What's happening in the CSN?

September 13, 2016

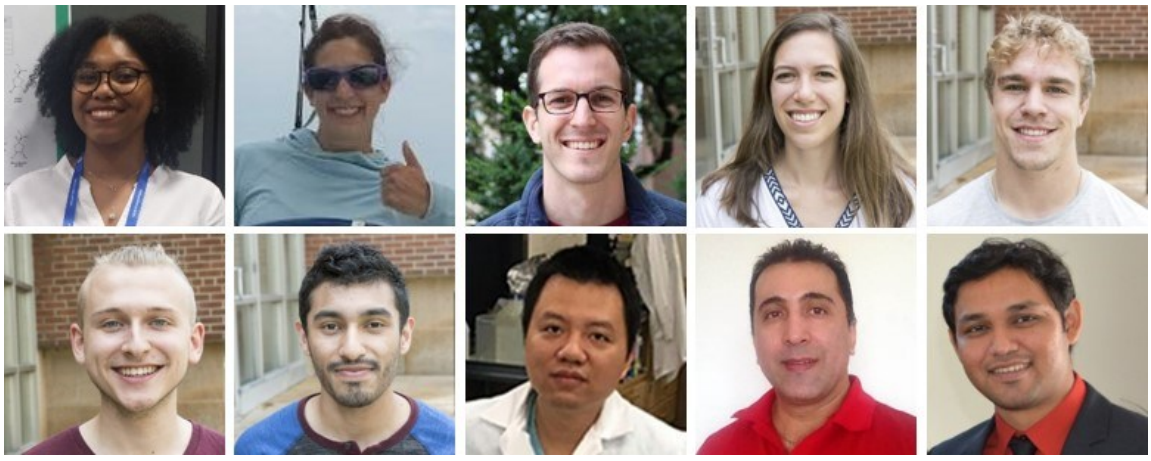
Volume 2, Issue 1

Celebrations

Welcome to New CSN Members

The CSN is pleased to welcome several new researchers to the Center! Incoming students include **Diamond Jones,** who has joined the **Mason** group at the University of Iowa after finishing her B.A. in Professional Chemistry at Eastern Michigan University. **Meagan Stettnisch** joined the **Klaper** group at UW-Milwaukee and **Peter Clement** joined the **Haynes** group at the University of Minnesota (you can read more about them in the "Meet the Students" section below). **Taylor Linn**, **Blake Miller**, **Joshua Keuther**, and **Rodrigo Tapia Hernandez** have joined the **Feng** group as undergraduate researchers at Augsburg College.

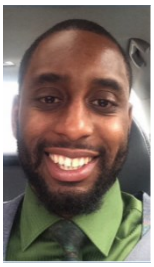
Dr. Yi Cui has joined the **Orr** group at Pacific Northwest National Laboratory after receiving his Ph.D. in Biological Engineering at Purdue University. **Dr. Ali Rahnamoun** has joined the **Hernandez** group as a postdoc at Johns Hopkins after receiving his Ph.D. in Mechanical Engineering at Penn State University. **Dr. Pratik Goswami** joined the **Carlson** group as a research scientist at the University of Minnesota after receiving his Ph.D. in Organic Chemistry from Iowa State University. Welcome, everyone!



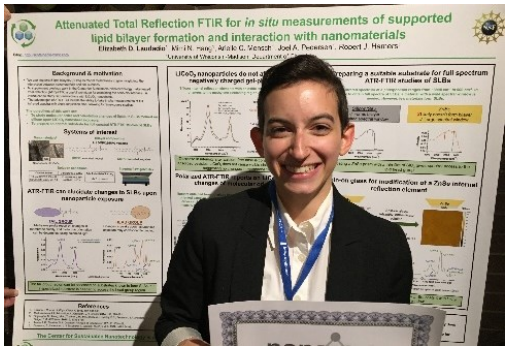
Welcome to our new CSN researchers!
TOP: Diamond Jones, Meagan Stettnisch, Peter Clement, Taylor Linn, and Blake Miller.
Bottom: Joshua Keuther, Rodrigo Tapia Hernandez, Yi Cui, Ali Rahnamoun, and Pratik Goswami.

