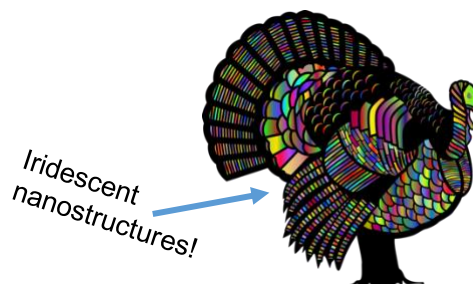


What's happening in the CSN?

November 24, 2021

Volume 7, Issue 1



Welcome to winter 2021! As we approach Thanksgiving and winter break, we hope all of our CSN community are safe and well.

Celebrations

Welcome to New CSN Members



The CSN welcomes incoming graduate students **Sean Welter** (Carlson group, left) and **Wilanyi Alvarez Reyes** (Haynes group, right, also a SURE program alum)!

Meanwhile, we are excited to welcome two new CSN Affiliates: **Andre Clayborne** (left, George Mason University) and **Christian Dimkpa** (right, Connecticut Agricultural Experiment Station)



Good news!

Zack Jones (Hamers Group) successfully defended his Ph.D. thesis, entitled “Optical Characterization of Fluorescent Diamond Nanoparticles in Complex Environments” on June 28, 2021. He’s now a postdoc at UC Berkeley in the lab of Prof. Ashok Ajoy. Congratulations, Dr. Jones!





Irene K. Metz (Mason group) successfully defended her Ph.D. thesis on July 23, 2021. Irene is a chemistry instructor at Hawkeye Community College. For her thesis they carried out some traditional DFT projects and also developed/implemented/assessed activities using open-source comp chem in first-year classes at HCC. She also used Sustainable Nano blog posts to build class activities during covid to keep their students engaged with real-world applications of chemistry. Congratulations, Dr. Metz!

CSN alum **Naomi Dalchand (Geiger group)** defended her thesis in July, and has been working as a Technical Advisor at Baker Botts L.L.P. since August. Congratulations, Dr. Dalchand!



Dongyue Liang (Cui group) successfully defended his Ph.D. thesis, entitled "Computational Studies at Nanomaterial-Biological Interfaces" on August 12th, 2021. He's now a postdoc at the University of Chicago in the lab of Juan de Pablo. Congratulations, Dr. Liang!

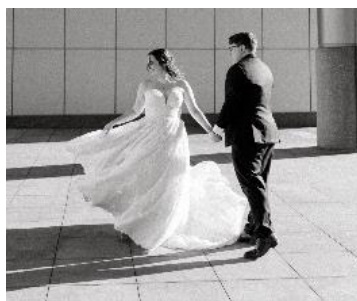
Rebeca Rodriguez (Haynes group) successfully defended her doctoral thesis, titled "Leveraging Linear Polymer Affinity Agents and Surface-enhanced Raman Scattering for the Detection of Food Contaminants" on November 5, 2021. Becky will be here at UMN for a bit longer before departing for a position as an analyst at a government agency. Congratulations, Dr. Rodriguez!



Diamond Jones (Mason group) successfully defended her doctoral thesis, "First-principles and thermodynamics approach to understanding metal release from complex metal oxides" on November 23, 2021. Congratulations, Dr. Jones!

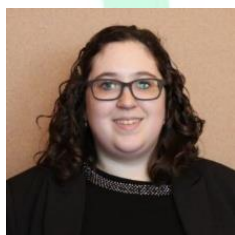


Becca and **Christian Reardon-Lochbaum (Pedersen group)** got married! The wedding was on September 18th 2021 in Chapel Hill NC, where they met in college. Congratulations, Christian & Becca!



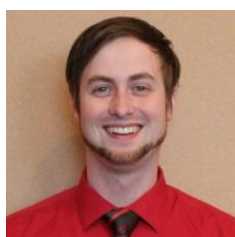
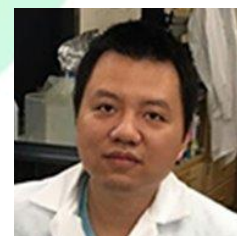
Kelci and **Zeke Piskulich (Cui group)** got married! The wedding was on September 25th, 2021 in Lawrence, Kansas, where they met in grad school. Congratulations, Zeke & Kelci!

