



WHAT'S HAPPENING IN THE CSN?



BLAFEMME
Healing

NSF Center for Sustainable Nanotechnology

WELCOME TO NEW CSN MEMBERS!



Summer Undergraduate Research Experience (SURE) students visiting the University of Minnesota for orientation, including a workshop with Dr. Della Mosley

SURE 2025 Participants (research group)

Andrea Irizarry Delgado (Haynes)
Amalia Thompson (Wheeler)
Bruna Jatoba (Fairbrother)
Cecilia Turetzky (Tollefson)
Chaitanya Krishna (Daly)
Christopher Nieves (Haynes)
Ednir Cassoma (White and Dimkpa)
Iris Barone (Riley)
Isabella Allen (Mensch)
Jesse Lim (Hernandez)
Jillian Luczkowski (Qiu)
Julia Kaye (Burks & Toledo)
Mackenzie Crabtree (Cui)
Melanie Jimmerson (Curry)
Moji Oludare (Riley)
Natalia Mena Santiago (Mason)
Noemi Carranza (Hudson-Smith)
Savana Green (Curry)
Valentina Flammini (Peresin)
Vedanth Natarajan (Rosenzweig)

Honorary SURE Participants

Alejandra Rodriguez-Nazario (Haynes)
Veronica Amoako (Riley)
Kenneth Encarnacion (Giraldo)
Jasmine Flowers (Riley)
Conor Murphy (Giraldo)
Adriana Schroeder (Murphy)
Yuki Yamada (Riley)



Milestones and Awards



Caroline Anastasia (Fairbrother group) received the Dissertation Prize Fellowship from Johns Hopkins, a University sponsored fellowship to support PhD students in their last semester of study.

On February 28th, Caroline defended her thesis, entitled "Leveraging analytical tools to evaluate the behavior of nanoscale anthropogenic materials in environmental matrices." Congratulations, Caroline!

Congratulations to **Emma McKeel (Klaper group)**, who defended her thesis on April 2, entitled "The Molecular, Physiological, and Morphological Impacts of Carbon Dot Surface Functionalization on Interactions with Plants and Microalgae."



Catherine Jalomo (Murphy group) defended her thesis on May 6, entitled "Nanomaterials as Delivery Systems." Congratulations, Catherine!


Congratulations



Cathy Murphy won the 2025 NANOSMAT PRIZE. She will give a lecture titled "A Golden Time for Nanotechnology" during the plenary session of the 16th NANOSMAT Conference to be held in Naples, Italy during July 6-10, 2025. Congrats Cathy!





CSN undergrad **Kenneth Encarnacion** (**Giraldo** group) was accepted into multiple PhD programs and will be attending Caltech in the fall! Congrats Kenneth!



Bob Hamers' last PhD student defended their dissertation in June! Just one more milestone in Bob's career transition. His official retirement date will be August 9.



Denise Williams-Harris welcomed her new baby Tristen on March 23!



CSN members **Christy Haynes, Joseph Buchman, Wade Elmer, Jason White, and Chuanxin Ma** had United States Patent No. 12,187,658 issued on January 7, 2025. It is entitled "[Application of mesoporous silica nanoparticles to members of the family of Cucurbitaceae](#)".

Miriam Krause recently completed the [Community Manager Certification](#) program from the Center for Scientific Collaboration and Community Engagement (CSCCE).





Juan Pablo Giraldo (left) and graduate student Christopher Castillo (right) have been featured in the University of California, Riverside News article entitled ["How ubiquitous small particles turn harmful inside plants"](#) and in Earth.com's article ["Nanoparticles are threatening the stability of plant cells"](#) following the recent publication of Castillo et al. in *Nature Nanotechnology* ([read the article here](#)).



CSN undergrad **Kenneth Encarnacion** (Giraldo group) interviewed Prof. Rick Flagan (Cal Tech) about [The LA Fires, Air Pollution, and the Inland Empire](#) for NPR's KVCR 91.9.



Rigoberto Hernandez and the CSN are mentioned in ACS's Chemical & Engineering News' article on [New federal report outlines strategic goals to advance sustainable chemistry](#) by Sara Cottle (published February 21, 2025).



