

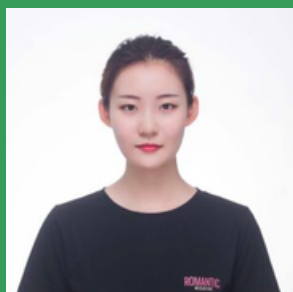


WHAT'S HAPPENING IN THE CSN?



NSF Center for Sustainable Nanotechnology

WELCOME TO NEW CSN MEMBERS

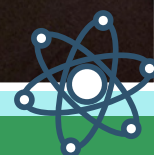


Wandi Xu
(Hernandez group)

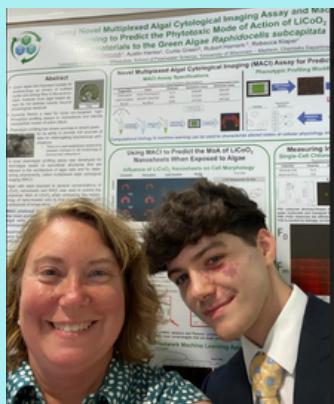


Catherine Jalomo
(Murphy group)

CSN members, family, and friends gathered in memory of **Joel Pedersen** at the summer ACS meeting in San Francisco

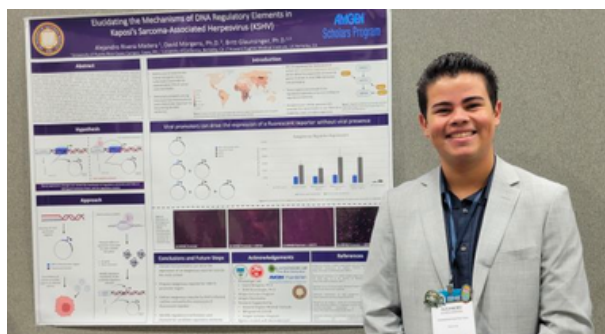


GOOD NEWS!



Eric Ostovich (Klaper group) successfully defended his Ph.D. thesis, entitled "Using Novel Multiplexed Algal Cytological Imaging Assay and Machine Learning to Predict the Phytotoxic Mode of Action of LiCoO₂ Nanomaterials to the Green Algae *Raphidocelis subcapitata*" on August 1st!

Katie Earl (Hamers group) successfully defended her Ph.D. thesis, entitled "Reciprocal Redox of Biomolecules on Metal Oxide Nanomaterials Surfaces" on October 19th! She has accepted a position at H2U, a start-up company near Los Angeles, CA.



CSN alum **Alejandro Rivera-Madera (Giraldo group SURE student, 2022)** won a poster award at the recent SACNAS National Diversity in STEM conference



Ezekiel Piskulich (Cui group postdoc) is one of the new Early Career Members at Large for the APS Division of Chemical Physics Executive Committee from 2024-2025.



CSN Affiliate **Andre Clayborne** became Interim Chair of the Department of Chemistry and Biochemistry at George Mason University



CSN Affiliate **Korin Wheeler** became Chair of the Department of Chemistry and Biochemistry at Santa Clara University



Cathy Murphy became Interim Director of the [**Beckman Institute**](#) at the University of Illinois at Urbana-Champaign



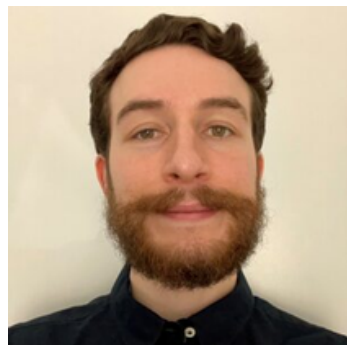
Milestones and Awards



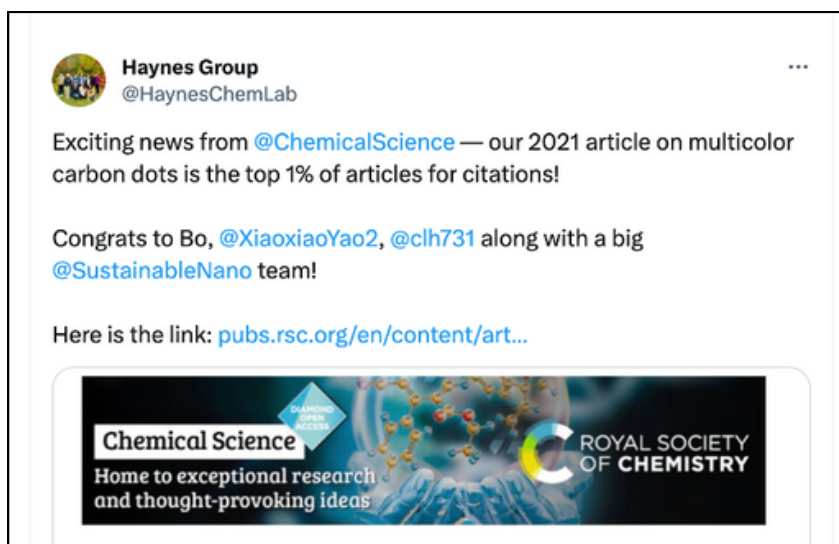
Safia Jilani (Haynes group postdoc) received a Gender Equity Grant from the UMN Women's Center. The funds will compliment her CSN SEED grant project on investigating the quantities and types of invisible work in science academia and will help compensate participants in the study.



