

What's happening in the CSN?

Month 23, 2018

Volume 3, Issue 7



Celebrations

Welcome to New CSN Members

Our summer REU and REV students are arriving soon! (REU=Research Experience for Undergraduates; REV=Research Experience for Veterans). They have a range of start dates, from May 29 through June 15. Please welcome them and help them get comfortable in the Center, whether in person or on Zoom. In addition, we need more senior students to be CSN “buddies” – see **Liz Laudadio**’s recent email for more information on the fun, informal buddy program.

Good news!

Alicia McGeachy and **Merve Doğangün** (Geiger group) successfully defended their Chemistry Ph.D. Theses! Alicia’s thesis was entitled “Second Harmonic Generation Spectroscopy Studies of Polymers and Nanomaterials at Model Biological Surfaces.” Merve’s was entitled “Surface-Specific Explorations at the Nano-Bio Interface.” Congrats Alicia and Merve!



Alicia (left) and Merve (right) with Franz Geiger.



Manal and Mike Curry.

Congratulations to **Manal Alwohaibi** (Curry group) for successfully defending of her Masters Thesis in Chemistry! The title of her thesis is "Extraction and Characterization of Cellulose from Different Biomass Sources."

Kyle Johnson, CSN undergraduate researcher jointly advised by **Haynes** and **Feng**, successfully defended his undergraduate honors thesis, earning him a chemistry degree with highest honors (Summa Cum Laude).



Kyle Johnson and Christy Haynes.

Milestones and awards

It's PhD exam season, and several CSN students have passed with flying colors! **Izzy Foreman-Ortiz** (**Pedersen** Group), **Zack Jones** (**Hamers** group), and **Jaya Borgatta** (**Hamers** group) passed their Thesis Background Exams at UW-Madison. **Liz Laudadio** (**Hamers** group) passed her 3rd year Research Proposal (also at UW-Madison). **Diamond Jones** (**Mason** group) passed her Ph.D. candidacy exam at Iowa. **Naomi Dalchand** (**Geiger** group) passed her qualifying exam at Northwestern. If there are any exams we missed, please let us know so we can include them in the next issue of the newsletter!



Left: Diamond Jones, after passing her candidacy exam! Sara said "her academic committee was impressed with the knowledge she demonstrated, and also though her research was super cool and important!" **Middle Left:** Zack Jones and Liz Laudadio were both dressed for success in matching flannel (bow)ties, keeping up with their tradition of "Flannel Fridays". **Middle Right:** Naomi Dalchand showing off her celebratory bottle of wine, a Geiger group tradition for passing exams (Naomi chose Chardonnay). **Right:** Izzy Foreman-Ortiz (top) and Jaya Borgatta (bottom).

CSN students **Demetrius Finley** and **Donald White** (shown to the right) won the Graduate Oral Presentation and Graduate Poster Presentation awards, respectively, at the Joint Annual Research Symposium hosted by Sigma Xi on the campus of Tuskegee University. Congrats Demetrius and Donald!



Congratulations to undergraduate researcher **Meghan Cahill** (**Haynes** group) on being granted an "Undergraduate Research Opportunities Program" award to support her continued research in the Haynes group!

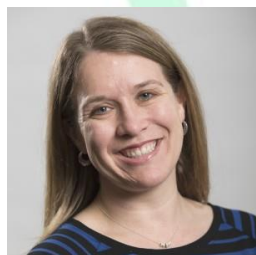


Former REU student **Megan Taylor** (Hamers group) from Tuskegee University was awarded a GEM fellowship at Pacific Northwest National Labs. Congratulations Megan!



Congratulations to EAB member **Karen Goldberg** ([website](#)), who was elected to the National Academy of Sciences this year! Election to the National Academies is one of the most prestigious honors for science and engineering. Read more about the incoming class of chemists who were elected to the NAS in 2018 [here](#).

Joel Pedersen was awarded a Vilas Professorship, one of the most prestigious named professorships at the University of Wisconsin (read more about the award [here](#)). Congratulations Joel!



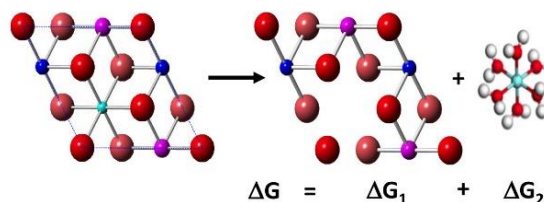
Christy Haynes has been chosen as the Coblentz Society's 2018 Craver Award winner, which recognizes significant contributions in applied analytical vibrational spectroscopy. Christy was also chosen as the Royal Society of Chemistry's 2018 Theophilus Redwood Award winner. As part of this award, Christy will give lectures at four UK universities during the 2018-2019 academic year. The full details can be found [here](#).

