The Center for Sustainable Nanotechnology

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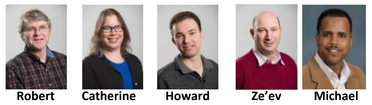
The goal of the Center for Sustainable Nanotechnology is to develop and utilize a molecular-level understanding of nanomaterial-biological interactions to enable development of sustainable, societally beneficial nanotechnologies

CSN Senior Investigators & Staff

Nanoparticle and Ligand Chemistry

Inorganic NPs — Metallic NPs — NP-polymer composites — Quantum dots — Biomass NPs



Robert Hamers — Catherine Murphy — Howard Fairbrother — Ze'ev Rosenzweig — Michael Curry

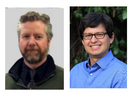
Biological Chemistry

Bacterial models — Eukaryotic models — Cell chemistry

Christy Haynes — Rebecca Klaper — Galya Orr

Agriculture

Agricultural nanotech — Plant Chemistry



Jason White — Juan Pablo Giraldo

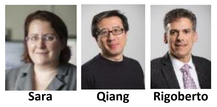
Physical & Analytical Chemistry

Analytical methodology — -Omics analysis — Nonlinear optics — Environmental chemistry

Vivian Feng — Erin Carlson — Franz Geiger — Joel Pedersen

Computational Chemistry

Atomistic DFT — Dynamics QM/MM — Multi-scale dynamics



Sara Mason — Qiang Cui — Rigoberto Hernandez

Staff

Education & Outreach — Managing Director

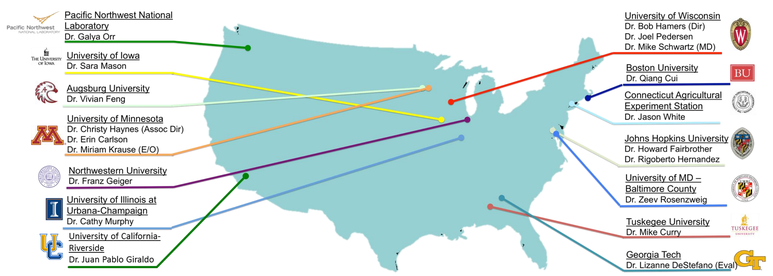
Miriam Krause — Mike Schwartz

Assessment

External Evaluator

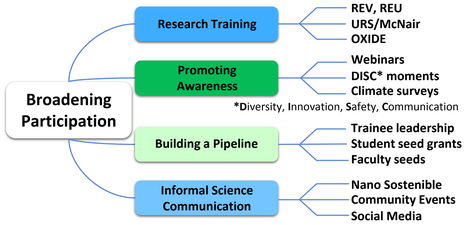
Lizanne DeStefano

Non-funded international collaborators: Thomas Frauenheim (Germany), Karen Lienkamp (Germany), Francesco Stellacci and Sylvie Roke (Switzerland), Thereza Soares (Brazil), Iseult Lynch (Birmingham)



Broadening Participation & Education

Activities



CSN Blog: http://sustainable-nano.com

Approach

1. Undergraduate research opportunities as recruitment tool:
   - Application review process values diversity.
   - Research Experience for Veterans program.
   - Invite selected students to return for second summer.
2. Establish and strengthen CSN collaborations with minority-serving institutions.
3. Increase diversity in EAB & faculty seed program through targeted recruitment.
4. Promote long-term broadening participation efforts through professional development of CSN trainees.
5. Diversity committee includes faculty, staff, students, and postdocs.
6. Develop educational resources (Pham et al, *J Chem. Ed.* **2017**, Hudson-Smith, *J. Chem. Ed.*, In Prep.).

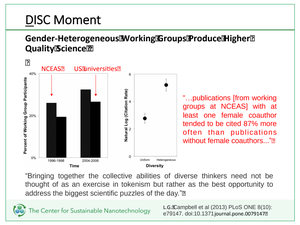
Research Experience for Veterans

2018 REU/REV

Our activities to broaden participation aim to create a model for achieving and sustaining gender equity, increasing participation by underrepresented groups in STEM disciplines, and engaging student veterans in the Center's research.

