What's happening in the CSN?

October 6, 2020 Volume 6, Issue 1









Celebrations

This is the first issue since the Center for Sustainable Nanotechnology (CSN) was renewed to continue advancing our research for another 5 years! With the renewal, we are now officially called the "NSF Center for Sustainable Nanotechnology." You can read more about the new award in press releases from several

CSN institutions that are linked here (also see

The NSF Center for below). Sustainable Nanotechnology The CSN is funded by the National Science

Foundation (NSF) Division of Chemistry under their NSF Centers for Chemical Innovation program. "The NSF Centers for Chemical Innovation (CCIs) are transforming the way we do science by engaging interdisciplinary, multi-institutional teams to take on grand challenges in the field," said David Berkowitz, Division Director of Chemistry. "The Center for Sustainable Nanotechnology, one of the CCIs, is performing important research that will guide the development of sustainable nanotechnologies, a key element of the industries of the future."

Welcome to New CSN Members

Randy Goldsmith (UW-Madison chemistry, group website) has officially joined the CSN as a Senior Investigator. The CSN also welcomes (very late in some cases) new graduate students Sophia Sommerkamp (Fairbrother group), Christopher Castillo (Giraldo group), Levi Hogan (Goldsmith group), and Beau Schweitzer (Goldsmith group), as well as postdocs Ravithree Senanayake (Hernandez group) and Su-Ji Jeon (Giraldo group). (pictured left-to-right below)



















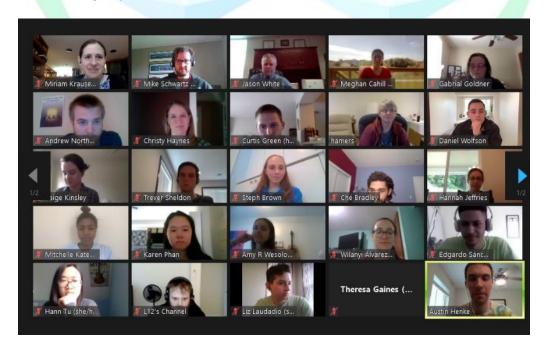


We also welcome two new CSN Affiliates, Prof. **Juan Santana** (University of Puerto Rico at Cayey) and Prof. **Korin Wheeler** (Santa Clara University).

A warm welcome to our newest CSN "junior scientist," **Juan Pablo**'s daughter **Sofia Zoe Giraldo**, who was born on June 11.



Summer Undergraduate Virtual Program. A belated hello-and-goodbye to our wonderful group of summer undergraduate students, who dove in to a completely new all-virtual program with enthusiasm and lots of patience. Our "official" SURE/REV students were Wilanyi Álvarez-Reyes (Haynes group), Minh Tam Hoang (Hernandez group), Hannah Jeffries (Hamers/Goldsmith groups), Mitchelle Katemauswa (Pedersen group), Jason Longenberger (White/Elmer groups), Elizabeth Mensah (Cui group during summer, Hernandez group during academic year), Edgardo J. Sánchez Rivas (Carlson group), Hann Tu (Giraldo group), Daniel Wolfson (Feng group), and Juliet Yamauchi (Hamers/Goldsmith groups). In addition, we were happy to have a number of current CSN-affiliated undergraduates participating in our summer program, not all of whom have been introduced here before: Che Bradley (Hamers group), Meghan Cahill (Haynes group), Clare Froehlich (Haynes group), Metti Gari (Feng group), Gabrial Goldner (Kabengi group), Paul Lemke (Feng group), Kelly Lu (Feng group), Falak Tawakalna (Feng group), Mary McIntyre (Haynes group), Karen Phan (Kabengi group), Trever Sheldon (Haynes group), and Amy Wesolowski (Carlson group).





Thank you to everyone who helped facilitate career development and technique tutorials, including CSN Affiliates Prof. Theresa Gaines (Delta State) and Prof. Nadine Kabengi (Georgia State), Scholar-in-Residence Prof. Raychelle Burks (American University; see more below), guests Charlie Fry, Heike Hofstetter, and Henry Kostalik, and CSN members Vivian Feng, Randy Goldsmith, Bob Hamers, Christy Haynes, Austin Henke, Natalie Hudson-Smith, Liz Laudadio, Dongyue Liang, Cathy Murphy, Nicholas Neimuth, Andrew Northwick, Tana O'Keefe, Jenny Orbeck, Joel Pedersen, Becky Rodriguez, Sophia Sommerkamp, Jason White, and Xiaoxiao Yao. It was an amazing group effort! The participants overall reported having a wonderful experience, especially considering the difficult circumstances.