The University of Minnesota Joint Safety Team has recognized the **Haynes Lab** with the "Safest Lab Award" for Spring 2018. CSN researcher **Joe Buchman** is one of the Haynes lab "lab safety officers," so special thanks goes to him for keeping the Haynes lab ahead of the curve on safety!

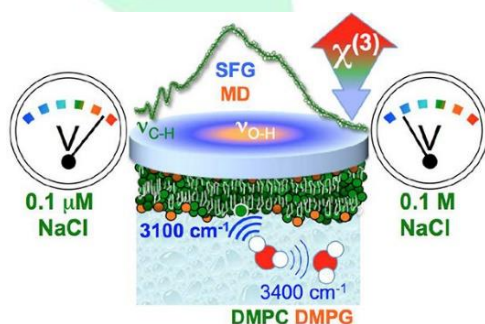


CSN Productivity

Joseph **Bennett**, Diamond **Jones**, Xu **Huang**, Robert J. **Hamers** and Sara E. **Mason**. Dissolution of complex metal oxides from first-principles and thermodynamics: Cation removal from the (001) surface of $\text{Li}(\text{Ni}_{1/3}\text{Mn}_{1/3}\text{Co}_{1/3})\text{O}_2$. *Environmental Science & Technology*, **2018**, 52 (10), 5792–5802. Read the published article online [here](#).

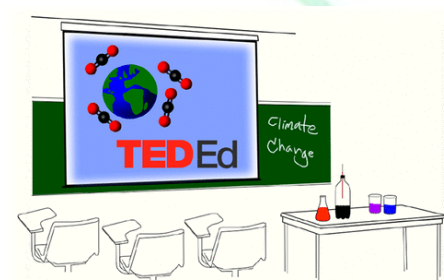
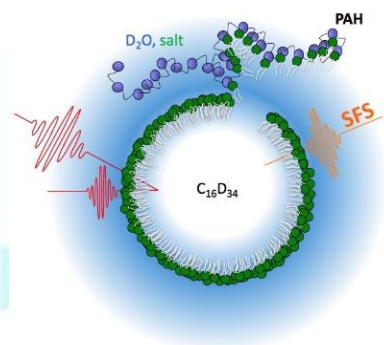


Note: You can also read Joe's public-friendly blog summary of this article [here](#).



Merve **Doğangün**, Paul E. Ohno, Dongyue **Liang**, Alicia C. **McGeachy**, Ariana Gray Bé, Naomi **Dalchand**, Tianzhe **Li**, Qiang **Cui** and Franz M. **Geiger** (2018). Hydrogen Bond Networks Near Supported Lipid Bilayers from Vibrational Sum Frequency Generation Experiments and Atomistic Simulations. *The Journal of Physical Chemistry B*, **2018**, 122 (18), 4870-4879. Read the published article online [here](#).

Laura L. **Olenick**, Julianne M. **Troiano**, Nikolay Smolentsev, Paul E. Ohno, Sylvie Roke and Franz M. **Geiger**. Polycation Interactions with Zwitterionic Phospholipid Monolayers on Oil Nanodroplets Suspensions in Water (D_2O) Probed by Sum Frequency Scattering. *The Journal of Physical Chemistry B*, **2018**, 122 (19), 5049–5056. Read the published article online [here](#).



Solaire A. Finkenstaedt-Quinn, Natalie V. **Hudson-Smith**, Matthew J. Styles, Michael K. Maudal, Adam R. Juelfs and Christy L. **Haynes** (2018). Expanding the Educational Toolset for Chemistry Outreach: Providing a Chemical View of Climate Change through Hands-On Activities and Demonstrations Supplemented with TED-Ed Videos. *Journal of Chemical Education*, **2018**, ASAP. Read the ASAP version of the article online [here](#).

See the [CSN Google Scholar](#) page or the [CSN website](#) for a full list of publications.



Tuskegee researchers develop greener, plant-based fertilizing system

April 18, 2018

Contact: [Michael Tuller](#), APH, Office of Communications, Public Relations and Marketing

Soon, that next scoop of fertilizer you spread in your garden could be a new, more sustainable option developed by researchers at Tuskegee University.

Dr. Michael L. Curry and chemistry graduate student Demetrius Finley have created a new means of delivering nutrients to plants that promises to be more effective, ecological and less expensive than conventional products used by farmers and amateur green-thumbs alike.

Instead of combining fertilizing nutrients with chemicals that may prove to be toxic to the ecosystem, the Tuskegee-developed system relies on recycling plant waste – which is in abundant supply.

Curry and Finley's delivery system relies on maximizing the use of cellulose extracted from plant biomass – plant refuse left over from agricultural harvesting and processing that may have otherwise been discarded. This specific type of nanotechnology employs nanocellulose to offer farmers a more efficient and targeted way to feed their crops and increase plant production.