CSN affiliate **Michael Curry** has been appointed as the [inaugural Tech Transfer & Commercialization Fellow](#) of the Center of Excellence in Entrepreneurship and Innovation (CEE&I) at North Carolina Agricultural and Technical State University.



CSN Talks & Presentations

Rigoberto Hernandez (left) and CSN affiliate **Andre Clayborne** (middle) gave talks at National Institute of Standards and Technology's (NIST's) [4th Quantum Matters in Materials Science \(QMMS\)](#) workshop (Feb. 2025). Their session was hosted by **Nia Rodney-Pollard** (right), a former Ph.D. student of Andre's. Andre's talk was entitled "Exploring Molecules and Clusters using Quantum." Rigoberto's talk was entitled "Classical to Semiclassical Transition state theory for chemical reactions in complex environments."



In February, **Christy Haynes** gave an invited seminar in the Boston University Department of Chemistry. **Qiang Cui** hosted the seminar.

She also was the Phil Lambda Upsilon student-invited speakers at Kansas State University where she gave a CSN-focused talk about nanomaterials for agriculture and PFAS remediation.

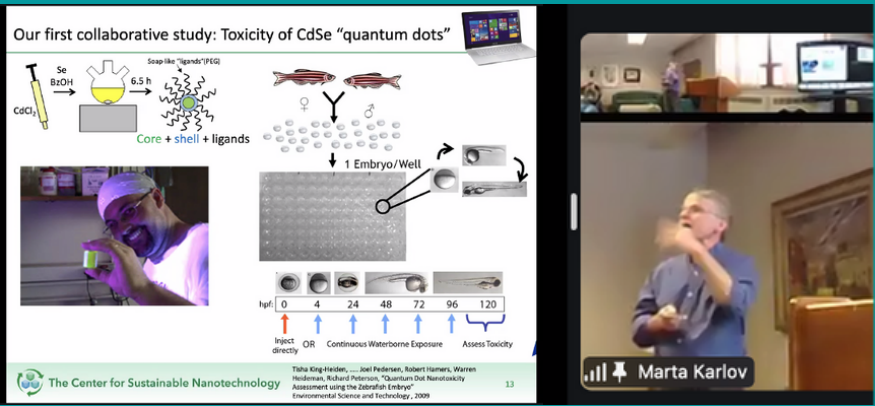
Finally, Christy presented CSN research at the University of Puerto Rico-Cayey, where she visited to recruit for the SURE program (with **Mike Schwartz**).



Mike Schwartz visited CSN affiliate **Mike Curry** and his group at NC A&T, where he discussed the CCI program with faculty from the Department of Chemistry and the Joint School of Nanotechnology and Nanoengineering alongside CSN alum **Donald White** (Curry group).

CSN Talks & Presentations

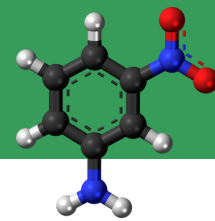
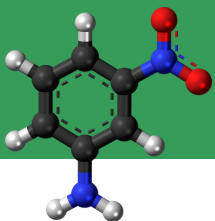
On February 23, **Bob Hamers** presented the annual Joel Pedersen Memorial Lecture on Tikkun Olam and the Environment at Temple Beth El in Madison, WI. (Tikkun Olam is a Hebrew phrase meaning to "repair the world"). This lectureship was established in Joel's memory in 2023. The title of Bob's talk was "Nanotechnology for a Sustainable Environment: The Legacy of Joel Pedersen."



A Zoom screen shot of the hybrid presentation

Jason White visited the University of California at Riverside to give a seminar on nano agriculture on April 4, and also got to visit the Giraldo lab and meet with UCR students and faculty colleagues.





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

Andrew B. Northwick and Erin E. Carlson (2025). Challenges of Biological Complexity in the Study of Nanotoxicology. *Chemical Research in Toxicology*. 38 (1), 7-14. Read the online publication [here](#).

