

What's happening in the CSN?

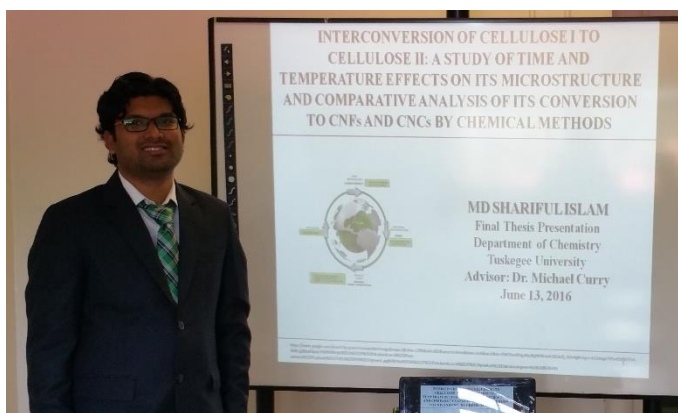
June 21, 2016

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Celebrations

Milestones and awards

Congratulations to **Md Islam (Curry group)** for successfully defending his Masters Thesis on June 13th! Md will officially move to Georgia Tech University in August to pursue a PhD in Chemistry.



Meet the Students/Postdocs

Hyo Park (Rosenzweig group) is a veteran of the United States Navy where he served as a ballistic missile defense computer technician and a search & rescue swimmer aboard the USS Lake Erie (CG70). He comes from Chaminade University of Honolulu, where he is a rising junior pursuing a major in Biochemistry and a minor in English. At Chaminade, Hyo was a member of the Michael Weichhaus research lab (molecular and cellular biology), where he studied the way cancer cells gain their metabolic energy in a gluconeogenesis inhibited environment. This summer, Hyo is in Professor Rosenzweig's laboratory at UMBC as part of the Research Experience for Veterans (REV) program, working on the stability of core shell quantum dots in various environmental conditions.

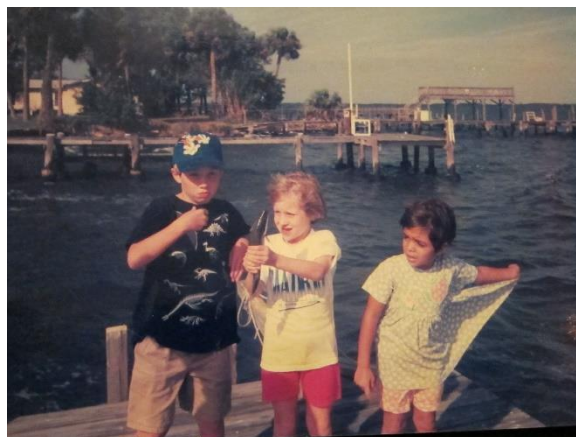
In Hyo's free time, he likes to enjoy the beautiful outdoors of Hawaii and go surfing, hiking, mountain climbing, and wake boarding. He also volunteers at The Center for Aging at the VA to give back to the veteran community. As a sophomore, he has been accepted into an early selection program at the George Washington University School of Medicine and Health Sciences to pursue his aspirations of becoming a physician that serves the needs of the underprivileged or underrepresented communities.



Margy Robinson (Hamers group). I moved a lot as a kiddo – 5 times up and down the east coast before I even went to high school! I spent the longest time in a suburban town in Massachusetts and my parents still live there these days. In 2008 I ventured to the Midwest for a BS in chemistry at Michigan State University. I was part of Lyman Briggs College, a residential college for studying the natural sciences within MSU. I got the best of both worlds: the attention of a small college and the research opportunities of an R1 university. I am currently a 4th-year student in the Hamers group working on background-free imaging and sensing in biological systems using nitrogen vacancies in nanodiamond.

I've always been a nature and animal lover. My first jobs were a kennel hand at a dog shelter and mucking stalls at a horse barn. Up until my 2nd year of college I thought I was destined to become a veterinarian. Then I did an internship that had me at the fume hood synthesizing hepatic metabolites of a medical imaging agent – it was fascinating to think about the world at a molecular level! Today I live with two previously-homeless cats: Sully, an affectionate 17-year-old who I adopted 5yrs ago after the other shelter patrons said he was "too old" and Stevie, a 5yr old tabby who happens to be entirely blind. Most folks who meet her can't tell though because she's the bravest little kitty out there.

