

What's happening in the CSN?

March 27, 2019

Volume 4, Issue 4



Sustainable Nano reader question

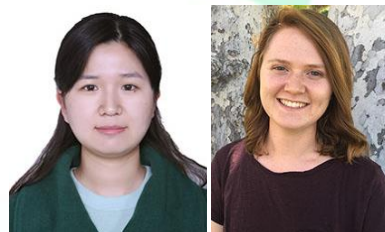
Miriam is looking for a volunteer (or volunteers!) to write a blog post response to this reader question:

In a natural system, for example a hot fluid containing a mix of many atoms (magma or hot waters) of varying concentrations, how does a gold atom “recognize” another gold atom to attach to rather than a silver, or iron, or silicon or chlorine atom? In other words, how does it “know” to seek its own to begin crystal growth? Then, what keeps the nanoparticles that are somewhat rounded from attaching to each other and making a bigger crystal, or would they do so unless there is some intervention?

Celebrations

Welcome to New CSN Members

The CSN welcomes **Giraldo** group students **Jing An** (left) and **Victoria Morris** (right)! Jing is a visiting Ph.D. student from the China Agricultural University and Victoria is a 4th year undergrad at UC-Riverside.



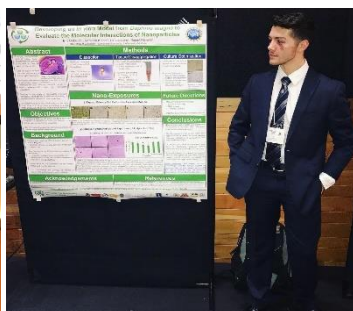
Milestones and awards

Congratulations to **Natalie Hudson-Smith** (Haynes group) for winning a Minnesota Section ACS Travel Award to support her upcoming CSN presentations at the Spring 2019 National ACS Meeting in Orlando. Natalie also won one of the University of Minnesota's 2019 Thesis Research Travel Grants! This grant helped support Natalie's recent stay in Valencia, Spain where she conducted CSN-related protein corona studies central to Christy's sabbatical research.



Liz Laudadio (Hamers group) is one of the recipients of this year's John & Beverly Schrag Outstanding Peer Awards from the John and Beverly Schrag Analytical Fund at UW-Madison, along with fellow student Ariel Alperstein. The nomination letters praised both recipients for their excellence in teaching and research. The letters highlighted both recipients' generosity with their time to help co-workers and students. Both women have displayed exceptional commitment to building community in their research group, the department, and beyond. Liz will be honored at the departmental awards ceremony on April 26. Congrats Liz!

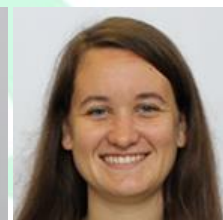




Congratulations to **Klaper** group grad students **Becky Curtis** (left) and **Eric Ostovich** (right), who won awards for their research presentation posters at the Midwest Society for Environmental Toxicology and Chemistry meeting in LaCrosse Last week! Becky won the "best poster presentation" award for her poster titled "Next-generation battery cathode material lithium cobalt oxide (LCO)

nanosheets and metabolomic impacts to freshwater crustacean *Daphnia magna*." Eric won "runner-up" for his poster "Developing an *in vitro* model from *Daphnia magna* to evaluate the molecular Interactions of nanoparticles."

Congratulations to **Curtis Green** and **Paige Kinsley** (Hamers group) for passing their Thesis Background Exams!



Christy Haynes was named a Distinguished McKnight University Professor. This award recognizes significant scholarly accomplishments and is among the highest honors for mid-career faculty at the University of Minnesota. Read more about the award and why Christy was selected [here](#).

Cathy Murphy is also the recipient of the [2019 Remsen Award](#), which is granted by the American Chemical Society Maryland Section. She will present the Remsen Lecture on May 30 at the 47th Middle Atlantic Regional Meeting at the University of Maryland, Baltimore County.