Milestones and awards

Congratulations to CSN graduate student **Eric Melby** (**Pedersen**/**Orr** groups) for successfully defending his doctoral dissertation, entitled "Influence of proteins and ordered lipid domains on nanoparticle interactions with model biomembranes." Eric will be staying with the CSN, but in a new role as a postdoctoral trainee at Pacific Northwest National Laboratory. Congratulations, Dr. Melby!



Congratulations to **Donald White** (**Curry** group), who has been accepted to the Materials Science and Engineering Ph.D. program at Tuskegee University beginning this fall!



Liz Laudadio (**Hamers** group) won a 1st place prize for her poster presentation at the 11th International Conference on the Environmental Effects of Nanoparticles and Nanomaterials. The poster was entitled "Attenuated Total Reflection FTIR for in situ measurements of supported lipid bilayer formation and interaction with nanomaterials." Congratulations, Liz!

Meet the Students/Postdocs

Meagan Stettnisch (**Klaper** group). I grew up in Columbus, WI, but spent the past 8 years living in Milwaukee, North Carolina, and Mississippi. I received my B.S. in Geology at UW-Milwaukee in 2013, and liked Milwaukee enough to come back for more at UWM's School of Freshwater Sciences after working as a staff geologist in the environmental consulting industry.

Delivery crew action shot of Promo heading down to the Chicago Yacht Club for the Mac race!

I'm a first year Masters student working on aquatic toxicology research in Dr. Rebecca Klaper's lab. Outside of research, I enjoy sailing competitively (12th overall in this year's race to Mackinac Island!), salsa dancing, and finding good food to eat in Milwaukee. I'm also working on becoming a certified scientific research scuba diver during my time at UWM. I'm not afraid to jump into things I'm not familiar with and working hard to understand them, which has taken me more places – literally and figuratively – than I could have ever imagined.

My name is **Peter Clement**, and I'm a first year graduate student at the University of Minnesota, working in the **Haynes** group. My mom and dad both did graduate work in geology, and so the bedrock of my childhood comprised being out in nature and questioning why the world works as it does. Chemistry played a big part for me in answering many of my questions about the world around me, and I continued to study chemistry while at Williams College in the beautiful Berkshires of Western Massachusetts. There I saw an opportunity to combine my passions for science and the environment by using chemistry to prevent or mitigate human impact on our planet, and I knew I wanted to pursue a Ph.D. to grow my understanding of chemistry in order to address environmental issues.


Peter at Joshua Tree National Park

However, during my time at Williams I was diagnosed with ulcerative colitis, an autoimmune disease affecting the digestive tract. After struggling with my condition during my college career, I postponed applying to Ph.D. programs. Post-graduation I moved closer to family in Texas, learned to manage my colitis, and jumped full-time into chemistry. I worked at a research and development company, where I synthesized polymeric and inorganic nanomaterials for use in a broad array of technologies–from fuel cells to burn wound treatments.

Seeing the wide range of applications of nanomaterials, I became curious about the possible unintended consequences of these materials once they make their way into the environment. This question led to me to enroll at the University of Minnesota *(much to the chagrin of folks at UW Madison)*, where the Haynes group is working to understand the molecular mechanisms of nanoparticle toxicity on bacteria. This summer I worked closely with **Natalie Hudson-Smith**, studying the effect of lithium ion battery cathode materials on the Gram-negative bacteria, *Shewanella oneidensis* MR-1.

Eric Melby (**Pedersen/Orr** groups). I grew up in very rural West-central Wisconsin just outside of the "City" of Blair. Being part of the Driftless Area, it has fairly rugged terrain by Wisconsin standards, and exploring those hills and bluffs is a big reason for my love of the mountains of the West. My hometown's claims to fame are cheese (my dad actually worked in the cheese plant for 30 years), and large amounts of pristine sand that are actively mined for hydraulic fracturing (good for job creation, bad for pretty much every other reason). A fun fact is that I worked on a dairy farm from 7th grade through my senior year of high school.

After high school I attended UW-Madison to work on an undergraduate degree in chemistry education. My plan was to be a student for five years, mostly because I enjoy taking diverse courses and I wanted to be known as a SUPER senior, then spend the rest of my days as that wacky high school chemistry teacher that we all know and love. Throughout the majority of my undergraduate career I was working at a furniture store, and in the winter of my first senior year I realized that, as a lover of science, I should take advantage of this incredible research institution and try to get a job in a lab. Through a series of coincidences, I ended up getting a job in the laboratory of a brand new professor in the Soil Science

A little slice of heaven - Fat biking with my wife, Gwen, and our dog, Bristol, in the Wallowa Mountains near Joseph, OR.