CSN alum **Jenny Hedlund Orbeck (Hameres group)** accepted a position as Scientific Officer for the [International Institute for Nanotechnology \(IIN\)](#) at Northwestern University. The IIN is responsible for >\$1 billion in funding for nanotechnology research and related programs. Congratulations, Jenny!



CSN alum **Izzy Foreman-Ortiz (Pedersen group)** started a new position as a Senior Scientist with Pfizer (Boston, MA) in September 2021. Congratulations, Izzy!

CSN alum **Yi Cui (Orr group)** will be joining NanoString Technologies in Seattle. He left MIT to join the biotech company in September. He will continue to work on single cell biology and develop some spatial molecular mapping tools. Congratulations, Yi!



CSN alum **Joe Buchman** is converting from a contractor to a full-time Medtronic employee. Congratulations, Joe!



CSN alum **Miranda Gallagher (Fairbrother group)** has started a new position as the Project Manager for IGEN (the Inclusive Graduate Education Network). According to the IGEN website, "As a member of the IGEN Backbone, Miranda is working towards our straightforward and challenging mission, to close the gap between BS and PhD STEM degree attainment for underrepresented groups through fostering a cultural paradigm shift in STEM graduate education." Congratulations, Miranda!



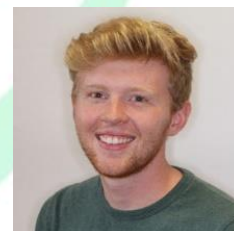
CSN SURE alum **Hann Tu (Giraldo group, 2020)** was accepted into the Northeastern University chemistry PhD program. Congratulations, Hann!

Milestones and awards



Becky Curtis (Klaper group) has been awarded a John A. Knauss Marine Policy Fellowship. The Sea Grant Fellowship provides a unique educational and professional experience to graduate students who have an interest in ocean, coastal and Great Lakes resources and in the national policy decisions affecting those resources. The Fellowship matches highly qualified graduate students with "hosts" in the legislative and executive branch of government located in the Washington, D.C. area, for a one-year paid fellowship. Becky will be working in NOAA's National Marine Fisheries Service, Office of Sustainable Fisheries. Learn more about the Fellowship [here](#), and read the UW-Milwaukee news article about Becky [here](#).

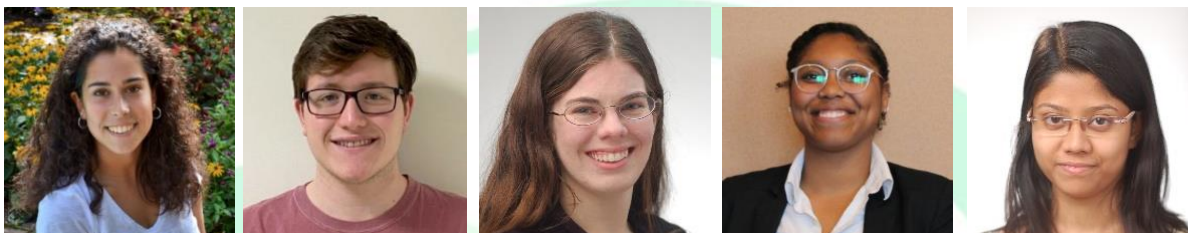
Riley Lewis (Haynes group) was selected as a trainee for the University of Minnesota Biotechnology Training Grant. This will present him with additional professional development opportunities and help us leverage the CSN funds further.



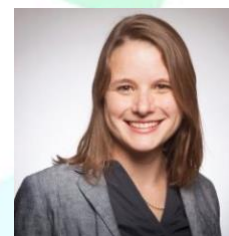
Beza Tuga (Haynes group) was recognized with a MN ACS Travel Award to present CSN work at the Fall 2021 National ACS Meeting in Atlanta, GA.



Congratulations to (L-R): **Caroline Anastasia** (Petersen Group) and **Connor Protter** (Hamers Group) for successfully passing their second-year Thesis Background Exam (TBE)! **Diamond Jones** (Mason Group) had her 3-month presentation (the last milestone prior to thesis defense, see above!). **Laura Kesner** (Rosenzweig group) submitted her independent research proposal, "Removal of varying species of nanoplastics using coprecipitation." **Shreyasi Sengupta** (Rosenzweig group) qualified for her PhD Candidacy exam. Well done, everyone!