In my spare time I enjoy cycling, cross country skiing, backpacking, and traveling. I organize the Revolution Cycles Cycling Club in Madison – we do lots of mountain biking and cyclocross (a hybrid of mountain biking and road riding). I've been cross country skiing since I've been able to stand and hiking since I've been able to walk. My dad is originally from England (he came to the USA in the 1980's to do a post doc at UW-Madison!) and I enjoy my yearly trips back to the motherland to visit family and have a good cuppa tea.



Here's a picture of me holding a fish that I caught on my cousin's (on the right) dock in Florida. My brother (in the dinosaur shirt on the left) grew up to be an accomplished fisherman despite looking like he's about to blow chunks in this pic.

CSN Productivity

Cathy Murphy is a co-author for a critical review titled "Considerations of Environmentally Relevant Test Conditions for Improved Evaluation of Ecological Hazard of Engineered Nanomaterials," which was the product of a CEIN workshop she attended last spring. The article is available online as an [ASAP paper](#) in the journal *Environmental Science & Technology*.

Joel Pedersen guest edited an ACS [Virtual Issue on Environmental Nanotoxicology](#) that combines key published articles from the journals *Chemical Research in Toxicology*, *Environmental Science & Technology*, and *Environmental Science & Technology Letters*.

The CSN had an “RFA1 retreat” to discuss nanomaterials in the Center on June 16-17. Attending the meeting were (from left to right) **Mike Schwartz, Joel Pedersen, Zeev Rosenzweig, Cathy Murphy, Franz Geiger, Bob Hamers, Erin Carlson, Christy Haynes, Howard Fairbrother, and Mike Curry.**



REU/REV students from the CSN attended a one-day conference in Minneapolis on June 15. Visiting students met with CSN members from Augsburg and the University of Minnesota, participated in professional development activities, and toured the Minnesota Nano Center and 3M’s Innovation Center (in addition to the Carlson and Haynes labs).



All gowned up for the Minnesota Nano Center clean room! L-R: Kyle Johnson, Hyo Park, Rodrigo TapiaHernandez, Blake Miller, Ellen Purdy, Miriam Krause, Susan Pham, Peter Clement (in blue), Natalie Hudson-Smith, Jo Machesky, Sunipa Pramanik, Josh Kuether, and Taylor Linn.

Opportunities

A **two-year post-doctoral position** is available within the framework of the French ANR program funded project ***QUADOS: Elucidating the Effects of Molecular-Scale Physico-Chemical Processes on the Fate and Transport of Quantum Dots in Soils.*** They are looking for a motivated post-doctoral research scientist to

join the Aquatic Geochemistry team at the [Institut de Physique du Globe de Paris](#) (IPGP), under the joint supervision of Dr. Yann Sivry and Dr. Alexandre Gélabert. The Institute is located downtown Paris, and provides an internationally renowned research environment. You can find the full posting [here](#).

Looking Ahead

It's time to vote on the CSN T-shirt design! Thanks to all the groups who submitted t-shirt designs! Voting is now open to ALL CSN MEMBERS (including summer undergrads) - enter your vote [here](#) (one vote per person). Voting will be open until **8am Monday, June 27**. Voting will be done by rank ordering, so you can indicate your relative preference for more than one design.

CSN Administrative Notes: Using purchased vs. CSN-synthesized nanoparticles

During the last All-Hands meeting, several CSN members asked about whether it is possible, or a good idea, to use purchased nanoparticles for CSN research. This could be a useful strategy in some situations, but we need to take some extra care when pursuing commercial nanoparticles because our labs are so closely linked. Also, once you start a set of studies with a given nanoparticle, you often end up needing to use that nanoparticle for an extended set of studies or to send those particles to another laboratory for complementary studies. To help decide what is appropriate, we have created the following guidelines:

When can/should commercial nanoparticles or nanoparticles supplied by non-CSN participants be used instead of CSN-synthesized materials?