Scholar-in-Residence. This summer we were also delighted to welcome our first-ever CSN Scholar-in-Residence, Prof. **Raychelle Burks** (see her <u>Wikipedia page</u>). Prof. Burks presented a professional development session on outreach on June 5, taught the summer tutorial on digital color analysis, and worked with our summer students on an extensive Twitter outreach project. She also presented a public webinar on August 4 called "All My Favorite Science Teachers are Undead: Science lessons from zombies, vampires, and immortals." She has just started a new faculty position at

American University, but will be back with us on November 11 as a guest speaker for our weekly Wednesday meeting.

Good news!

Congratulations to **Dr. Kelly Zhang** (**Hamers** group), who defended her thesis, entitled "Functionalization and characterization of carbon nanomaterials: Understanding mechanistic molecular interactions in biological systems," on April 2. Kelly joined Merck as a Senior Scientist this summer. Congratulations, Dr. Zhang!





Meng Wu (Murphy lab) defended his doctoral dissertation, entitled "Hard and Soft Coatings on Gold Nanoparticles at the Nano-Bio Interface," on April 3. Meng joined DuPont this summer. Congratulations, Dr. Wu!

Cassie Zhang (Murphy group) defended her doctoral dissertation, entitled "Quantification of molecular-level events at nanoparticle-biological interfaces," on April 8. Congratulations, Dr. Zhang!





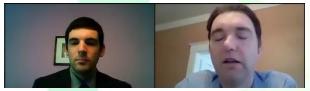
Liz Laudadio (Hamers group) defended her thesis "Chemical Transformations of Lithium Cobalt Oxide Nanoparticles in Model Environmental Systems" on May 11. Her doctoral thesis includes a <u>public-friendly thesis chapter</u> written to communicate her work to non-scientists, as part





of the <u>Wisconsin Initiative for Science Literacy (WISL) Award</u> for Communicating Ph.D. Research to the Public. Liz has recently joined Argonne National Laboratory as a postdoctoral researcher. Congratulations, Dr. Laudadio!

Ben Frank (Fairbrother group) defended his thesis, entitled "Environmental Transformations of Next-



Generation Carbon Nanomaterials" on May 29. Congratulations, Dr. Frank!

Dan Hoffman (**Murphy** group) successfully defended his thesis, entitled "Synthesis and Transformations of Multimetallic Nanoparticles," May 2020. Congratulations Dr. Hofmann!





Congratulations to **Dr. Denise Williams-Harris** (**Rosenzweig** group) for successfully defending her thesis, entitled "Molecular Interactions between Luminescent Quantum Dots and Bacteria," on July 16. She accepted a position with AmbioPharm in Georgia, and is also tutoring at Paine College.

Ricky Brown (**Rosenzweig** group) successfully defended his thesis, entitled "Synthesis, Stability and Dynamic Surface Chemistry of InP-based Core/Shell Quantum Dots," on July 27. Congratulations, Dr. Brown!





Congratulations to **Dr. Natalie Hudson-Smith** on the successful defense of her thesis, titled "Nanoparticle Transformations and Toxicity: Impact of Complex Metal Oxide Nanoparticles, Experimental Tools, and Methods for Communicating Nanotechnology to the Public," on September 21. Natalie is now a postdoc at Stonybrook University as part of the IRACDA-NY teaching/research program, performing research with Prof. Liz Boon.





Congratulations to **Hyunho Kang** (**Haynes** group), who recently departed the CSN to begin his new position at Merck!

CSN alumni **Metti Gari** (**Feng** group undergrad) and **Leopoldo Posada** (**Rosenzweig** group SURE student) have recently joined UW-Madison and UMBC, respectively, to start their grad careers. We look forward to seeing them around again!







Wade Elmer was named the next Vice Director of the Connecticut Agricultural Experiment Station (CAES). He will replace **Jason White**, who was <u>recently appointed</u> <u>Director of CAES</u> (as reported in the last newsletter).

Prof. Cathy Murphy has started her term as Department head of the Department of Chemistry at the University of Illinois at Urbana-Champaign, making her the first woman to serve in that role in the department's 152-year history. You can read press releases here and here and here.





Congratulations to **Ben Frank** (**Fairbrother** group) and Anna Kozitzky, who got married March 28 (link)!



Congratulations to **Natalie Hudson-Smith** (**Haynes** group) on her engagement to Stephen Cameron!