Christopher Castillo, Su-Ji Jeon, Khoi Nguyen L. Hoang, Claire Alford, Erica Svendahl, Chaoyi Deng, Yi Wang, Yinhan Wang, Xingfei Wei, Rigoberto Hernandez, Jason C. White, Korin E. Wheeler, Catherine J. Murphy and Juan Pablo Giraldo (2025). In vivo transformations of positively charged nanoparticles alter the formation and function of RuBisCO photosynthetic protein corona. *Nature Nanotechnology*. Read the online publication [here](#).

Leslie R. Sigmon, Jonathan Catazaro, Mohammed Abdel-Rahman, Casey Smith, Carsten Prasse and D. Howard Fairbrother (2025). Interrogating the photoluminescent properties of carbon dots using quantitative ¹³C NMR combined with systematic photobleaching. *Carbon*. 232 119796. Read the online publication [here](#).

Connor R. Protter, Jennifer L. Bjorklund, Sara E. Mason and Robert J. Hamers (2025). Selective Adsorption of Thiol-Containing Molecules on Copper Sulfide Surfaces via Molecule-Surface Disulfide Bridges. *The Journal of Physical Chemistry C*. 129 (4), 1976-1987. Read the online publication [here](#).

Lissett Guadalupe Diaz and Rebecca Klaper (2025). Phenotypic profiling reveals polystyrene nanoplastics elicit sublethal and lethal effects on cellular morphology in rainbow trout gill epithelial cells. *Environmental Science: Nano*. 12 (3), 2021-2033. Read the online publication [here](#).

Mahima Unnikrishnan, Martin Gruebele and Catherine J. Murphy (2025). Protein Denaturation at the Air-Water Interface in the Context of Nanoparticle Soft Corona Studies. *Langmuir*. 41 (22), 13902-13915. Read the online publication [here](#).

Tana O'Keefe, Beza Tuga, Chaoyi Deng, Sharmaka Mohamud, Rima Jamous, Mark Sanders, Wade H. Elmer, Jason C. White and Christy Haynes (2025). Vacuum Infiltration for Priming of Soybean Seeds: Optimization and Particle Tracking Using Fluorescent Silica Nanoparticles. *Chemical Science*. 16 (17), 7249-7263. Read the online publication [here](#).

Savannah G. Phillips, Sydney Brake, Duber Garces, Patrick M. Eckhert, Chaoyi Deng, Jason C. White, Maria Soledad Peresin and D. Howard Fairbrother (2025). Tunable NPK Release from Surface-Esterified Nanocellulose-Based Prills. *Environmental Science & Technology*. 59 (22), 10955-10967. Read the online publication [here](#).

Cheng-Hsin Huang, Riley Lewis, Sara Thomas, Zhengyi Tang, Jasmine Jones, Sara Nason, Nubia Zuverza-Mena, Zeke A. Piskulich, Tana L. O'Keefe, Beza Tuga, Antavia Paredes-Beaulieu, Vasilis Vasiliou, Qiang Cui, Joseph J. Dalluge, Jason C. White and Christy L. Haynes (2025). Designing Ultraporos Mesostructured Silica Nanoparticles for the Remediation of Per- and Polyfluoroalkyl Substances. *ACS Nano*. 19 (21), 19777-19789. Read the online publication [here](#).

Zeke A. Piskulich and Qiang Cui (2025). Hydrogen bonding blues: Vibrational spectroscopy of the TIP3P water model. *The Journal of Chemical Physics*. 162 (1), 014104. Read the online publication [here](#).

Emma McKeel, Chaoyi Deng, Hye-In Kim, Su-Ji Jeon, Juan Pablo Giraldo, Jason C. White and Rebecca Klaper (2025). Seed Infiltration with Polymer-Functionalized Carbon Dots Induces a Biotic Stress Response in Tomato (*Solanum lycopersicum* L.). *ACS Agricultural Science & Technology*. Read the online publication [here](#).

Xingfei Wei, Arham R. Alam, Qiankun Mo and Rigoberto Hernandez (2025). Structure and Zeta Potential of Gold Nanoparticles with Coronas of Varying Size and Composition. *The Journal of Physical Chemistry C*. 129 (8), 4204-4214. Read the online publication [here](#).