It is reasonable, and in some cases even encouraged, to use commercial nanoparticles or externally-supplied NPs in the following cases:

1. When doing very exploratory work where you might need several different new materials quickly.
2. In cases where studies with commercial materials might inform RFA1 members about what materials to synthesize within the center (e.g., quickly screening across nanoparticle classes).
3. In cases where NP quality control is not as important as helping to kick off research faster.
4. In cases where there is agreement among CSN leadership that purchased materials are available with purity and/or quality that is sufficient for center-wide studies over extended periods of time (e.g., multiple batches purchased from vendor). Examples here might include carbon nanotubes, graphene-based, or silica materials.

What caveats should be taken into consideration?

The big caveat with purchased nanomaterials is that they often do not have the stated size, and in some cases researchers have even received the wrong chemical composition. So if you are interested in using commercial nanomaterials, it will be your responsibility to do appropriate characterization to ensure you have what you think you have, with regards to composition, crystal structure, and size (recommend doing ICP, XRD, and DLS or TEM at a minimum). There have been many instances in which materials specified to have one particle size will often turn out to be sintered aggregates of particles with much larger size. Stability of purchased nanoparticles, especially in high ionic strength or complex media, can also be problematic. With most vendors, you buy small quantities of NPs and the vendors are simply distributors who buy from many places and repackage. In most cases, they will not take much responsibility or be very knowledgeable about what they are actually selling. So, you're really on your own in terms of

characterization (There are some exceptions to this, of course). Also, every batch of purchased nanomaterials may well be different, as the vendors usually have little or no quality control on-site.

What should I do if I think commercially available nanoparticles might be a good way to go for my group's work?

BEFORE BUYING: Communicate with the Executive Committee. Critical information to include in this communicate includes the hypothesis/hypotheses you're planning to test, the material/ligand you think would be good, and how this work might eventually connect to other center members. If you've identified potential vendors, that would be useful information to communicate as well. The EC will seek advice from RFA1 PIs and/or IC members who have experience with different potential vendors and will work to provide advice on whether it is best to purchase or implement a synthesis plan. ***While any CSN participant is free to procure nanoparticles from external sources on a trial basis, for any nanoparticle research that is intended to be published and/or that involves more than one research group the EC will insist on approving use of nanoparticles from non-CSN sources and will set out expectations for mandatory characterization and development of a reliable supply chain to ensure the ability to conduct center-wide collaborative studies over an appropriate time period.*** For this reason, it is always best to bring nanoparticle wants/need to the attention of the EC as soon as possible.

AFTER BUYING: If you do purchase commercial nanoparticles, it will be your responsibility to do appropriate characterization of composition, size, and crystal structure and to share this information center-wide. At a minimum, ICP (composition), DLS or TEM (size), and structure (XRD) will be expected. If you don't have the capacity to do these characterizations, you should coordinate with others in the center or pay for the work within a facility at your university. As note above, if use of externally supplied NPs is intended to be published or goes beyond one group, the EC will set in place expectations for characterization and for establishing a reliable supply.



Lost in Cyber-Space?

Links to frequently requested CSN documents and information sources

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

For these documents and more, visit the [center resources page](#) on the [CSN website](#) (requires member login, contact [Miriam](#) if you need help).

Newsletter topic suggestions (awards, highlights, lab exchanges, publications, etc.): [link](#)

CSN Documents and Downloads

- CSN calendar (RFA, All-hands, professional development): [link](#)
- CSN Operations Guide: [link](#)
- CSN participants list (Names, group, and email addresses): [link](#)
- List of all CSN researchers and project names (google-sheet): [link](#)
- Approved projects for all students/postdocs: [link](#)
- Download the Webex player (choose the player for .ARF files): [link](#)

CSN Request and Reporting Forms

- Requests for the Executive Committee: [link](#)
- Report lab exchange activities: [link](#)
- Nanoparticle availability (Listing of NPs available center-wide): [link](#)
- Suggestion-ox (completely anonymous comments/suggestions to CSN staff):
Director (Bob): [link](#)
Associate Director (Christy): [link](#)
Managing Director (Mike): [link](#)
E/O Director (Miriam): [link](#)