"Think of it as plants feeding plants," said Curry, who is an associate professor of chemistry and materials science and engineering. "This delivery system relies on using parts of one plant to actually nurture the needs of another plant. In addition to boosting agricultural efficiency, this delivery system promises to be one of the most cost-effective means for farmers to sustain and maximize their crop productivity."

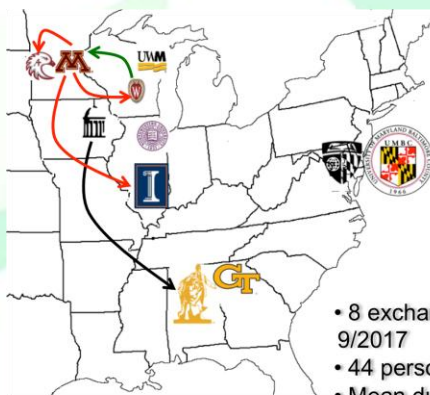


Finley and Curry demonstrate experiment.

Mike Curry and grad student Demetrius Finley were highlighted in a Tuskegee University press release entitled ["Tuskegee researchers develop greener, plant-based fertilizing system."](#)

Lab Exchanges

Summer is here and it's time to get going on lab exchanges! As you can see from the map here, which was presented at our NSF review on May 17, we have a ways to go to achieve our goal of one exchange per student per year for this year. Contact Mike or Miriam if you have questions about arranging a lab exchange!



- 8 exchanges since 9/2017
- 44 person-days
- Mean duration of 5.5 days

CSN Talks and Presentations

Sara Mason spoke to ~50 4-6th graders from Benton, IA about computational chemistry and Susnano research as part of an outreach event at UI.





Christy Haynes gave a seminar focused on CSN work as the plenary lecturer at the Winchell Undergraduate Research Symposium in St. Paul, MN. The undergraduates there expressed A LOT of interest in the CSN REU program.

Emily Caudill and **Izzy Foreman-Ortiz** (Pedersen Group) presented "Communication and Diversity in the Center for Sustainable Nanotechnology" at the Midwest SACNAS (Society for Advancement of Chicanos/Hispanics & Native Americans in Science) at the University of Chicago.



Diversity Corner

Mike Curry was highlighted for an article entitled "Re-defining Inclusive Innovation: MBDA Attends The 2018 Federal Laboratory Consortium Meeting" on [LinkedIn](#). Mike's perspective on the article:

"As a minority researcher working at one the most elite HBCUs in the world, one of my professional goals is to use my experiences and talents to increase the number of highly trained minorities within the STEM pipeline and to also continue the movement of the STEM Diversity meter in a positive direction. After my new startup company was selected to attend the FLC on April 24-26, 2018, I realized that beyond my determination to increase the number of minorities with the necessary STEM skills to fill positions within today's STEM workforce, I am now in a position to help move the needle forward on minority-inspired innovation and entrepreneurship. Thus, as a minority business owner, I look forward to not only seeing my research innovations moving towards commercialization for the public benefit but also partnering with CSN (and other Centers), federal labs, universities outside of the CSN, non-profit organizations, and granting agencies in an effort to increase the number of minority faculties and students pursuing innovation and entrepreneurship on HBCU campuses across the Globe."



Mike Curry, Donald White, Janeya Griffin, Ailsa Gilliam, Angella Preston, Victoria Hosendorf, Julius Maina (Photo Credit: [LinkedIn](#)).



Latest from Sustainable Nano

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

Blog posts and podcast episodes since the last newsletter

- April 6: [Las nanopartículas artificiales cambian de forma en el suelo y el agua subterránea](#) (translation of “Engineered Nanoparticles Change Shape in Soil and Groundwater” by Sam Lohse; edited by Curtis Green)
- April 13: [Nanoparticles can stick to bacteria, but does more nanoparticle sticking mean more toxicity?](#) - blog post by Joe Buchman (public-friendly summary of [Buchman et al. \(2018\)](#))
- April 16: [Using MRI technology to study nanoparticles](#) – podcast episode 24: interview with Kelly Zhang (public-friendly summary of [Zhang et al. \(2017\)](#))
- April 19: [¡Recibir el año con una explosión!](#) (translation of “Bringing the Year in with a Bang!” by Natalie Hudson-Smith; edited by Becky Rodriguez)
- April 26: [Landing Among the Stars: Averages in Society](#) – blog post by Natalie Dalchand
- April 30: [¿Cómo se puede calcular cuántos átomos hay en una nanopartícula?](#) (translation of “How can you calculate how many atoms are in a nanoparticle?” by Cathy Murphy; edited by Curtis Green)
- May 3: [Nano in your ear! Nanotechnology and hearing](#) – blog post by Bob Hamers
- May 10: [How do nanomaterials from e-waste transform in water? Computational chemistry helps find the answer](#) – blog post by Joe Bennett (public-friendly summary of [Bennett et al. \(2018\)](#))
- May 14: [¿Cómo puede la nanotecnología del grafeno mejorar los lentes de contacto inteligentes?](#) (translation of “How can graphene nanotechnology improve smart contact lenses?” by Nikki Hoang; edited by Becky Rodriguez)



Fun!