Department whose research was focused on turfgrass (lawns, golf courses, etc.), and through another series of coincidences I stayed in the same lab to earn a master's degree in soil science studying oxygen-18 labeled phosphate as an environmental tracer. At this point my five year UW-Madison plan had turned into a seven year plan, but I said so long to the Midwest and headed to Colorado with my wife, Gwen, to become a wacky high school chemistry teacher in Fountain, CO.

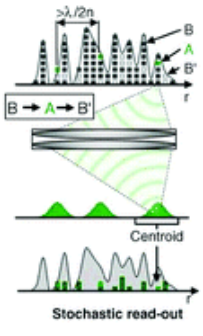
I absolutely loved teaching, but I also had an itch to return to research. I knew that I was most interested in environmental chemistry, so I got in touch with Prof. **Joel Pedersen**, with whom I had taken an environmental organic chemistry course. Through another series of events I ended up returning to UW-Madison to work on my Ph.D. in the Environmental Chemistry and Technology program in Joel's lab as a member of the CSN. My initial five year UW-Madison plan became a 10 year plan, but I just finished that degree (woohoo!), and I am now working as a postdoc in Dr. **Galya Orr's** lab at the Pacific Northwest National Laboratory. Here my research focuses on studying nanoparticle interactions with eukaryotic cells using a variety of techniques (focusing initially on AFM-fluorescence). Outside of the lab I love to spend time with my wife (and our dog Bristol) gardening, cooking, brewing, and biking, hiking, and camping as far off the beaten path as possible in the Cascade, Blue, or Wallowa Mountains.

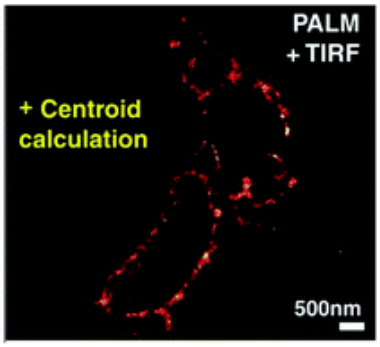
CSN Productivity

CSN students **Ricki Brown** and **Denise Williams** (**Rosenzweig** group) worked with students from Northwest High School in Germantown, Maryland to produce a quantum dots music video as part of a series of science-themed Youtube videos from the Secret Society of Science Songwriters (4SW). The project was highlighted on the UMBC News website, and Ricky, Denise, and Zeev were each quoted in the story. Check out the video teaser for the upcoming videos at the end of the article (*What's Happening prediction*: You cannot watch the video without smiling)!

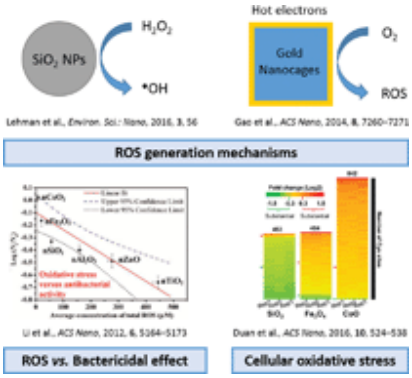
Zeev Rosenzweig gets his groove on! *Photo credit*: UMBC News

Solaire Finkenstaedt-Quinn's (**Haynes** group) review article describing methods for imaging cellular cytoskeleton dynamics has been accepted in the journal *Analyst*. Congrats to Solaire and co-authors **Autumn Qiu,** Kayeoung Shin, and **Christy Haynes**!





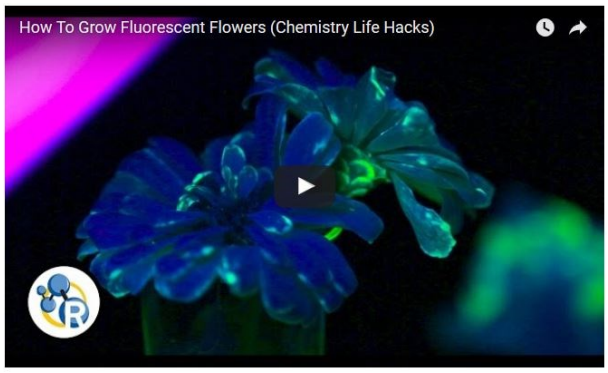
Solaire Finkenstaedt-Quinn, Tian Qiu, Kayeong Shin, and Christy Haynes. **Super-Resolution Imaging for Monitoring Cytoskeleton Dynamics**. *Analyst.* **2016.** **DOI:** 10.1039/C6AN00731G



Congratulations to **Autumn Qiu** and coauthors **Miranda Gallagher, Natalie Hudson-Smith,** Jiewei Wu, **Miriam Krause,** John Fortner, and **Christy Haynes**, who had their Highlight article on nanoparticle-induced ROS and oxidative stress mechanisms accepted to the journal *Environmental Science: Nano*!