Shreyasi Sengupta (Rosenzweig group!) was awarded a fall 2023 UMBC Dissertation Fellowship



Leopoldo Posada
(Rosenzweig group)
passed his candidacy.

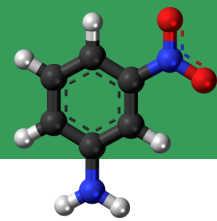
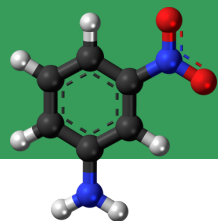


Christy Haynes was featured in *Analytical Scientist's* **"Power List" of mentors and educators**



Our 2023 Scholar-in-Residence **Shana Stoddard** received the ASBMB (American Society for Biochemistry & Molecular Biology) 2024 **Ruth Kirschstein Diversity in Science Award**





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

Christian Reardon-Lochbaum, Ravithree D. Senanayake, Rocio Amaro Marquez, Kha Trinh, Khoi Nguyen L. Hoang, Tobias Rangel Guillen, Catherine Murphy, Robert Hamers and Rigoberto Hernandez (2023). Influence of Sensor Composition on Nanoparticle and Protein Interaction with Supported Lipid Bilayers. *Environmental Science: Nano*. Read the online publication [here](#).

Stephanie L. Mitchell, Natalie Hudson-Smith, Deepti Sharan, Christy Haynes and Erin E. Carlson (2023). Modern materials provoke ancient behavior: Bacterial resistance to metal nanomaterials. *Environmental Science: Nano*. Read the online publication [here](#).

Catherine E. Kruszynski Earl, Austin H. Henke, Elizabeth D. Laudadio and Robert J. Hamers (2023). Understanding Reaction Mechanisms of Nicotinamide Adenine Dinucleotide (NADH) with Lithium Cobalt Oxide and Other Metal Oxide Nanomaterials. *Environmental Science: Nano*. Read the online publication [here](#).

Thomas R. Kuech, Nasim Ganji, Caroline Anastasia, Marco D. Torelli, Eric S. Melby, Arielle C. Mensch, Emily R. Caudill, Ralf Zimmermann, Robert J. Hamers and Joel A. Pedersen (2023). Interaction of Supported Phospholipid Bilayers with Diamond Nanoparticles Non-Covalently Functionalized with a Cationic Polyelectrolyte. *Environmental Science: Nano*. Read the online publication [here](#).

Shreyasi Sengupta, Swapnil B. Ambade, Tana O'Keefe, Falak Tawakalna, Jenny K. Hedlund Orbeck, Robert J. Hamers, Z. Vivian Feng, Christy Haynes and Zeev Rosenzweig (2023). Colloidal Stabilization of Hydrophobic InSe 2D Nanosheets in a Model Environmental Aqueous Solution and their Impact on *Shewanella oneidensis* MR-1. *Environmental Science: Nano*. Read the online publication [here](#).

Blake G. Hudson, Curtis M. Green, Arun Kumar Pandiakumar, Ali Abbaspour Tamijani, Natalie V. Hudson-Smith, Joseph T. Buchman, Meagan Koss, Elizabeth D. Laudadio, Michael P. Schwartz, Rebecca Klaper, Christy L. Haynes, Robert J. Hamers and Sara E. Mason (2023). Influence of aluminum incorporation and aqueous conditions on metal ion release of high-Ni transition metal oxide nanomaterials. *Environmental Science: Nano*. Read the online publication [here](#).

Su-Ji Jeon, Peiguang Hu, Kyoungtea Kim, Caroline M. Anastasia, Hye-In Kim, Christopher Castillo, Colleen B. Ahern, Joel A. Pedersen, D. Howard Fairbrother and Juan Pablo Giraldo (2023). Electrostatics Control Nanoparticle Interactions with Model and Native Cell Walls of Plants and Algae. *Environmental Science & Technology*. Read the online publication [here](#).

