Bei
- August 21: [Aterrizaje entre las estrellas: Promedios en la sociedad](#) (translation of "Landing among the stars: Averages in society" by Naomi Dalchand)
- August 24: [Charged Chains and How They Interact with Model Biological Interfaces](#) by Alicia McGeachy (public-friendly article summary)
- August 29: [¿Qué es el Festival de Ciencia e Ingeniería de los Estados Unidos?](#) (translation of "What is the USA Science and Engineering Festival?" by Miranda Gallagher)
- August 31: [Nanotechnology and cars, inside and out](#) by guest contributor Giles Kirkland
- September 7: [Volunteering for the Prison Education Project](#) by REU student Micaela Homer
- September 11: [¿La ingesta de nanopartículas de oro me haría más inteligente?](#) (translation of "Will Ingesting Gold Nanoparticles Make Me Smarter?" by Hattie Ring)
- September 14: [Agricultural Pollution in the Chesapeake Bay and What is Being Done About It](#) by REU student Beichen Liu
- September 20: [Salud mental y la diversidad de mentalidades](#) (translation of "Mental Health & the Diversity of Minds" by Izzy Foreman-Ortiz)
- September 27: [From Beer Bubbles to Nanoparticles: What is Nucleation?](#) by Stephanie Mitchell
- October 3: [¿Por qué no deberíamos tirar baterías de iones de litio a la basura?](#) (translation of "Why shouldn't we toss lithium-ion batteries in the trash?" by Merve Doğangün)





***Fun!***

**All-hands 2018 at CAES** (special thanks to Kitty Prapayotin-Riveros for group photos)





**Meghan Cahill, Natalie Hudson-Smith, Miriam Krause, Stephanie Mitchell, and Andrew Northwick** (Haynes & Carlson groups) recently did an outreach event for Minneapolis Open Streets through the U of MN's [Market Science](#) program. They had demonstrations based on gold NPs and ferrofluid, plus a trivia board. They interacted with a total of 123 people, including the mayor of Minneapolis!



## ***Opportunities***

**The NSF Graduate Research Fellowship Program is taking applications for 2019.** 2019 GRFP Deadlines can be found [here](#) (Oct. 26 for Chemistry).

**Assistant Scientist Position at CAES:** From Jason White: "We received approval to hire another Assistant Scientist (equivalent to an Assistant Professor); this one is an Environmental Chemist position with an omic focus....Joe Pignatello is running the search (4 of us on the search committee) but the position will have a joint appointment in both of our Departments and the person will be physically located on my floor."

**Graduate Fellowships and Postdoc positions from the Institute for Broadening Participation.** We have 29 fellowships in our database for masters level students and 32 fellowships for doctoral level students. This includes NSF, NASA, NIH, and more! More information and tips on applying can be found [here](#). We also have 25 different postdoc positions in our database, with upcoming deadlines [here](#). Our [advanced search](#) is also a great tool to filter programs by upcoming deadline.

**AIMBE is hosting a Public Policy Training Institute for Rising Leaders on October 29-30, 2018** in Washington, DC to inform students and early career professionals about the policy landscape that surrounds the scientific enterprise. Top government officials, industry representatives, and senior leaders at the FDA will lead discussions. More information is available online at [www.aimbe.org/institute](http://www.aimbe.org/institute).

**Natural Sciences Professoriate-Track Faculty Research Fellowship, 2019-2021.** The Department of Chemistry and Biochemistry at the University of Maryland Baltimore County (UMBC) invites applications for the Natural Sciences Professoriate-Track Faculty Research Fellowship. The purpose of the Fellowship is to support promising scholars interested in a future tenure track faculty appointment at UMBC and who are committed to diversity and inclusiveness. The Department welcomes applications from candidates with research and teaching interests in all areas of Chemistry or Biochemistry, and with diverse experiences, including candidates from industry, academia, or government laboratories. Many more details are available [here](#). Applications can be submitted [here](#).



## Job postings at Hope College

We seek to fill a tenure track position, Assistant Professor of Analytical Chemistry, starting Fall 2019. Review of applications for this position will begin September 21, 2018. A full description of this tenure track position can be found [here](#).

In addition, we seek to fill the staff position, Director of Chemical Laboratories, starting November 2018. This is a full-time, year round, salaried position. Review of applications will begin September 10, 2018. A full description of this position can be found [here](#).

*Note: Thanks to Rigoberto for forwarding these postings. His colleague Jason Gillmore (gillmore@hope.edu) said in an email, "I'd be happy to chat with anyone interested in either position, or can refer you to my colleagues Ken Brown (brownk@hope.edu) or Jeff Johnson (jjohnson@hope.edu) who, respectively, chair the Analytical and Lab Director searches."*

## McGill University Postdoc Opportunities

Two postdoctoral positions are available in the lab of Prof. Subhasis Ghoshal in the Department of Civil Engineering at McGill University. The research in the areas are environmental nanotechnology and biotechnology. See Joel Pedersen's email from October 1 for full details.

## Green Chemistry Student Awards Deadline Oct 12

There are several student awards from the ACS Green Chemistry Institute (some including "young" chemists up through assistant professor level) with deadlines coming up on October 12. See <https://www.acs.org/content/acs/en/funding-and-awards/awards/gci.html> for more details.

## Looking Ahead

### Professional Development events coming up:

- **Tuesday, Oct 9 from 2:00-3:00pm Central:** What to Expect from Job Searches (speakers: CSN alumni Jared Bozich and Sam Lohse)
- Stay tuned for more professional development webinar dates coming soon! Planned topics include how to choose journals for manuscripts, strategies for using citation managers, jobs in science policy, and time management.
- **Tuesday, Oct 9 from 1:00-2:15 Central:** Emerging Researchers National Conference in STEM [Webinar on Non-Traditional Careers in STEM](#)



## Lost in Cyber-Space?

HOME ABOUT US OUR TEAM NEWS EDUCATION & OUTREACH WORKING WITH THE CSN PUBLICATIONS RESEARCH MEMBERS

### Links to frequently requested CSN documents and information sources

For these documents and more, visit the [Center Resources page](#) on the [CSN website](#) (requires login though Members page, contact [Miriam](#) if you need help).

### Newsletter submissions

Awards, highlights, lab exchanges, publications, FUN, etc: [link](#)

### CSN Documents and Downloads

- Nanodatabase Login: [link](#)
- Nanodatabase Help page: [link](#)
- CSN calendar (RFA, All-hands, professional development): [link](#)
- CSN Operations Guide: [link](#)
- CSN participants list (Names, group, and email addresses): [link](#)
- CSN Projects Documents: [CSN Projects](#) - [% Effort sheet](#)

### CSN Reporting Forms

- Report lab exchange activities: [link](#)
- New CSN Presentations: [link](#)
- Report Outreach Activity: [link](#)
- CSN Safety Verification form: [link](#)
- CSN Shipping Addresses: [link](#)

### CSN Feedback Forms

- SuggestionOx (completely anonymous comments/suggestions to CSN staff):  
Director (Bob): [link](#)  
Associate Director (Christy): [link](#)  
Managing Director (Mike): [link](#)  
E/O Director (Miriam): [link](#)

Find the most recent list of all center publications on the [CSN Google Scholar](#) page.

**Are there any links that you want added to the list above?** Email Mike ([mpschwartz@wisc.edu](mailto:mpschwartz@wisc.edu))