Milestones and awards



Nicholas Niemuth (**Klaper** group) was been elected as the CSN's latest SPRING Board Liaison to the Executive Committee, for a term running from June 2020 through February 2021. Congratulations, Nicholas!

Stephanie Mitchell (**Carlson** group) has received the <u>Tim Salo Leadership Award</u>, granted every year by the University of Minnesota Council of Graduate Students "to recognize the recipient's leadership and service to fellow graduate students." Congratulations, Stephanie!





Beza Tuga (Haynes group) received the Robert L. Ferm Outstanding TA award. See the press release here. From one of her students: "Simply put, Beza has been the best TA of any subject during my time here at the University of Minnesota. No other TA had the ability to clearly explain tasks, make chemistry interesting, or relate to her students as well as Beza did." Congratulations, Beza!

Congratulations to **Meghan Cahill** (**Haynes** group undergraduate researcher) on being chosen as the winner of the <u>2020 Wayland E. Noland Award for Academic Excellence in Chemistry</u>, recognizing an outstanding rising senior chemistry major!





Becky Rodriguez (**Haynes** group) has received the <u>Women Chemists</u> <u>Committee (WCC)/ Merck Research Award</u>, which recognizes research excellence. Congratulations Becky!



Other SPRING recognitions and milestones

Paige Kinsley (Hamers group) passed her 3rd year exam; Leslie Sigmon (Fairbrother group) passed her grad board oral, and department oral, earning her Master's degree, and has also been named President of the JHU campus







science policy group; **Blake Hudson** (**Mason** group) passed his comprehensive exam. Congratulations, everyone!

CSN Productivity

Find the most recent list of all center publications on the **CSN Google Scholar** page.

Emily R. Caudill, Rodrigo Tapia Hernandez, Kyle P. Johnson, James T. O'Rourke, Lingchao Zhu, Christy Haynes, Z. Vivian Feng and Joel A. Pedersen (**2020**). Wall Teichoic Acids Govern Cationic Gold Nanoparticle Interaction with Gram-Positive Bacterial Cell Walls. *Chemical Science*. **11** (16), 4106-4118. Read the online version here.

Clyde A. Daly, Caley R. Allen, Nikita D. Rozanov, Gene Chong, Eric S. Melby, Thomas R. Kuech, Samuel E. Lohse, Catherine J. Murphy, Joel A. Pedersen and Rigoberto Hernandez (**2020**). Surface Coating Structure and its Interaction with Cytochrome c in EG6 Coated Nanoparticles Varies with Surface Curvature. *Langmuir*. 36 (18), 5030-5039. Read the online version here.

Clyde A. Daly and Rigoberto Hernandez (2020). Learning from the Machine: Uncovering Sustainable Nanoparticle Design Rules. *The Journal of Physical Chemistry C.* 124 (24), 13409-13420. Read the online version here.

Yongqian Zhang, Natalie V. Hudson-Smith, Seth D. Frand, Meghan S. Cahill, Larissa S. Davis, Z. Vivian Feng, Christy L. Haynes and Robert J. Hamers (**2020**). Influence of spatial distribution of cationic functional groups at nanoparticle surfaces on bacterial viability and membrane interactions. *Journal of the American Chemical Society*. 142 (24), 10814-10823. Read the online version here.

Joseph W. Bennett, Diamond T. Jones, Blake G. Hudson, Joshua Melendez-Rivera, Robert J. Hamers and Sara E. Mason (2020). Emerging investigator series: first-principles and thermodynamics comparison of compositionally-tuned delafossites: cation release from the (001) surface of complex metal oxides. *Environmental Science: Nano.* 7 (6), 1642-1651. Read the online version here.

Jing An, Peiguang Hu, Fangjun Li, Honghong Wu, Yu Shen, Jason White, Xiaoli Tian, Zhaohu Li and Juan Pablo Giraldo (**2020**). Emerging Investigator Series: Molecular mechanisms of plant salinity stress tolerance improvement by seed priming with cerium oxide nanoparticles. *Environmental Science: Nano*, 7 (8), 2214-2228. Read the online version here.

Peiguang Hu, Jing An, Maquela Matamis Faulkner, Honghong Wu, Zhaohu Li, Xiaoli Tian and Juan Pablo Giraldo (**2020**). Nanoparticle Charge and Size Control Foliar Delivery Efficiency to Plant Cells and Organelles. *ACS Nano*, 14 (7), 7970-7986. Read the online version here.