Jason White was appointed as a Visiting Scientist in the Department of Environmental Health at the Harvard University T.H. Chan School of Public Health. He was also recognized by the Editors of *Environmental Science: Nano* as an Outstanding Reviewer for 2018. He was .

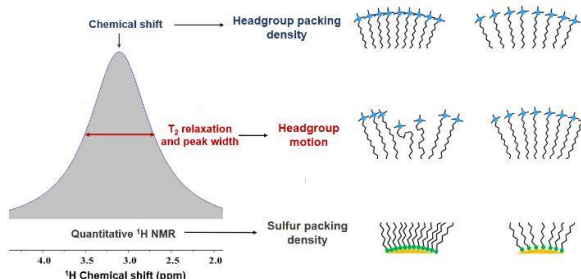
CSN External Advisory Board member **Greg Lowry** was [elected as a 2018 AAAS Fellow](#). From the AAAS press release: "Lowry was elected for his distinguished contributions to safe and sustainable use of nanomaterials, remediation methods for contaminated sediments and brines, and mitigation of fossil fuel use impacts."



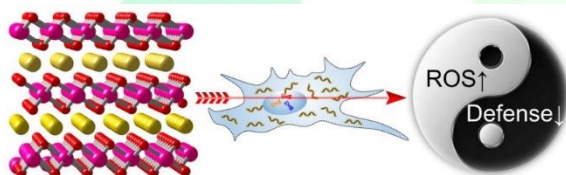
CSN Productivity

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

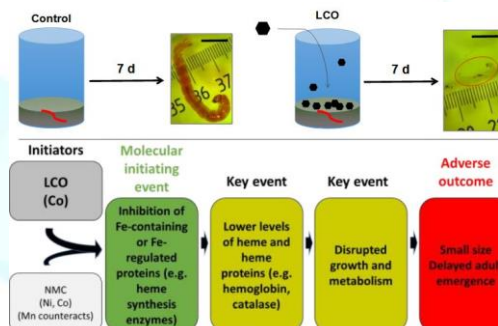
Meng Wu, Ariane M. Vartanian, Gene Chong, Arun Kumar Pandiakumar, Robert J. Hamers, Rigoberto Hernandez and Catherine J. Murphy (2019). Solution NMR analysis of ligand environment in quaternary ammonium-terminated self-assembled monolayers on gold nanoparticles: The effect of surface curvature and ligand structure. *Journal of the American Chemical Society*. 141 (10), 4316-4327. Read the online article [here](#).



Yi Cui, Eric S. Melby, Arielle C. Mensch, Elizabeth D. Laudadio, Mimi N. Hung, Alice Dohnalkova, Dehong Hu, Robert J. Hamers and Galya Orr (2019). Quantitative mapping of oxidative stress response to lithium cobalt oxide nanoparticles in single cells using multiplexed in situ gene expression analysis. *Nano Letters*. 19 (3), 1990-1997. Read the online article [here](#).

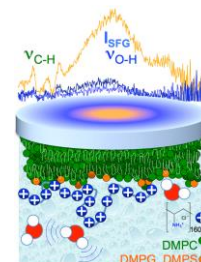


Nicholas Niemuth, Becky Curtis, Mimi Ngoc Hang, Miranda J. Gallagher, D. Howard Fairbrother, Robert J. Hamers and Rebecca D. Klapar (2019). Next-generation complex metal oxide nanomaterials negatively impact growth and development in the benthic invertebrate *Chironomus riparius* upon settling. *Environmental Science and Technology*. Accepted. Read the online article [here](#).

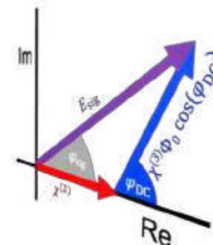


Diego M. Alzate-Sánchez, Yuhang Ling, Chenjun Li, Benjamin P. Frank, Reiner Bleher, D. Howard Fairbrother, Damian E. Helbling and William R. Dichtel (2019). β -Cyclodextrin polymers on microcrystalline cellulose as a granular media for organic micropollutant removal from water. *ACS Applied Materials & Interfaces*. 11 (8), 8089–8096. Read the online article [here](#).