Nianjun Yang, Anke Krueger and Robert J. Hamers (2025). Diamond Chemistry: Advances and Perspectives. *Angewandte Chemie International Edition*. 64 (25), e202418683. Read the online publication [here](#).

Priyanshu Banerjee, Jiyuan Huang, Jacob Lombardo, Swapnil B. Ambade, Rohan B. Ambade, Tae Hee Han, Srushti Kulkarni, Shreyasi Sengupta, Zeev Rosenzweig, Howard Fairbrother, Sichao Li, Sunmi Shin and Deepa Madan (2025). Scalable and environmentally friendly MXene-tetrahedrites for next-generation flexible thermoelectrics. *Journal of Materials Chemistry A*. 13 (1), 654-668. Read the online publication [here](#).



All-Hands meeting at Spring 2025 ACS

March 23-27, 2025 in San Diego, CA.



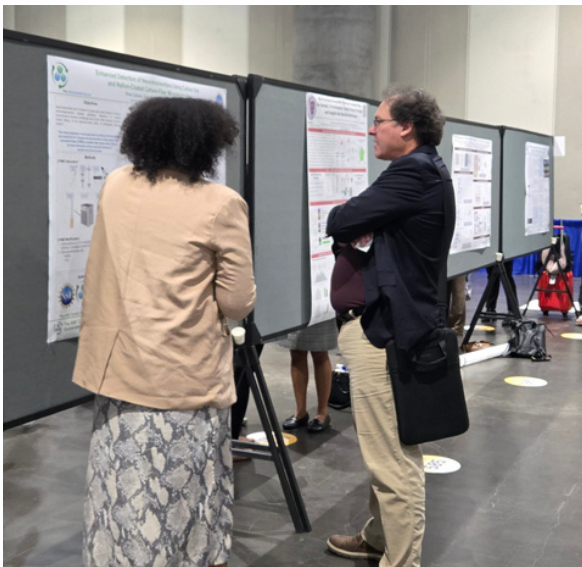
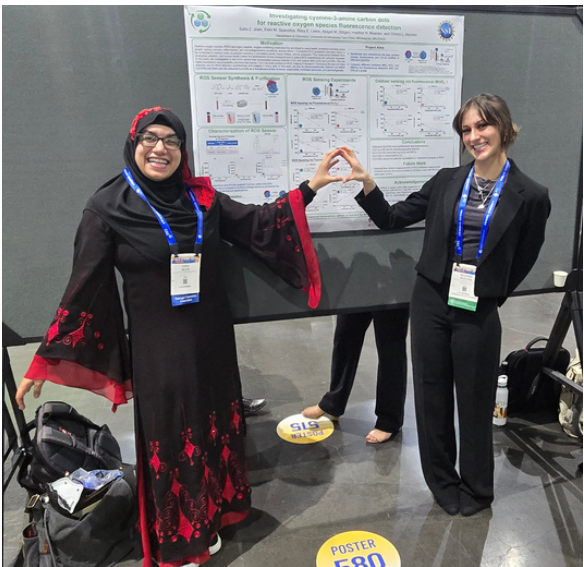
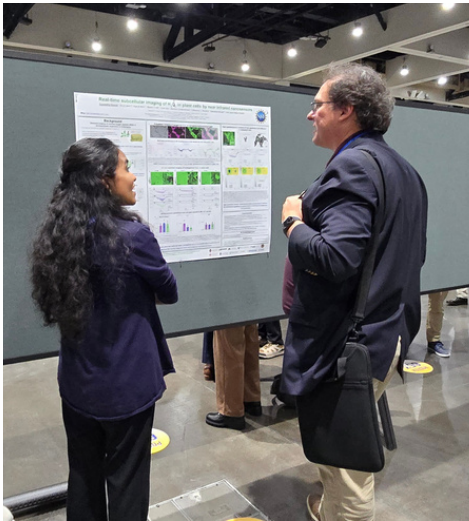
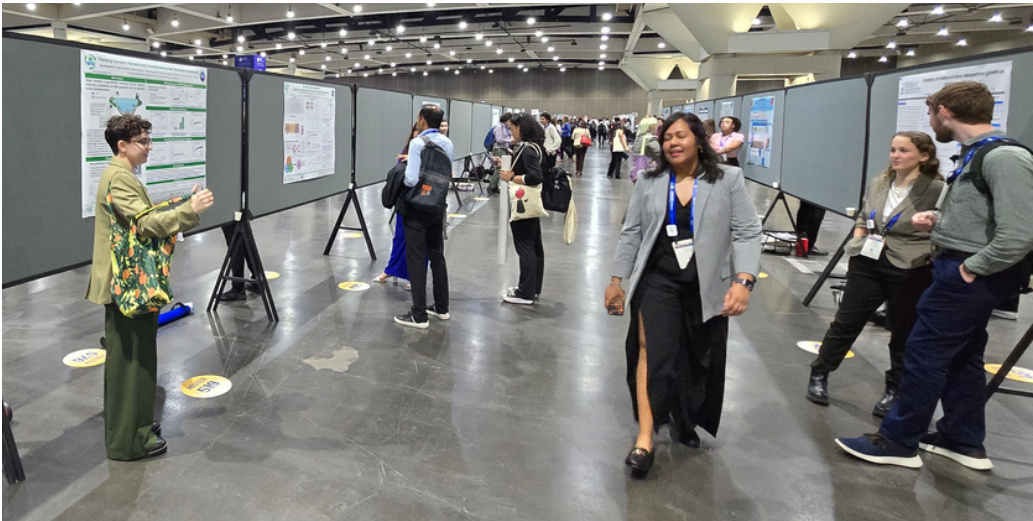
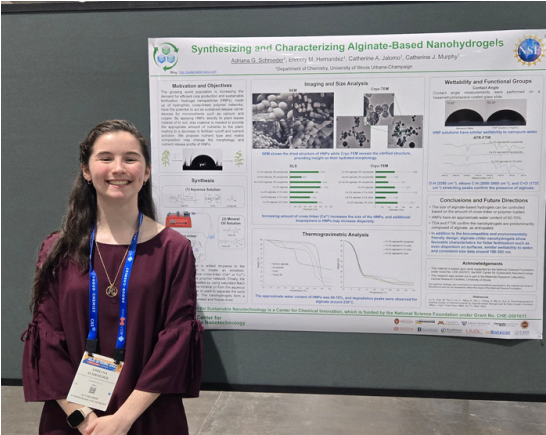
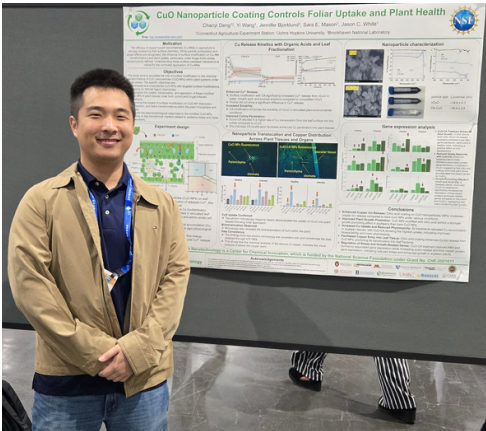
FUN BETWEEN SESSIONS



more from All-Hands ACS

March 23-27, 2025 in San Diego, CA.

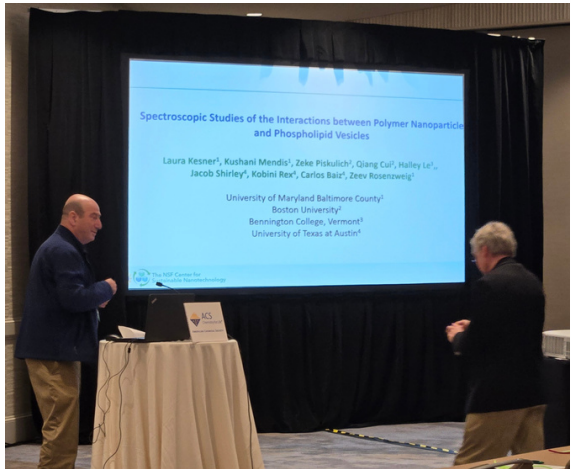
POSTER SESSIONS



more from All-Hands ACS

March 23-27, 2025 in San Diego, CA.