Ronald S. Lankone, Alyssa R. Deline, Michael Barclay and D. Howard Fairbrother (**2020**). UV–Vis quantification of hydroxyl radical concentration and dose using principal component analysis. *Talanta*. 218, 121148. Read the online version here.

Marco D. Torelli, Nicholas A. Nunn, Zachary R. Jones, Thea Vedelaar, Sandeep Kumar Padamati, Romana Schirhagl, Robert J. Hamers, Alexander I. Shames, Evgeny O. Danilov, Alexander Zaitsev and Olga A. Shenderova (2020). High Temperature Treatment of Diamond Particles Toward Enhancement of Their Quantum Properties. *Frontiers in Physics*. 8, Article 205. Read the online version here.



Robert J. Hamers (**2020**). Energy Storage Materials as Emerging Nano-Contaminants. *Chemical Research in Toxicology*. 33 (5), 1074-1081. Read the online version <u>here</u>.

Rebecca D. Klaper (**2020**). The Known and Unknown about the Environmental Safety of Nanomaterials in Commerce. *Small*. e2000690. Read the online version <u>here</u>.

Karthikeyan Gnanasekaran, HanByul Chang, Paul J. M. Smeets, Joanna Korpanty, Franz M. Geiger and Nathan C. Gianneschia (**2020**). An in situ Ni²⁺ stain for liposome imaging by liquid-cell transmission electron microscopy. *Nano Letters*. 20 (6), 4292-4297. Read the online version here.

Thilo Hofmann, Gregory Victor Lowry, Subhasis Ghoshal, Nathalie Tufenkji, Davide Brambilla, John Robert Dutcher, Leanne M. Gilbertson, Juan Pablo Giraldo, Joseph Matthew Kinsella, Markita Patricia Landry, Wess Lovell, Rafik Naccache, Mathews Paret, Joel Alexander Pedersen, Jason Michael Unrine, Jason Christopher White and Kevin James Wilkinson (2020). Technology readiness and overcoming barriers to sustainably implement nanotechnology-enabled plant agriculture. *Nature Food*. 1 (7), 416-425. Read the online version here.

Ali Rahnamoun, Alyssa R. Deline, Joanna Zienkiewicz, Ronghua Bei, Zheng Zheng, Zeev Rosenzweig, D. Howard Fairbrother and Rigoberto Hernandez (2020). Surface curvature and aminated side-chain partitioning affect structure of poly(oxonorbornenes) attached to planar surfaces and nanoparticles of gold. *Langmuir*. 36 (35), 10412-10420. Read the online version here.

Clyde A. Daly Jr. and Rigoberto Hernandez (2020). Optimizing bags of artificial neural networks for the prediction of viability from sparse data. *The Journal of Chemical Physics*. 153 (5), 054112. Read the online version here.

Dongyue Liang, Udaya Dahal, Yongqian Zhang, Christian Lochbaum, Dhiman Ray, Robert Hamers, Joel A. Pedersen and Qiang Cui (2020). Interfacial water and ion distribution determine zeta potential and binding affinity of nanoparticles to biomolecules. *Nanoscale*. 12 (35), 18106-18123. Read the online version here.

Yu Shen, Jaya Borgatta, Chuanxin Ma, Wade Elmer, Robert J. Hamers and Jason C. White (**2020**). Copper nanomaterial morphology and composition control foliar transfer through the cuticle and mediate resistance to root fungal disease in tomato (Solanum lycopersicum). *Journal of Agricultural and Food Chemistry*. Accepted for Publication. Read the online version here.

Tian Autumn Qiu, Valeria Guidolin, Khoi Nguyen Hoang, Thomas Pho, Andrea Carra, Peter W. Villalta, Jiayi He, Xiaoxiao Yao, Robert Hamers, Silvia Balbo, Z. Vivian Feng and Christy Haynes (2020). Nanoscale battery cathode materials induce DNA damage in bacteria. *Chemical Science*. Accepted for Publication. Read the online version here.

Perspectives

Christy L. Haynes, George C. Schatz and Paul S. Weiss (**2020**). Virtual Issue in Honor of Prof. Richard Van Duyne (1945–2019). *Analytical Chemistry*. 92, 4165-4166. Read the online version <u>here</u>.

Renee R. Frontiera and Christy L. Haynes (**2019**). Richard P. Van Duyne, plasmonics pioneer. *Proceedings of the National Academy of Sciences*. 116 (46), 22891. Read the online version <u>here</u>.