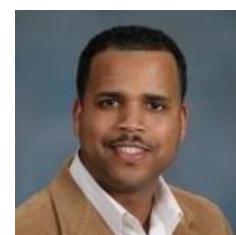


CSN affiliate **Korin Wheeler** is the recipient of the Bernard Hubbard, S.J., Creative Collaboration Award! Her work with students represents the best of a Santa Clara University.



Rebecca Klaper was named a Royal Society of Chemistry Fellow, and was also announced as Vice Dean for the UW-Milwaukee School of Freshwater Sciences. Read more in UW-Milwaukee news items [here](#) and [here](#).

CSN Affiliate **Mike Curry** received the 2021 HBCU Pioneer Award from NOBCCHE (the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers). The award recognizes leadership, scientific achievements, and commitment to develop HBCUs. You can watch Mike's acceptance [video here](#).



CSN Publications

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

Israel Santana, Peiguang Hu, Su-Ji Jeon, Chris Castillo, Hann Tu and Juan Giraldo (2021). Peptide-mediated Targeting of Nanoparticles with Chemical Cargoes to Chloroplasts in Arabidopsis Plants. *Bio-protocol*. 11 (12), e4060. Read the online version of the article [here](#).

Benjamin P. Frank, Casey Smith, Emily R. Caudill, Ronald S. Lankone, Katrina Carlin, Sarah Benware, Joel A. Pedersen and D. Howard Fairbrother (2021). Biodegradation of Functionalized Nanocellulose. *Environmental Science & Technology*. 55 (15), 10744-10757. Read the online version of the article [here](#).

Leslie R. Sigmon, Ishaq O. Adisa, Beichen Liu, Wade H. Elmer, Jason C. White, Christian O. Dimkpa and D. Howard Fairbrother (2021). Biodegradable Polymer Nanocomposites Provide Effective Delivery and Reduce Phosphorus Loss during Plant Growth. *ACS Agricultural Science & Technology*. 1 (5), 529-539. Read the online version of the article [here](#).

Nicholas J. Niemuth, Becky J. Curtis, Elizabeth D. Laudadio, Elena Sostare, Evan A. Bennett, Nicklaus J. Neureuther, Aurash A. Mohaimani, Angela Schmoldt, Eric D. Ostovich, Mark R. Viant, Robert J. Hamers and Rebecca D. Klaper (2021). Energy Starvation in *Daphnia magna* from Exposure to a Lithium Cobalt Oxide Nanomaterial. *Chemical Research in Toxicology*. 34 (11), 2287-2297. Read the online version of the article [here](#).

Bei Liu, Qi Han, Li Li, Sunxiang Zheng, Yufei Shu, Joel A. Pedersen and Zhongying Wang (2021). Synergistic Effect of Metal Cations and Visible Light on 2D MoS₂ Nanosheet Aggregation. *Environmental Science & Technology*. Accepted for Publication. Read the online version of the article [here](#).

Aurora E. Clark, Henry Adams, Rigoberto Hernandez, Anna I. Krylov, Anders M. N. Niklasson, Sapna Sarupria, Yusu Wang, Stefan M. Wild and Qian Yang (2021). The Middle Science: Traversing Scale In Complex Many-Body Systems. *ACS Central Science*. 7 (8), 1271-1287. This “viewpoint” article describes “a new ‘Middle Science’ whose research vision integrates modern math and data science with chemical theories.” Read the online version of the article [here](#).

Rigoberto Hernandez (2021). A Cuban Campesino in Chemistry’s Academic Court. *The Journal of Physical Chemistry A*. 125 (30), 6505-6511. In this “in focus” piece, Rigoberto reflects on his path through chemistry and the importance of family and other support structures along the way. Read the online version of the article [here](#).



CSN Media & Other Recognition

Jason White contributed an editorial (along with Dr. Jorge Gardea-Torresdey) entitled “Nanoscale Agrochemicals for Crop Health: A Key Line of Attack in the Battle for Global Food Security” (read the perspective [here](#)). The editorial was part of a special issue in *Environmental Science & Technology* focusing on “Environmental Implications of Nanofertilizers” (cover image right) which also included a CSN publication led by the **Haynes** group (See last newsletter: [Kang et al. *Environmental Science & Technology*. 55, 13513](#)).