TALK SESSIONS



more from All-Hands ACS

March 23-27, 2025 in San Diego, CA.

RECEPTION





LIQUID NITROGEN ICE CREAM AT SURE ORIENTATION



	FAT	SWEETENER	FLAVORINGS	How WAS IT?	Notes
Cookie Dough Lab Group	1/2 cup milk	1 tablespoon sugar	1/4 teaspoon vanilla	very sweet	Need more liquid
Rocky Road Lab Group	1/4 cup milk 1/4 cup milk	1 tablespoon	1/4 tsp vanilla + Beanitos Caramel	Too much liquid. Nitrogen turned into drops too fast ... will repeat (still yummy)	
Cookie Dough	1 cup milk 1/2 cup cream	None	1/4 teaspoon vanilla	too plain, tastes too much just like cream	
Superman	1/4 cup cream 1/4 cup milk	1 tablespoon	1/2 teaspoon vanilla	Great! Like vanilla bean - could be heavy	
Rocky Road	1 cup cream 3/4 cup milk	3 tablespoons	3/4 tsp vanilla	Delicious! A little watery but overall a success!	
Cookie Dough	1/2 cup milk 1/2 cup cream	1 tablespoon sugar	1/4 tablespoon strawberry		



SURE students learned about strategies for outreach while experimenting with different variables for making liquid nitrogen ice cream



CSN at the GRC



Many CSN members attended the June Gordon Research Symposium and Gordon Research Conference (GRS/GRC) on [Environmental Nanotechnology](#) in Maine.





2024 CSN SURE participants **Amelyn Ya Chen Phang** (**Hernandez** group) and **Halley Le** (**Rosenzweig** group) met in Chicago during a PhD visit weekend at Northwestern. “We were very excited to have this mini CSN-undergrad reunion and just wanted to send you guys our regards. The CSN was amazing and we are still in awe to be part of the program.”



Mike Schwartz (left) and **Donald White** (right) pose with NMRs at Tuskegee University (2016, below) and at North Carolina A&T (2025, right).



Three (academic) generations of CSN’ers. **Mike Curry** (left), Curry group alum **Donald White** (Ph.D. ‘19, right), and current White group undergrad and CSN SURE student **Savana Green** (middle).

DID YOU KNOW?

CSN Shirt designs from 2016 through 2024 are still for sale at csn.threadless.com! (The SPRING Board will be discussing what to do with any future earnings at their July 9 meeting.)



L-R: example products with designs from 2022, 2018 (official and unofficial), and 2024





Latest from Sustainable Nano

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



[NASA Pride Flag](#)

Blog posts published since the last newsletter:

- [Celebrating Pride in STEM for 2025](#)

The Sustainable Nano blog will be migrating to a new home later this summer! Stay tuned for more information in our final newsletter.



NSF Thank You Website

In honor of the NSF's 75th anniversary, the Centers for Chemical Innovation collaborated to create a [Thank You page](#) with messages from CCI members to highlight the positive impact of NSF support over the years of CCI funding.. Thanks to CSN members who contributed their thank-you notes to the collection!



Opportunities!

The Society for Advancement of Chicanos and Native Americans in Science (SACNAS) is hosting the [National Diversity in STEM conference](#) between October 30 and November 1, 2025 in Columbus, OH. [Applications for summer researchers](#) are due July 11.



2024 NDiSTEM logo

[INFRAMES](#) has announced the launch of a new grant to support international collaboration for students and postdoctoral researchers. Students or postdocs in any affiliated INFRAMES institution are eligible to respond to their [call for proposals for research collaboration](#) between US and EU partners by September 30, 2025.



Also, the [application is open for the upcoming INFRAMES conference](#) in Rennes, France (Oct 15-17).



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](#)

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