Blake G. Hudson, Diamond T. Jones, Victoria M. Rivera Bustillo, Joseph W. Bennett and Sara E. Mason (2023). Understanding the Mechanism of Secondary Cation Release from the (001) Surface of $\text{Li}(\text{Ni}_{1/3}\text{Mn}_{1/3}\text{Co}_{1/3})\text{O}_2$: Insights from First-Principles. *The Journal of Physical Chemistry C*. 127 (43), 21022-21032. Read the online publication [here](#).



Beza Tuga, Tana O'Keefe, Chaoyi Deng, Andrea T. Ligocki, Jason C. White and Christy L. Haynes (2023). Designing nanoparticles for sustainable agricultural applications. *Trends in Chemistry* (Cover Article). 5 (11), 814-826. Read the online publication [here](#).



Riley E. Lewis, Cheng-Hsin Huang, Jason C. White and Christy L. Haynes (2023). Using ^{19}F NMR to Investigate Cationic Carbon Dot Association with Per- and Polyfluoroalkyl Substances (PFAS). *ACS Nanoscience Au*. 3 (5), 408-417. Read the online publication [here](#).

RMilica Pavlicevic, Wade Elmer, Nubia Zuverza-Mena, Wael Abdelraheem, Ravikumar Patel, Christian Dimpka, Tana O'Keefe, Christy L. Haynes, Luca Pagano, Marina Caldara, Marta Marmioli, Elena Maestri, Nelson Marmioli and Jason C. White (2023). Nanoparticles and biochar with adsorbed plant growth-promoting rhizobacteria alleviate Fusarium wilt damage on tomato and watermelon. *Plant Physiology and Biochemistry*. 203 108052. Read the online publication [here](#).

Chaoyi Deng, Connor R. Protter, Yi Wang, Jaya Borgatta, Jingyi Zhou, Peiying Wang, Vinod Goyal, Hannah J. Brown, Kevin Rodriguez-Otero, Christian O. Dimpka, Rigoberto Hernandez, Robert J. Hamers, Jason C. White and Wade H. Elmer (2023). Nanoscale CuO charge and morphology control Fusarium suppression and nutrient biofortification in field-grown tomato and watermelon. *Science of The Total Environment*. 905 167799. Read the online publication [here](#).

Khoi Nguyen L. Hoang and Catherine J. Murphy (2023). Adsorption and Molecular Display of a Redox-Active Protein on Gold Nanoparticle Surfaces. *Langmuir*. 39 (45), 15974-15985. Read the online publication [here](#).

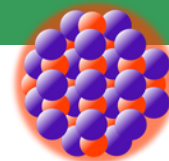
Gregory M. Newkirk, Su-Ji Jeon, Hye-In Kim, Supreetha Sivaraj, Pedro De Allende, Christopher Castillo, Robert E. Jinkerson and Juan Pablo Giraldo (2023). DNA delivery by high aspect ratio nanomaterials to algal chloroplasts. *Environmental Science: Nano*. Read the online publication [here](#).

Liang Qiao, Nia Pollard, Ravithree D. Senanayake, Zhi Yang, Minjung Kim, Arzeena S. Ali, Minh Tam Hoang, Nan Yao, Yimo Han, Rigoberto Hernandez, Andre Z. Clayborne and Matthew R. Jones (2023). Atomically precise nanoclusters predominantly seed gold nanoparticle syntheses. *Nature Communications*. 14 (1), 4408. Read the online publication [here](#).

Diego Gomez-Maldonado, Savannah G. Phillips, Shital R. Vaidya, Paul C. Bartley, Jason C. White, D. Howard Fairbrother and Maria S. Peresin (2023). Modifying soluble NPK release with hydrophobized nanocellulose-based hydrogels for sustainable enhanced efficiency fertilizers. *Environmental Science: Nano*. Read the online publication [here](#).



Latest from Sustainable Nano



See Sustainable-Nano.com for all CSN blog posts & podcast episodes



- [Nanoscience in your lashes?](#) by Nikki Hoang
- [Play the Game of Nanopoly!](#) by Chris Castillo, Marena Rivera Dopazo, & Hye-In Kim
- [National Nanotechnology Day and Indigenous Peoples Day 2023](#) by Miriam Krause
- [National Chemistry Week - The Healing Power of Chemistry](#) by Denise Williams-Harris
- [How do CSN experiments become patented technology?](#) by Christy Haynes
- [Light up your Halloween with quantum dots](#) by Cheng-Hsin Huang
- [Recognizing Veterans Day 2023](#) by Miriam Krause

- [Fotos del Citoesqueleto](#) - translation of post by Solaire Finkenstaedt-Quinn
- [Combinando lo viejo con lo nuevo: usando nanotecnología para mejorar medicinas antiguas](#) - translation of post by Larissa Davis
- [Podcast Ep 43. Revolutionizing How we Grow, Distribute, & Store Food: Revisiting the Connecticut Agricultural Experiment Station](#) - Beza Tuga interview with Jason White

**Sustainable Nano
is now on BlueSky!
@SustainableNano.
bsky.social**

Thanks to everyone who helped with our in-person outreach event at Deer Creek Intermediate School the day before the All-Hands meeting!