Mike Curry and **Donald White** had a U.S. patent, entitled “[Nanocellulosic Compositions](#),” granted on August 10, 2021. (Image Credit: Tuskegee University)

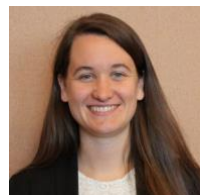
Paige Kinsley (Hamers group), **Stephanie Mitchell** (Carlson group), and **Jaya Borgatta** (CAES postdoc & Hamers group alum) were invited by Lifeology to collaborate with artist Alberta Torres (see image, right) on a new outreach flash-card course entitled “How to Write About Science Collaboratively.” You can see the [full course here](#).



ScienceSeeker Two CSN blog posts were highlighted this summer by news aggregator Science Seeker: “Why Honeybees Never Ask for Directions” by Christopher Castillo ([July 12-18](#)) and “Activism in Chemistry” by Christy Haynes ([Aug 9-15](#)).



Alicia Tripp (left) and Katie Kruszynski (right) (Hamers group) have become co-chairs of the UW Chemistry Graduate Student Faculty Liaison Committee.



Paige Kinsley (Hamers group) was featured in an article in the [*Wisconsin State Journal*](#) about the series of disruptions to research plaguing the UW-Madison Chemistry building.

Science Straight Up

Science is Human Because Humans do Science--Why Diversity Counts

JULY 08, 2021 JUDY MILLER AND GEORGE LEWIS



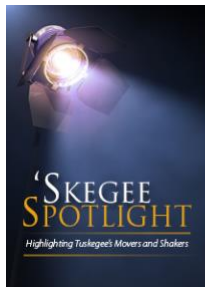
Rigoberto Hernandez was interviewed on the Science Straight Up Podcast for an episode entitled “Science is Human Because Humans do Science – Why Diversity Counts.” Listen to the podcast [here](#).

The research of **Rigoberto Hernandez’s** group was also featured in the *Johns Hopkins News-Letter* in a November 17 article titled “SPIRAL Center uses artificial intelligence to make solar energy cheaper” by Zachary Bahar. The article highlights the new Synthesis and Processing Informed by Rational Algorithmic Learning (SPIRAL) Center co-led by Rigoberto and funded by the Department of Energy to “use artificial intelligence to optimize the creation of materials needed for solar power.” You can read the article [here](#).



CSN alum **Donald White (Curry group)** was featured in *Re.engineer Magazine* in summer 2021, in an article profiling his background and passion for STEM education. You can read the [article here](#).





CSN affiliate **Mike Curry** has had several recent appearances in the media. A [Skegee Spotlight](#) profiled his research and his path to success as well as his green patent. A new partnership between Mike and Maria Soledad Peresin (a recent CSN guest speaker) was also highlighted by both [The Journal of Blacks in Higher Education](#) and [Auburn University](#). (Image Credit: Tuskegee University)

CSN alum **Joseph Bennett (Mason group)** and his research group have published a paper in the *Journal of Materials Research*, in the Early Career Scholar in Materials Science 2022 issue, titled “Developing new antiferroelectric and ferroelectric oxides and chalcogenides within the A2BX3 family.” The article is available open access [here](#).



Lab Exchanges

Though travel remains limited due to COVID, we still encourage CSN researchers to arrange in-person or virtual lab exchanges when possible! Here are just a few ideas to include in your visit, whether virtual or IRL: Attend group meeting, meet one-on-one with faculty, participate in a social event, go on a virtual lab tour, arrange a writing retreat. Why not reach out to someone you talked to at the All-Hands meeting to discuss a visit?

CSN Talks and Presentations

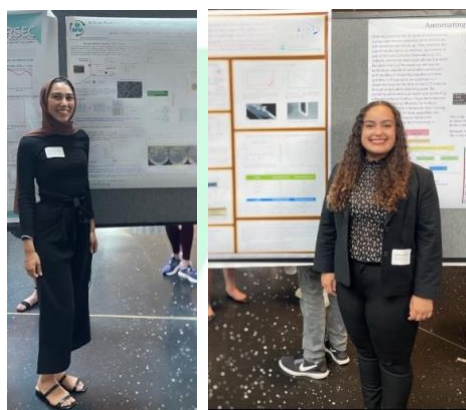


The first day-long Underrepresented Students in STEM Symposium - Twin Cities (USSS-TC) took place on October 12, 2021, organized by **Becky Rodriguez** with help from **Haynes** group and other volunteers. (L-R: Casey Wouters, **Miriam Krause**, **Beza Tuga**, **Christy Haynes**, **Mike Schwartz**, **Eleni Spanolios**, Mahmoud Matar Abed, **Becky Rodriguez**, & **Riley Lewis**). The USSS-TC was a free, in-person research symposium specifically for BIPOC students in STEM in the Twin Cities to present their scientific

research, a proposal, or a scientific paper they were interested in. Each student was assigned a mentor to help them during this process and carry on this mentorship as they transition toward future career plans. The website for the meeting is [here](#).