Naomi Dalchand, Merve Dogangun, Paul E. Ohno, Emily Ma, Alex Martinson and Franz Geiger (2019). Perturbation of hydrogen bonding networks over supported lipid bilayers by poly (allylamine hydrochloride). *ChemRxiv*. Read the preprint [here](#).



Franz Geiger, Paul E. Ohno, HanByul Chang, Austin P. Spencer, Mavis D. Boamah, Yangdong Liu and Hong-fei Wang (2019). Beyond the Gouy-Chapman model with heterodyne-detected second harmonic generation. *ChemRxiv*. Read the preprint [here](#).



Other CSN Highlights

Cathy Murphy and CSN alum **Ariane Vartanian** (Ph.D. 2016) were interviewed by the American Chemical Society in honor of the United Nations International Day of Women and Girls in Science! Read the article [here](#).



Izzy Foreman-Ortiz's (Pedersen group) blog post on "[Mental Health and the Diversity of Minds](#)" was recently highlighted by SACNAS's *Stem + Culture Chronical*, the online "magazine" of SACNAS (info [here](#))!



Izzy's post originally appeared on the CSN Sustainable Nano blog.

Rebecca Klaper was featured in a February 25 article in *UWM Research*. The article, entitled "[Tiny changes, big impact](#)," highlights Rebecca and her CSN work being done in her lab. (Photo courtesy of UWM/Pete Amland)



Cathy Murphy and Clyde Daly (Hernandez group) were both recognized by [Diversify Chemistry](#) for their recent publications in [Nano Letters](#) (Cathy) and [The Journal of Physical Chemistry Letters](#) (Clyde).



DiversifyChem
@DiversifyChem

#365DiversifyChem #50 is Catherine Murphy, a Prof from @ChemistryUIUC. Her group recently reported a method using ultrasonic nebulization to spray coat nanoparticles onto TEM grids w/o the drying artifacts that are often associated with drop-casting. pubs.acs.org/doi/10.1021/ac



DiversifyChem
@DiversifyChem

#365DiversifyChem #65 is Clyde A Daly Jr (@cadalyjr), a PD with @hernandez_lab at @JHUCchemistry. From his PhD work, he used MD simulations & 2D-IR measurements of CO₂ in an imidazolium-based ionic liquid to better understand CO₂ solvation. pubs.acs.org/doi/abs/10.1021/acs.jpclett.1c00102

CSN Affiliate **Mike Curry** was recently interviewed on the [Stuck in the Middle](#) podcast about his company, Eco-friendly Plastic Materials, LLC. You can listen [here](#) or watch the whole episode on [YouTube](#). Mike also made an appearance on Beyond the Classroom with Dr. Trina Coleman for an episode entitled “Dr. Michael Curry aka Dr. Mama’s Boy Balances Science & Profit at Stillman College.” Listen to Mike talk about research, teaching, mentoring, and entrepreneurship with Dr. Coleman [here](#).



Did You Know?

Did you know that microwaving grapes will make a plasma? Thanks to **Clyde Daly (Hernandez group)** for submitting this way cool [YouTube video](#) explaining why!



THE BASICS	BLOT IMAGES AND QUANTIFICATION	-OMICS DATASETS
DESCRIPTIONS OF BIOLOGICAL MATERIALS	STRUCTURES AND MODELS	ANIMAL AND HUMAN STUDIES
QUANTITATIVE DATA AND STATISTICS	CHEMICALS	GENE EXPRESSION AND GENETIC MANIPULATION
IMAGE DATA	ENZYME ACTIVITY DATA	FACS DATA

Thanks to **Zeev Rosenzweig** for sharing an excellent resource on [Collecting and Presenting Data](#) from the *Journal of Biological Chemistry*.