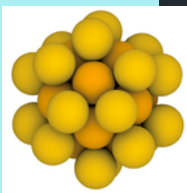
Participants were: **Alicia Tripp & Connor Protter (Hamers group)**, **Ravithree Senanyake & Yinhan Wang (Hernandez group)**, **Caroline Anastasia & Howard Fairbrother (Fairbrother group)**, **Zeke Piskulich & Qiang Cui (Cui group)**, **Lissett Guadalupe Diaz (Klaper group)**, **Safia Jilani (Haynes group)**, and **Miriam Krause**; with extra help from **Wilanyi Alvarez Reyes (Haynes group)**, **Alessandra Gavin & Andrew Northwick (Carlson group)**, and Liz Sutton (UW Milwaukee SFS outreach program manager)



CSN Media & Other Recognition



Michael Curry was featured in Exelon Magazine's feature on "[100 Dynamic Leaders of 2023](#)."



Rigoberto Hernandez and **Andre Clayborne** were featured in a Rice University press release: [Gold buckyballs, oft-used nanoparticle 'seeds' are one and the same](#)

CSN SURE alum **Elea-Maria Abisamra** (**Rosenzweig** group) published a commentary in *Cell* on her nonprofit organization [Kids Can Write: The Power of Storytelling in STEM](#)



CSN Affiliate **Rob Green** has received NSF funding for ["Facilitating Optical X-Ray Techniques for Research and Organized Training at Alabama State University \(FOXTROT-ASU\)"](#)

MUTUAL AID

We are excited to announce the launch of the CSN's Mutual Aid program! This idea was inspired by our recent "Making it Rain" WEL webinar and had wide support from Center membership on a survey at the end of the summer. This is a donation-based fund to help CSN members with unanticipated personal expenses OR non-financial assistance. There is no expectation to repay; however, re-donating money to the fund may be appropriate in some situations. Donations and requests to this fund will be kept as anonymous as possible, with only Mike and Miriam having access to identifiable information. We will share only general, de-identified information with the center for transparency, such as number and total amounts of donations and requests



art by Kevin Coplicki

[Form to request mutual aid](#)

[Form to offer mutual aid](#)



CSN Talks & Presentations



Korin Wheeler returned from the [CECAM workshop](#) where she reported that she also talked about CSN including **Nikki Hoang's** (Murphy group alum) protein corona work from her *Analytical Chemistry* paper (2022), **Chris Castillo's** (Giraldo group) plant corona work, and **Erica Svendahl's** (SURE alum) work in Korin's lab.



Della Mosley led a workshop on "Wellness in STEM is Possible" at the NOBCChE conference, with help from Ti Malik Coleman, **Mike Schwartz**, **Miriam Krause**, **Safia Jilani** (Haynes group), and **Shreyasi Sengupta** (Rosenzweig group)



Miriam Krause also helped staff the CCI booth at the SACNAS National Diversity in STEM conference along with colleagues from CSP, C-GEM, and CMCC.

Leopoldo Posada (Rosenzweig group) was across the aisle at the UMBC table!

Connor Protter (Hamers group) was part of an National Nanotechnology Infrastructure (NNI) panel discussion entitled "[What's Next in NanoEHS: Early-Career Perspectives Human and Environmental Interactions](#)".



Christy Haynes recently gave seminars at Pomona College, Swarthmore College, and George Mason University, focusing on CSN work.



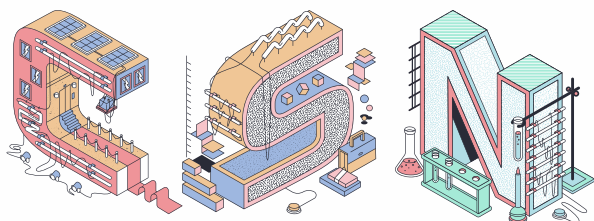
Lab Exchanges



Cheng-Hsin Huang, Wilanyi Alvarez Reyes, and Beza Tuga (Haynes group) recently visited **Jason White** and **Chaoyi Deng** at the Connecticut Agricultural Experiment Station



DID YOU KNOW?