Paige Kinsley (Hamers group), Stephanie Mitchell (Carlson group), and Jaya Borgatta (CAES postdoc & Hamers group alum) (shown clockwise, art by Alberta Torres), presented “The value of researcher-artist collaborations for communicating nano-science” at the Sustainable Nanotechnology Organization meeting (virtual) on Nov 4.



CSN **Haynes** group undergraduate students **Radwa Abdelaziz** (left, SURE program) and **Astrid Hernandez** (right) presented their summer research projects at the University of Minnesota MRSEC Summer Undergraduate Research Expo in August.

Rigoberto Hernandez presented a seminar at Merck on September 23rd entitled “Discovery and Diversity Through Molecules and Materials”.



Jason White (left) and **Wade Elmer** (right) each gave virtual lectures at the University of the Punjab, Lahore Pakistan at the International Webinar on Agricultural Nanotechnology: Influencing the future of farming sustainability. Jason also presented lectures at the Summer Research Experience in Environmental Health Sciences Seminar of the Yale University School of Public Health; the Institute of Science and Technology

of Sorocaba, São Paulo State University; and the European Union (EU) Sustainable Innovation of Microbiome Applications in the Food System (SIMBA) on-line training course “Risk Assessment and safety aspects in the application of microbial and nanotechnologies to agriculture and food production.” Finally, he was an invited speaker at the International Sustainability Workshop (ISW 2021) hosted by Qatar University in Doha, Qatar.





Many CSN members presented talks and posters at the fall meeting of the ACS (in person in Atlanta, GA and online): **Jaya Borgatta**, **Nasim Ganji**, **Kyoungtea Kim**, **Rebecca Klaper**, **Christian Lochbaum**, **Sara Mason**, **Becky Rodriguez**, **Shreyasi Sengupta**, **Carlos Tamez**, and **Beza Tuga**. See a [full list of authors and their presentations here](#).

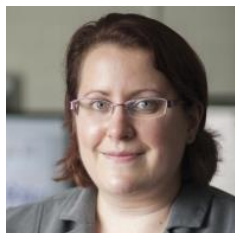
Latest from Sustainable Nano

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

CSN blog posts & podcast episodes since the last newsletter

- [Why Honeybees Never Ask for Directions](#) by **Chris Castillo** (Giraldo group)
- [Artivism in Chemistry](#) by **Christy Haynes**
- [Anxiety Can Make Graduate School Feel Like an Olympic Balance Beam](#) by **Laura Kesner** (Rosenzweig group)
- [Why is October 9 Nano Day? \(And what does it have to do with scientific notation?\)](#) by **Andrew Northwick** (Carlson group)
- [Nanotechnology and the Military](#) by **Shreyasi Sengupta** (Rosenzweig group)
- Podcast: [Ep. 40 This is the Future](#) - interview by **Beza Tuga** (Haynes group) with #BlackinNanotech founders Olivia Geneus & Jarriaun Streets

New CSN Capabilities



Sara Mason (left) and **Rigoberto Hernandez** (right) have both received XSEDE grants. Sara's is for research in Density Functional Theory Calculations for Nanomaterials in Energy Applications and the Environment; Rigoberto's is in research for Nonequilibrium Molecular Dynamics Simulations.



Fun!