Lab Exchanges

Don't forget to start planning your Year 4 lab exchanges if you haven't already! Summer can be a great time to do lab exchanges, and it's never too early to start talking with your colleagues about scheduling a visit!

Christian Lochbaum (Pedersen group) reports on visiting the **Murphy Lab**: In my lab exchange in the Murphy Lab, I worked with **Meng [Wu]** to learn citrate capped AuNP synthesis and attempted a new synthesis of spikey AuNPs. AuNPs synthesized were used to perform solution phase surface enhanced Raman spectroscopy (SERS) on the proteins and lipids in a biomolecular corona formed on the AuNPs. The lab exchange allowed me to take spectra on the Murphy Labs Raman spectrometer that had proven hard to take at UW Madison, because of the lack of a solution phase compartment. These spectra have provided helpful reference when setting up the solution phase compartment in Madison.



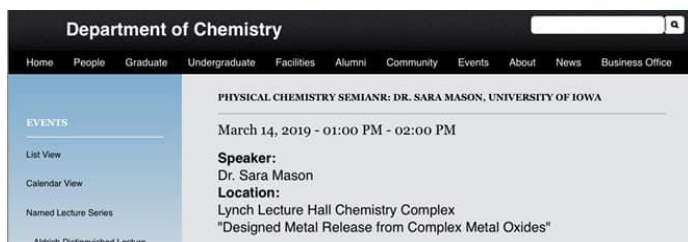
Natalie Hudson-Smith spent the month of February 2019 in the laboratory of Prof. Pablo Botella in Valencia, Spain in support of **Christy Haynes'** sabbatical work. While there, Natalie learned many aspects of the CSN's ongoing protein corona experiments.

Miriam Krause visited the **Rosenzweig**, **Fairbrother**, and **Hernandez** labs in Baltimore last month while in town for the AAAS conference. This gave Miriam an excuse to join the Hernandez and Fairbrother groups for a CSN Center-wide meeting!

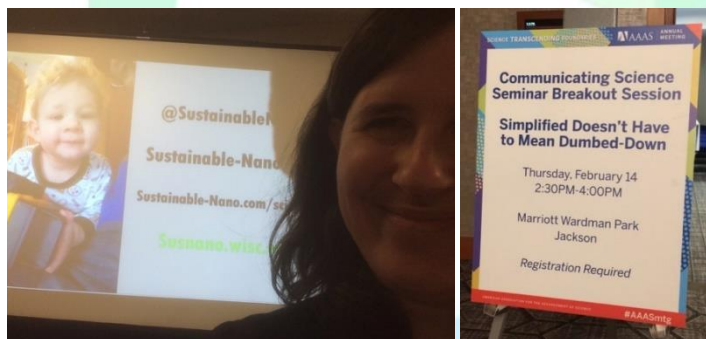


CSN Talks and Presentations

Sara Mason returned to her alma mater, Penn, this time as an invited speaker (left image below)! Her talk was the Physical Chemistry Seminar in the Chemistry Department, entitled “Designed Metal Release from Complex Metal Oxides.”

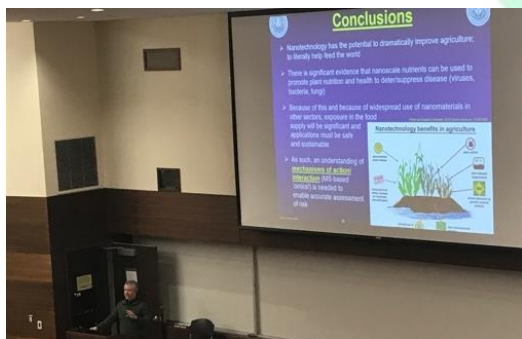


Sara Mason (right) with her PhD advisor Prof. Andrew M. Rappe (left).



Miriam Krause presented a workshop at the AAAS conference Communicating Science Seminar breakout session entitled “Simplified Doesn’t Have to Mean Dumbed-Down” (right two images above).