Lisa E. Friedersdorf, Rhema Bjorkland, Rebecca D. Klaper, Christie M. Sayes and Mark R. Wiesner (**2019**). Fifteen years of nanoEHS research advances science and fosters a vibrant community. *Nature Nanotechnology*. **14** (**11**), 996-998. Read the online version here.



CSN Media & Other Recognition

The CSN Virtual SURE/REV program was highlighted in *C&E News* for an article entitled, "<u>COVID-19 shakes</u> <u>up summer internship and research opportunities</u>" by Wynne Perry. The story was also highlighted in *InChemistry*.



After one of our professional development sessions, a few of our participants volunteered to be photographed for the news story in *C&E News*. Top: Christy Haynes, Miriam Krause, Amy Wesolowski, Steph Brown. Middle: Meghan Cahill, Karen Phan, Paul Lemke, Falak Tawakalna. Bottom: Huilan (Kelly) Lu, Daniel Wolfson, Juliet Yamauchi.

Rebecca Klaper was interviewed on Milwaukee Public Radio: <u>Nanoparticles And</u> COVID-19 Sewer Sampling: Two UWM Professors Discuss Their Research Projects.





Mason Group was highlighted in this *Iowa Now* story: <u>University of Iowa chemists study</u> environmental safety, health effects of nanotechnology

Jason White was featured in the NNI Supplement to the President's 2020 Budget. Jason was also featured in this NNI Highlights YouTube clip.





CSN Renewal in the News

- UW-Madison: Chemists Search for Ways to Use and Dispose of Tiny Particles by Tatum Lyles Flick
- CAES: The Connecticut Agricultural Experiment Station (CAES), along with 10 Universities and one National Laboratory, is funded as part of The Center for Sustainability Nanotechnology (CSN)
- UW-Milwaukee: NSF Renews Funding for Study of "Sustainable Nanotechnology" by Laura Otto
- UC-Riverside: \$20M sustainable nanotechnology partnership renewed by Jules Bernstein
- JHU: <u>Two Johns Hopkins chemists receive grants to create sustainable nanotechnologies</u> by Rachel Wallach
- PNNL: When Nano Meets Bio, by Corydon Ireland article in NewsWise, September 10, 2020
- University of Iowa: Mason Group Receives NSF Center for Sustainable Nanotechnology Grant Renewal

CSN Talks and Presentations

Miriam Krause presented a lightning talk, "Science Blogging for Professional Development and Outreach," at the virtual Advancing Research Impact in Society (ARIS) Summit, April 2020.



Many CSN members had presentations at the virtual ACS meeting in August. The full list can be seen here.

New CSN Capabilities





Qiang Cui and Sara Mason were each awarded an XSEDE grants, entitled "Molecular Simulations of metalloenzymes, Biomembranes and Multi-level QM/MM Free Energy Calculations" and "Density Functional Theory Calculations for Nanomaterials in Energy Applications and the Environment," respectively.

Latest from Sustainable Nano

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

New Nano at Home site: After a lot of hard work, the Outreach Committee is happy to announce the

launch of our new Nano at Home webpage. The page includes demonstrations and experiments developed by CSN SPRINGs, as well as a compiled list of all the educational resources shared on Sustainable Nano blog posts over the years.





CSN Blog posts & podcasts since the last newsletter

- <u>Nanotechnology for Younger & Healthier Skin?</u> by Christopher Martinez-Tiru (Carlson group 2019 SURE)
- Nanotechnology and the Future of Fuel Cells by Giles Kirkland (guest author)
- Nanotechnology and Modern Agriculture by Yu Shen (White group)
- Can nanotechnology help make a better COVID-19 test? by Nikki Hoang (Murphy group)
- Nano-enabled Recovery of Scarce Metals: From benchtop to startup by Howard Fairbrother
- Molecular music: Patterns of vibrations at the quantum level by Laura Kesner (Rosenzweig group)
- Podcast ep 35. Photographing the Unphotographable (interview with Felice Frankel)
- How can nanotechnology preserve stone cultural heritage sites? by Alyssa Deline (Fairbrother group) and Aránzazu Sierra-Fernández (guest author)
- Podcast ep 36. "Yes, and...": A Guide to Effective Science Communication Using Improvisation (interview with Liz Laudadio & Paige Kinsley (Hamers group) by Stephanie Mitchell (Carlson group))
- Authentic Research Experiences Amid The Pandemic by Minh Tam Hoang (Hernandez group SURE)
- Renewed for 5 more years! by Bob Hamers
- The chemistry of color tests by Stephanie Mitchell

Fun!