Highlights include:

- **Research Experience for Undergraduates/Research Experience for Veterans program** – 26 REU & 8 REV students 2015-2018 (19 women, 15 underrepresented minorities).
- **DISC moments** – Reinforcing the Center's cultural values through weekly insights.
- **Nano Sostenible** – Translation of CSN blog posts into Spanish at **nano-sostenible.com.**



Nano Sostenible

Climate and Diversity Efforts in the CSN

- **Center Leadership**. Gender parity has been maintained in leadership and faculty representation from the Center's initiation.
- **SPRING Board (Student Postdoc Research sCientist uNderGrad)** comprises student or postdoc representative from each group, as well as an elected Student/Postdoc Liaison to the center Executive Committee who represents.
- **Center Diversity Committee**. Includes faculty, students, and postdocs.

susnano.wisc.edu/diversity

The NSF Center for Sustainable Nanotechnology (CSN) values diversity and is committed to maintaining a supportive and inclusive climate within our research community. We value diversity in all forms, including but not limited to national origin, language, race, color, disability, ethnicity, gender, age, religion, sexual orientation, gender identity, socioeconomic status, veteran status, educational background, and family structures. We conduct all center activities, including recruitment, retention, personal and professional development for a diverse group of faculty, postdoctoral fellows, staff, graduate and undergraduate students, in a manner consistent with these values.

Operations within the CSN seek to develop and implement "best practices" for research and workforce training. Our efforts to build a diverse workforce of scientific leaders are enhanced by four primary activities:

1. Recruiting. The CSN seeks to attract a diverse pool of scientists into the center. Some of the mechanisms we use include:
- The CSN Research Experience for Undergraduates (REU) and Research Experience for Veterans (REV) Programs
- Working with McNair and other diversity-oriented programs on our individual campuses
- Providing resources to CSN faculty to attract a diverse pool of outstanding talent to our program
- Providing support for CSN members to give talks at four-year colleges, minority-serving institutions.

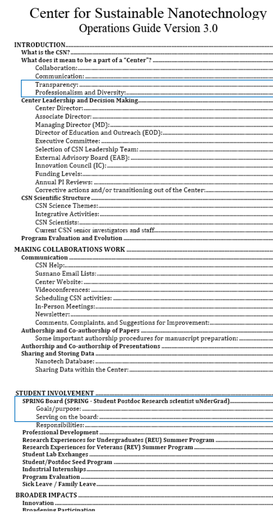
2. Training and awareness. The CSN provides training opportunities for graduate students, postdocs, faculty, and staff with the goal of creating the next generation of scientific leaders. Opportunities include:
- Seminars and workshops aimed at career advancement for all CSN participants.
- Development of written and oral communication skills emphasizing how to communicate to non-scientists and diverse audiences.
- Short DISC (Diversity Innovation Safety Communication) moments at each weekly CSN seminar

3. Supporting and retaining. The CSN supports all CSN members in their efforts to become the next generation of scientific leaders. Strategies for support and retention include:
- Creating and maintaining a welcoming climate
- Monthly Center-wide and small-group professional development opportunities
- Networking opportunities
- Supporting new CSN members through "buddy" program and on-boarding committee
- Support/mentorship by faculty, staff and students.

4. Assessment. The CSN evaluates the effectiveness of our programs and uses this information to develop and implement "best practices" in our goal of developing and training a diverse workforce to carry out cutting-edge multidisciplinary science. Some of the tools we use for assessment include:
- Annual surveys of center climate
- Evaluations of each professional development opportunity
- Biannual evaluations of each research project
- We believe that the best possible decision-making occurs when all voices are heard. We are committed to the long-term goal center of center membership that reflects the diversity of the US population.

CSN Operations Guide Outlines Center Expectations

Center for Sustainable Nanotechnology
Operations Guide Version 3.0



Transparency: Transparency is a core feature of how the CSN operates. There are some individuals with specific responsibilities and decision making powers (e.g., Center Director Hamers and the Executive Committee); however, all Center participants are entitled to understand and have input into how decisions are made (see the section on leadership below for a more detailed discussion), what data has been gathered (see the section on data management below for a more detailed discussion), and manuscripts or talks in preparation (see the section on authorship below for a more detailed discussion).