Jason White gave a guest lecture at the Global Health Student Association of the University of Pittsburgh entitled "The Science of Nanotechnology and how it can be used to increase food sustainability." Jason said, “the really cool part, which I didn’t mention in the submission, is that my daughter is event coordinator for the Global Health Graduate Student Association and she’s the one that invited me!” She’s getting her Master’s in Public Health and Social Work this April.



Jason White during his recent visit to Nanyang Technological University (NTU), along with Prof. Philip Demokritou (Harvard University) and Prof. Kee Woie Ng (NTU) on the north shore of Singapore (Malaysia is in the background).

Jason also met with CSN External Advisory Board member **Greg Lowry** of Carnegie Mellon University, and gave a lecture at Nanyang Technological University (NTU) in Singapore. The NTU presentation, entitled "Nanomaterials and the food supply: Assessing the balance between applications and implications," included lots of CSN work on nano-ag. Finally, he gave a presentation entitled "Nanotechnology and agriculture: A path to global food security" at the University of Connecticut as part of the Connecticut Conference on Natural Resources.

CSN Professional Development Presentations

See the NanoDatabase Professional Development page [here](#) for additional recordings and slides.

- Coming soon: Mentorship Planning for summer REU/REV mentors
- March 8 CCI-wide event: NASEM report on the sexual harassment of women: How can NSF CCIs contribute to improving climate? (Frazier Benya) – [recording link](#)
- February 27: Time Management (Bob Hamers) – [recording link](#)
- January 11: Tools & Strategies for Citation Management (Meghan Lafferty & Megan Kocher) – [recording link](#)

Latest from Sustainable Nano

See sustainable-nano.com for all the CSN blog posts and podcast episodes.

CSN blog posts & podcast episodes since the last newsletter

- [Cuerpos del pantano: la química detrás el embalsamamiento natural](#) (translation of "Bog bodies: the chemistry behind natural embalming" by Jaya Borgatta)
- [Chemistry and Art in the Mountains of Morocco](#) by Christy Haynes
- [Recommended Reading: Polar Vortex Edition](#) by Miriam Krause
- [Valentine's Day Science: What do M&Ms have to do with nanotechnology?](#) by Natalie Hudson-Smith
- [Spider-Man or Suction Cup Man?](#) by Curtis Green
- [Notable Black STEMists: Celebrating Black History Month on Twitter](#) by Becky Rodriguez (Haynes group guest author)
- *Podcast episode 30.* Nanocomposites: [Getting the Best of Two Worlds](#) (interview of Klaus Muellen by Stephanie Mitchell & Andrew Northwick)
- *Podcast episode 31.* [Jumping Asteroid Clouds: Supporting Vulnerable Learners in Educational Achievement](#) (interview of Cat Hicks by Becky Rodriguez)



Fun!

In the Mason Group, we work hard, play hard, and destroy cheese fries.



The Mason group shows they mean business when they say “cheese fries shall rue the day.”

Front (L-R): Joe Bennett, Diamond Jones, Logan Augustine, Ali Abbaspour Tamijani
Rear (L-R): Blake Hudson, Jennifer Bjorklund, Sara Mason, and Christopher Iceman (guest).

Hernandez and Fairbrother groups enjoy a Center-wide Zoom meeting. Clockwise: Gene Chong, Ben Frank, Clyde Daly, Rigoberto Hernandez, Yinhan Wang, Leslie Sigmon, Howard Fairbrother (against window), and Ali Rahnamoun.



Jason White attended a PhD defense at Hasselt University, where he acted as a Co-Promoter on Wouter Sillen's thesis committee. Wouter's Ph.D. work focused on the impact of Ag nanoparticles on the rhizosphere soil microbiome of corn plants.

Photo L-R: Nele Weyens (Hasselt University), Jaco Vangronsveld (Hasselt University), Wouter Sillen (Hasselt University), Peter Van Dillewijn (Consejo Superior de Investigaciones Científicas), Jason, Jonathan Van Hamme (Thompson Rivers University).