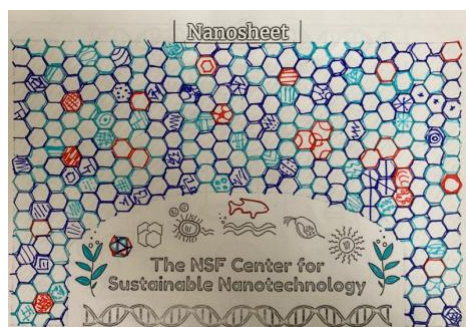
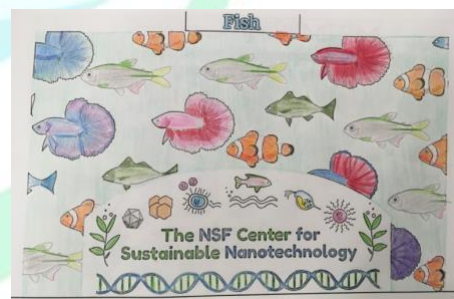
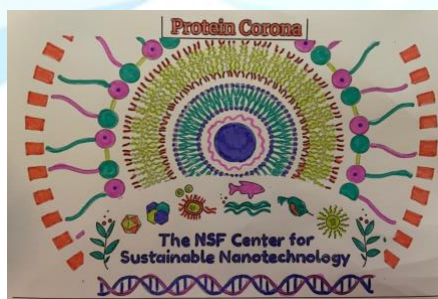


Zack Jones' thesis defense was followed by a **Hamers** group tradition of "themed snacks" such as Laser Diode Rice Krispie treats that shoot out 532 nm Gummi Strips.



Beza Tuga (Haynes group, left) at the ACS National Meeting in Atlanta.

All-hands meeting pipe cleaner DNA by **Levi Hogan** (Goldsmith Group, below)



Artwork from the All-Hands meeting, clockwise from top left, by: **Alessandra Gavin** (Carlson group), **Christy Haynes**, **Laura Kesner** (Rosenzweig group), **Safia Jilani**, & **Paige Kinsley** (Hamers group)



Opportunities

The **ENGINEERING Access for Graduate Education (ENG.A.G.E.) scholarship** from **Moore Wealth** offers STEM grad students \$5000 to pay down student debt and/or offset moving expenses. [Learn more here](#). Requirements for application are that the student is an underrepresented minority in STEM as defined by the NSF and a current undergraduate senior applying to graduate school OR currently enrolled in a PhD granting program in STEM. Applications open Nov 1 and the application deadline is January 31.

Stony Brook University invites applications for the [College of Arts and Sciences' Inclusion, Diversity, Equity & Access \(IDEA\) Fellows Program](#) (2022/2023), a full-time, 12-month, non-tenure-track faculty position at the lecturer level to commence Fall 2022. Candidates must have demonstrated plans to contribute to inclusion, diversity, and equity, excellence in innovative research, and potential to participate in the teaching mission of the Department they join. The successful candidate will be expected to be an effective interdisciplinary teacher and mentor at the undergraduate and graduate levels to guide research and professional development and be an active participant in community outreach activities. We are interested in scholars with the potential to offer a critical perspective based on experience in or understanding of groups historically underrepresented in higher education in these particular areas of interest: critical race theory, globalization, health disparities, sustainability/climate justice, aging, racial justice. Multiple fellows will be hired so this list reflects a broad swath of interest for a pool of fellows.

- Requirement: PhD (or MFA for applicants in Art or Music) from an accredited institution prior to a start date of 6/1/2022 or 8/1/2022 with specialization in one of the possible appointing departments or related field. A record of research related to one of the possible appointing departments or related field.

Contact: Review of applicant files will began on September 30, 2021 and will continue until the position is filled. Inquiries may be directed to the College of Arts and Sciences, Office of the Dean CAS_Dean@stonybrook.edu.

Check out **Funding Opportunities with ACS** including grants, fellowships, and research funds: [Support for Students and Early-Career Chemical Professionals](#)

Looking Ahead

There will be no regular weekly Wednesday CSN meetings on November 24 (Thanksgiving), December 22, or December 29 (winter break).

Mark your calendars! The **CSN Spring All-hands meeting** will take place on **April 11-12, 2022**, hopefully maybe possibly in person!

Planning has begun for the **fall 2022 ACS Meeting**: if you have an idea for a symposium, deadlines are coming up soon! Each technical division organizes its own symposia; the [list is here](#) and CSN faculty can provide additional suggestions about who to contact if you have questions.



Lost in Cyber-Space?



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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).

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](#)
- New CSN Presentations: [link](#)
- Report Outreach Activity: [link](#)
- Report Awards and Other Activities: [link](#)
- CSN Safety Verification form: [link](#)
- CSN Shipping Addresses: [link](#)

CSN SuggestionOx (Completely Anonymous Feedback to Admin)

- Director (Bob): [link](#)
- Associate Director (Christy): [link](#)
- Managing Director (Mike): [link](#)
- E/O Director (Miriam): [link](#)

Admin emails

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



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