Jason White. I finally got into my new office; CAES hasn't been run by a chemist in 50 years! Went through the vault and archives and found some treasures for display, including an analytical balance purchased in 1853, a microscope purchased in 1856 and an absolutely stunning pan balance made from solid brass.

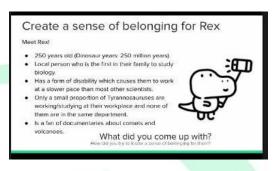


Ricky Brown sent us this photo of his wedding to Chia-Hua Lue from last October.



Virtual All-hands 2020



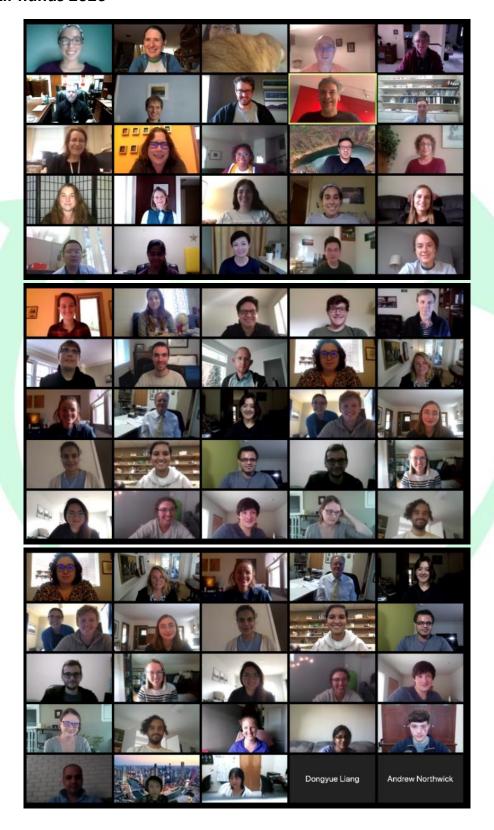








Virtual All-hands 2020



Pets of the CSN





Opportunities

Postdoc Opportunities.

CCI Postdoctoral Fellowships. The CSN is taking <u>applications for our postdoctoral fellowship program</u> (application deadline is November 1, see link for more details). Our program is part of a broader effort by several NSF Centers for Chemical Innovation with the following aims: "Several CCIs have initiated postdoctoral fellowships to augment the typical postdoctoral researcher hiring pathway of referral from advisor to advisor. The fellowship pathway offers the opportunity to work collectively to recruit applicants to our centers and to leverage our networks to reach a broader group of applicants. We also hope to form a cohort of fellows who can support one another during the postdoctoral research experience."

See the <u>CCI website</u> for links to individual CCI postdoc opportunities. The CSN Postdoctoral Fellowship page is linked <u>here</u>. Please share the information widely among your social networks!

2021 Environmental Nanotechnology Gordon Research Conference. From Paige Kinsley (Hamers group): The 2021 Environmental Nanotechnology Gordon Research Conference is currently being planned for June 2021 (Joel Pedersen is vice chair, and Rebecca Klaper was chair in 2019). The Environmental Nano Gordon Research Seminar (GRS) takes place the two days before the GRC and provides the opportunity for grad students and post docs to meet, network, and discuss research before the GRC begins. As part of the GRS, professional development opportunities are offered, giving students the chance to network with people from academia, industry, government and more. I'm currently helping organize the professional development activities for the 2021 GRS, and I'm looking for partner to help plan. If you're interested in the position, please let me know, and I can send over more details.

ACS 2021 Green Chemistry & Engineering Conference Call for Symposia, deadline October 9. The American Chemical Society's Green Chemistry Institute® (ACS GCI) is pleased to announce the call for symposia for the 25th Annual Green Chemistry & Engineering Conference. The Conference will be held on June 14-16, 2021, in Reston, Virginia. Read the call for symposia here.

Women in Renewable Energy (WiRE) conference, October 16, 2020. The WiRE conference brings together women scientists and engineers from around the world to report and discuss key trends in renewable energy research, research that will soon transform the future utilization of energy by our society. WiRE takes place under the umbrella of the Severo Ochoa workshops on Energy Storage and Harvesting organized by ICN2 within the framework of the 2019-2022 Excellence Severo Ochoa Programme. Information link here.

Looking Ahead

Stay tuned for information on several upcoming monthly career development activities!



Lost in Cyber-Space?





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

PUBLICATIONS RESEARCH AMEMBERS

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 Mike or 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: 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

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)

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