Greg Lowry (Carnegie Mellon University) partnered with **Sara E. Mason** to host a 2-day [INFRAMES](#) workshop at Brookhaven National Laboratory October 2-3, 2023. The objective of the workshop was to connect researchers interested in applying nanotechnology to plant science with User Facility Scientists at BNL. The ~24 attendees, many from CAES but including international participants, were given overview talks and capabilities from expert staff at NSLS-II, Center for Functional Nanotechnology, and Laboratory for Biomolecular Structure, all of which offer free facilities use through a proposal-based system.

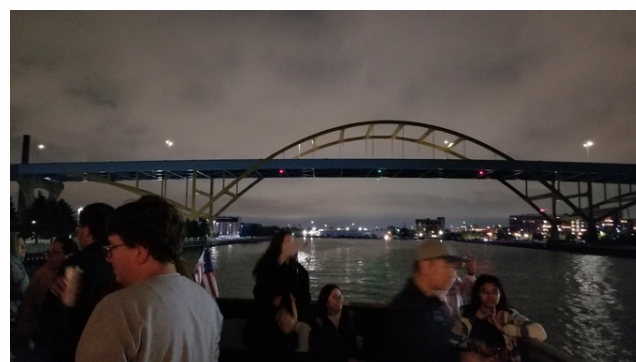
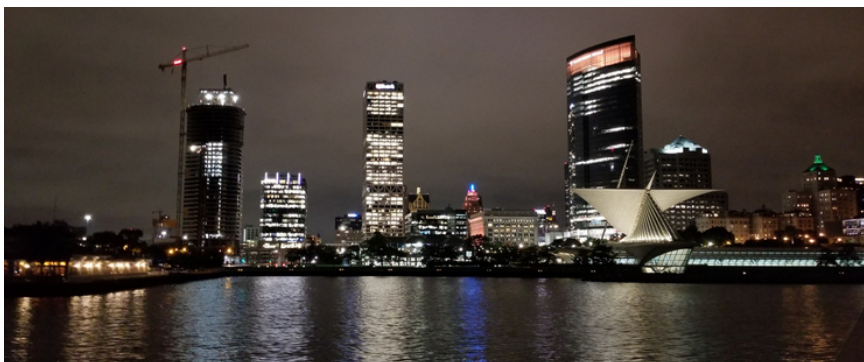
A reminder that any CSN SPRINGS or PIs are welcome to ask Sara about connecting with the facilities capabilities and expertise at BNL. Or better yet, come visit us for a lab exchange!



All-Hands Milwaukee



All-Hands Milwaukee



Many CSN members gathered in person and online for our fall All-Hands meeting at the University of Wisconsin - Milwaukee. Highlights included a boat ride, posing with the "Bronze Fonz" sculpture, and a WEL Committee retreat



All-Hands Milwaukee



Opportunities!

The [Institute for Future PUI Faculty](#) (IFPF) is an NSF-funded program at Lafayette College for graduate & postdoctoral students interested in pursuing a career at a teaching-focused institution. Participants will travel to Lafayette for 2 weeks, all expenses paid, from April 1st - 13th, 2024. The **deadline to apply is December 15th, 2023.**



Advancing Chicanos/Hispanics
& Native Americans in Science

Interested in starting a SACNAS chapter on your campus? They are hosting a webinar on Tuesday, Nov 28 from 2:00-3:00 Central. [More info & registration here.](#)



LOST IN CYBER-SPACE?

Links to frequently requested CSN documents and information sources.

Newsletter submissions:

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

CSN Documents and Downloads

- Nanodatabase Login: [link](#)
- Nanodatabase Help page: [link](#)
- CSN calendar: [link](#)
- CSN Operations Guide: [link](#)
- CSN participants list (Names, group, and email addresses): [link](#)

CSN Reporting Forms

- Report lab exchange activities: [link](#)
- Report Outreach Activity: [link](#)
- Report Awards and Other Activities: [link](#)

CSN SuggestionOx (Anonymous Feedback to Admin)

- Admin (goes to Christy): [link](#)
- SPRING Board liaison: [link](#)

ADMIN EMAILS

- Bob (rjhamers@wisc.edu)
- Christy (chaynes@umn.edu)
- Miriam (mkrause@umn.edu)
- Mike (mpschwartz@wisc.edu)



This material is based upon work supported by the National Science Foundation under the NSF Center for Sustainable Nanotechnology, grant number CHE-2001611. Any opinions, findings, and conclusions or recommendations expressed are those of the participants and do not necessarily reflect the views of the National Science Foundation or the participating institutions.