Tian A. Qiu, Miranda J. Gallagher, Natalie V. Hudson-Smith, Jiewei Wu, Miriam O. P. Krause, John D. Fortner and Christy L. Haynes. **Research highlights: unveiling the mechanisms underlying nanoparticle-induced ROS generation and oxidative stress**. *Environmental Science: Nano*. **2016**. DOI: 10.1039/C6EN90021F

Our first two Sustainable Nano videos, created in collaboration with ACS Reactions, launched on July 16. Sustainable Nano's multimedia productions will be available on the CSN blog site as well as YouTube, iTunes, and through our collaborator sites, such as the ACS Reactions YouTube channel. The videos were also highlighted (get it?) on Gizmodo!



Sustainable Nano Podcast Launch! In case you haven't heard, our latest outreach project is launching this week. The Sustainable Nano Podcast will have its first four episodes posted Monday-Thursday this week (check out "Why do we care about sustainable nanotechnology?" right now!), followed by an every-other-week schedule. Miriam will be contacting some blog post authors to talk about their posts, but if you have other ideas or want to record an interview yourself, let her know! Meanwhile, please spread the word - each episode will be published on the Sustainable Nano blog, or listeners can subscribe on iTunes.

CSN at the Minnesota Sustainability Action! Fair. On September 2, a team of CSN members from the University of Minnesota and Augsburg College (**Joe Buchman**, **Vivian Feng**, **Natalie Hudson-Smith**, **Miriam Krause**, **Stephanie Mitchell**, **Sunipa Pramanik**, **Ellen Purdy**, **Autumn Qiu**, and **Bo Zhi**) hosted a table at Minnesota's Welcome Week Sustainability Action Fair for incoming first-year undergraduates. Organizers estimated that about 2,000 students came through last year's event, and turnout seemed similar this year.

Natalie (above) and Sunipa (left) talking with new students at the Minnesota Sustainable Action! Fair.

Cathy Murphy's very first blog post for the CSN on Art as Inspiration for Science led to a reporter contacting her about the topic, and she was ultimately quoted in an article in *Nature*, titled "Art-science collaborations: Change of perspective."

CSN Talks and Presentations

Christy Haynes gave a keynote talk at ICEENN. **Emily Caudill** (**Pedersen** group), **Liz Laudadio** (**Hamers** group), **Arielle Mensch** (Hamers), Joe Buchman (Haynes), Jared Bozich (**Klaper** group), Margy Robinson (Hamers), **Rebecca Klaper**, and **Howard Fairbrother** also presented at the conference.

From left to right: Jared, Emily, Margy, Howard, Rebecca, Joe, Christy, Arielle, and Liz.

FUN!

From left to right: **Emily Caudill** (**Pedersen** group), **Liz Laudadio** (**Hamers** group), **Arielle Mensch** (**Hamers**), and **Christy Haynes** right before rafting down Clearwater Creek in Colorado during the ICEENN.

CSN researchers from the University of Minnesota visited the Center for Sustainable Polymers exhibit at the Minnesota State Fair. *From left to right*: **Kyle Johnson**, **Tian Autumn Qiu**, **Dona-Carla Forester**, **Bo Zhi**, **Sunipa Pramanik**, **Joe Buchman**, **Natalie Hudson-Smith**, and **Christy Haynes**.

Interesting Science in the News!

A recent Kokam Co., Ltd. press release reported that NMC battery packs were used to power the first around-the-world airplane trip! According to the press release, "The Solar Impulse [airplane] uses four 38.5 kilowatt hour (kWh) Kokam Ultra High Energy NMC battery packs with 150 Ah cells, totaling 154 kWh of energy storage. Over the course of 17 flights totaling 26,744 miles (43,041 kilometers), the Solar Impulse 2's 17,248 solar cells produced 11,000 kWh of electricity, much of which was stored in its Kokam Ultra High Energy NMC batteries and then discharged to power the plane at night." Find out more at PR Newswire.com.