Fun photos from around the CSN, including celebrations from Diamond's candidacy exam, PhDs (Autumn walking, Merve and Alicia defending, Sara outreach, the Mason group thought process, and Bob celebrating another decade (I'm not 60, you're 60!)).



Opportunities

Dow's 2018 BEST Symposium (Applications can be submitted until June 1, 2018).

IC member **Cathy Tway** from Dow would like to let CSN students and postdocs know about their "BEST" program. BEST is primarily intended to introduce African American, Hispanic, and Native American U.S. doctoral and postdoctoral scientists to the wide range of rewarding careers in industrial research, and in particular, the many opportunities with one of the world's largest and leading chemical companies, The Dow Chemical Company. This conference, developed jointly by The Dow Chemical Company's minority scientists and Ph.D. recruiting team, demonstrates The Dow Chemical Company's commitment to a diverse workforce. **Find more information about the BEST program and submit your application [here](#).**

Grad students: Write for C&E News! (Due May 31)

C&E News email announcement: We're looking for grad students to write about their experiences for C&EN. To be considered, send a roughly 250-word essay on an issue you face as a graduate student to cenprojects@acs.org. Include your name, university, country, and year in school. Deadline is May 31.

Preparing Future Faculty Conference (June 27-29)

From informational email: Stony Brook University invites advanced graduate students and postdoctoral trainees interested in pursuing academic careers to attend our Preparing Future Faculty Conference from June 27-29 on the beautiful Stony Brook University campus on Long Island, New York. As a participant, you can expect excellent workshop/talks and key networking opportunities.

Limited travel awards are available so please register early. Priority consideration given to all who register by May 25th. For more information & registration, click [here](#).

Looking Ahead

Mark your calendars: CSN Fall All-Hands Meeting Sept 21-23, 2018

Our Fall All-hands meeting will be at the Connecticut Agricultural Experiment Station in New Haven, CT from September 20 - 23, 2018. Thursday (Sept 20) and Sunday (Sept 23) are travel days, with meeting activities happening on Friday and Saturday (Sept 21-22). Stay tuned for details about hotel and flights!

ACS Webinar. Refugees, Displaced Scientists, and Chemistry Communities: Creative Approaches to Support Chemical Practitioners (June 7 at 1:00 Central).

From the website: What can chemical science practitioners do to assist their colleagues displaced by war, political unrest, or other major events? Join a diverse panel of domestic and international scientists that will outline the issues facing displaced scholars and offer examples of creative activities to help colleagues in need. During this free interactive broadcast, which is co-organized as part of the ACS Science and Human Rights initiative, you will discover ways that you can make a positive impact and support threatened scholars around the globe. More information & registration [here](#)



Abstract & Conference Grant Deadlines Approaching for NOBCChE Conference (June 1, 2018 Deadline for abstracts and conference grants).

From informational email: As we gear up for the NOBCChE 2018 National Conference this Fall in Orlando (September 17-20) we invite students and professionals to submit abstracts for inclusion in the technical program. Students also are invited to apply for an Advancing Science Conference Grant, which provides reduced registration (\$50) and hotel accommodations for up to five days.

Our Technical Program focuses on delivering a suite of engaging and informative workshops, research talks and poster presentations to promote scientific dialogue and increase interaction among students and professionals.

- [Click here for more information about submitting an abstract](#)

The **Advancing Science Conference Grant** (ACSG) is available to applicants in their undergraduate or graduate studies. The ACSG covers reduced registration (\$50) and lodging for the conference for up to five nights. ACSG awardees will be required to volunteer while at the conference, as well as attend development sessions. In addition, awardees are expected to make an oral or poster presentation. [Apply for a conference grant through the same portal used to submit your abstract.]

Please contact Student Programs at studentprograms@nobicche.org if you have any additional questions.

Note that NOBCChE is scheduled immediately before our CSN fall All-Hands Meeting this year



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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, contact [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 (RFA, All-hands, professional development): [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](#)
- Nanoparticle availability (Listing of NPs available center-wide): [link](#)

CSN Feedback Forms

- Requests for the Executive Committee (meeting agenda): [link](#)
- 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 our publications on the [CSN Google Scholar](#) page.