Fun?

New benefits of being in the Hamers group (submitted by Bob):

- You get to wear a *real* hard-hat! Not those cheap “fake news” ones!
- You get respect from the construction workers!
- You learn how to check for water at the bottom of the freight elevator shaft (see Liz for details) !
- You see parts of the building most people never get to (want to?) see!
- You have an excuse to treat your hard-working group to piles of fried food and beer!



In case you hadn't heard, there was water in Bob's lab – lots and lots of water.



Opportunities

CCI-Wide Professional Development Webinars hosted by CCHF and CCE

- Thursday, April 11, 4:00-5:00 Eastern - **ChemRxiv: Chemistry Preprints** with Marshall Brennan. [Zoom link here.](#)
- Thursday, April 18, 12:00-1:30pm Eastern - **Public Speaking Basics: Creating Dynamic Presentations** with Dr. David Lawrence. [Zoom link here.](#)

2019 SACNAS – The National Diversity in STEM Conference (October 31 – November 2, 2019)

Applications due April 12. The application period is open for [student presentations](#) and [travel scholarships](#) for the upcoming [2019 SACNAS](#) meeting in Honolulu, HI.

Critical Data Viz Workshop: An introduction to the ethics and practice of data visualization (May 20 – 24, 2019)

Registration deadline April 12. This workshop enables students from all backgrounds, domains, and academic majors access to learn the process of visualizing data in a scientific and ethically sound manner – becoming “Agents of Insight” in the world of data science. Participants will gain hands-on experience by working through the key stages of scientifically visualizing data while examining case studies from critical geography and data journalism in order to develop frameworks for ethical and just data visualization practices that can be applied to their work. Hosted by the Center for Science of Information, an NSF Science & Technology Center at Purdue University. The Center covers all lodging, meals, and travel expenses to participate. Enroll [here](#).

5th Annual ComSciCon-Chicago (August 24-25, 2019)

Applications due May 19th. Applications for ComSciCon, a science communication conference/workshop for graduate students, are open! ComSciCon will be in Chicago in August, so relatively local for many CSN'ers! Information and Applications are available [here](#).

Looking Ahead

CSN'ers at the ACS National Meeting, Orlando, FL

The ACS Spring Meeting is next week! Want to support your fellow CSN members? Simply use the online program's [speaker search tool](#) to search for CSN names and you should be able to find everyone affiliated with the center who is presenting. Stop by and say “Hi!”



CSN Site Visit 2019

A preliminary [Site Visit 2019 agenda](#) is now available. The document includes a full agenda for each day of the Site Visit, including practice days (some details may change). A summary of info you can find:

1. Sunday – Wednesday agendas
2. Travel information
3. A more detailed list of presenters, topics, and timing (see “Site Visit Agenda” section).
4. List of poster presenters
5. List of CSN participants who will be attending

SPRINGers presenting vignettes and faculty who are leading topic area at the Site Visit should be in communication about timing and topic. If you have questions about the process, contact Mike (mpschwartz@wisc.edu).

Deadlines for CSN Site Visit poster drafts

1. **March 29:** Submit your poster title or outline to Bob (cc Mike).
2. **April 5:** Submit a draft of your poster with outlined sections to Mike.
3. **April 13:** Semi-final draft to faculty advisors (**cc Mike to ensure there are no major changes needed**)
4. **April 17:** Approval by faculty advisors
5. **April 24: FINAL version due to Mike for approval** (further edits may be necessary).

April 17 & 24 Center-wide meetings: Presenters will give an elevator pitch for their poster (the elevator pitch is what you will present during the Site Visit). Miriam will randomly assign groups for the two Center-wide dates. Further instructions on the elevator pitch will be provided in the coming weeks (remind me if you want to work on it and haven’t heard anything!).



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 [CSN Help](#) 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](#)
- Schedule a Zoom Meeting: [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](#)
CSN Bimonthly Report Unanticipated Problems: [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)