Looking Ahead

Student Board/Executive Committee Liaison Elections.

Our Student Board/Executive Committee Liaison position rotates every six months (at each all-hands meeting), so elections are coming up soon! All CSN students are eligible to serve in this position. If you want to nominate yourself or someone else, email Miriam and Mike. If you are nominating someone else, it will remain confidential unless/until the person accepts. Nominees should submit a short (1-2 paragraph) blurb to introduce themselves for either the **Sept 22** or **Oct 6** Newsletter deadlines. Elections will be held using an online voting platform **Oct 12-18** (the week before the PNNL workshop). If you are interested in learning more about the position, feel free to contact Miriam or the current SB/EC Liaison, Alicia McGeachy (aliciamcgeachy2013@u.northwestern.edu).

Fall Semester Professional Development Activities.

Mark your calendars for these upcoming professional development activities!

- **Friday, September 30 at 1:00 pm CST**: Communicating Science on YouTube (Adam Dylewsky, ACS Reactions Executive Producer).
- **Friday, November 4 at 12:00 pm CST**: Academic Leadership (Rigoberto Hernandez).
- **Tuesday, December 13 at 3:00 pm CST**: Writing Research Statements for Job Applications (Vivian Feng & Erin Carlson).
- Professional Development activity for the October PNNL meeting - more details coming soon.

MACTLAC Conference. This year's conference for the Midwestern Association of Chemistry Teachers in Liberal Arts Colleges (MACTLAC) is being held in St. Cloud, MN, on **October 7-8**. Several CSN students are planning to attend (registration is free for students); contact **Arielle Mensch** at Madison (amensch@wisc.edu) and/or **Natalie Hudson-Smith** at Minnesota (hudso283@umn.edu) for more information. Conference website: campus.albion.edu/mactlac

Do you want to help us choose the next CSN social activity? Do you have an idea for an activity but need the money to make it happen? Great news! Our T-shirt sales were a great success and now it is time for us to choose how to best make use of our earnings, which totaled a whopping $400! You can help us decide how to spend our money.

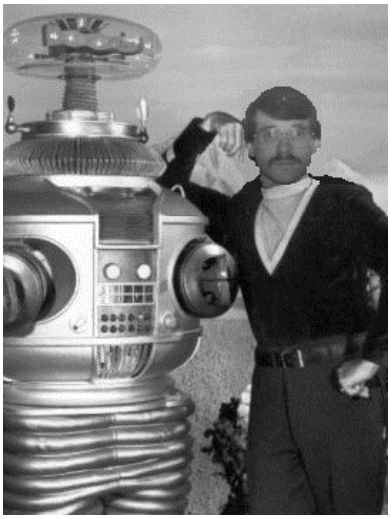
Rules of entry:

1. All students and post-docs are allowed to submit one proposal (group proposals will also be accepted).
2. All proposals must be submitted by Wednesday, September 21, 2016 at 5 PM. Email your proposal to Miriam and Alicia. Decisions will be made by the Student Board and will be announced on or by Sunday, September 25, 2016.
3. You need to address the following points in your proposal submission:
    - What is your proposed activity?

- Is it inclusive of all ~80 students/postdocs? If not, why should we consider using these funds to support a subset of students?
- What is the total cost of the activity?
    - Include a budget breakdown if needed. If the requested amount exceeds $400, how much would students need to pay out of pocket?
    - Note that if you are proposing an off-site event for our next all hands meeting in Washington (i.e. not on PNNL grounds), you must take travel costs for the proposed event into account.
- If you are not proposing an event for our next all hands meeting in October, what is the timeline associated with your event?
- Provide any logistical details such as who would make reservations and when, how many people the venue can accommodate, etc.
- If the event involves alcohol, will the establishment allow individuals to enter under the age of 21?

Lost in Cyber-Space?

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



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

- **CSN calendar** (RFA, All-hands, professional development)**:** **link**
- **CSN Operations Guide 2.0: link**
- **CSN participants list** (Names, group, and email addresses)**:** **link**
- **CSN Projects Documents (May 2016 version): % Effort – Detailed Projects Descriptions**

CSN Reporting Forms

- **Report lab exchange activities: link**
- **New CSN Publications: 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