Professionalism and Diversity: A climate of inclusiveness and respect at all levels has been a core value of the CSN since its establishment. The Center supports an environment promoting academic excellence and integrity, protecting inquiry, and serving the research and educational mission of the CSN. Importantly, we are a community that is respectful of the rights, opportunities, and welfare of all CSN members and guests; that is free from violence, threats, and intimidation; and that nurtures the physical and mental health and safety of all of its members. All Center members are expected to abide by the Codes of Conduct of their respective universities as well as adhering to the expectations of the CSN. See the section on broadening participation below for a more detailed discussion of the importance of diversity in the mission of the CSN.

Goals/purpose: The goals of the SPRING Board are to (1) facilitate a positive and welcoming atmosphere for students and postdocs in the Center, (2) foster open and transparent decision-making processes that can be applied Center-wide, and (3) as appropriate, make recommendations to the Executive Committee about any changes in policies, procedures, and research directions that students/postdocs believe would be beneficial to the success of the Center. While SPRING Board group representatives are expected to attend all meetings if possible, meetings are open to all CSN trainees and all trainees are encouraged to participate in meetings, discussions, and committees.

Serving on the board: One person from each lab group will serve on the SPRING Board as a representative. Some representatives can choose to be "voting only" (i.e. not expected to serve on committees, etc.) especially from small groups who may only have one or two students rotating as representatives. There will also be smaller committees for working on specific projects (trainees who are not SPRING Board representatives are also encouraged to participate in these committees). Each representative's term of service is one year (flexible within each group). Each group should decide how to select their representative (e.g. election, lottery, rotation) without input from their PI.

Executive Committee Liaison: A SPRING Board member who is elected by all trainees will participate in Executive Committee meetings.* The Executive Committee Liaison will serve for a period of about nine months in order to promote continuity and give multiple students the opportunity to serve in this leadership role. To facilitate the transition, there will be a period for open nominations followed by a vote, with time allowed for the current and newly-elected Liaisons to overlap on attending at least one EC meeting.

Assessment of Climate & Culture

- Annual climate survey and center evaluation by independent evaluation team (DeStefano).
- Results shared with all center members.
- CSN alumni feedback.
- REU/REV program evaluation.
- Outreach program audience reach and feedback.

Table 16: Ratings of Other Center Climate Items (n=38)
Please rate the climate of the Center on the following by selecting the appropriate option.

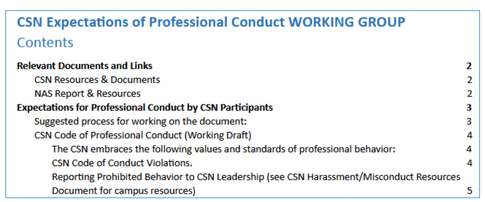
Friendliness	NA	Hostile	Somewhat Hostile	Neutral	Somewhat Friendly	Friendly	Mean	SD
					6 (16%)	32 (84%)	4.84	0.37
Racism	NA	Racist	Somewhat racist	Neutral	Somewhat non-racist	Non-racist	Mean	SD
				2 (5%)	6 (16%)	30 (79%)	4.74	0.55
Diversity	NA	Homogenous	Somewhat homogenous	Neutral	Somewhat diverse	Diverse	Mean	SD
			1 (3%)		23 (61%)	14 (37%)	4.32	0.62
Respectfulness	NA	Disrespectful	Somewhat disrespectful	Neutral	Somewhat respectful	Respectful	Mean	SD
			1 (3%)	1 (3%)	7 (18%)	29 (76%)	4.68	0.66
Collegiality	NA	Contentious	Somewhat contentious	Neutral	Somewhat collegial	Collegial	Mean	SD
					7 (19%)	30 (81%)	4.81	0.40
Sexism	NA	Sexist	Somewhat sexist	Neutral	Somewhat non-sexist	Non-sexist	Mean	SD
			2 (5%)	1 (3%)	8 (21%)	27 (71%)	4.58	0.79
Collaboration	NA	Individualistic	Somewhat individualistic	Neutral	Somewhat collaborative	Collaborative	Mean	SD
				2 (5%)	9 (24%)	27 (71%)	4.66	0.58
Cooperation	NA	Competitive	Somewhat Competitive	Neutral	Somewhat cooperative	Cooperative	Mean	SD
				1 (3%)	10 (27%)	26 (70%)	4.68	0.53
Homophobia	NA	Homophobic	Somewhat homophobic	Neutral	Somewhat non-homophobic	Non-homophobic	Mean	SD
				2 (5%)	1 (3%)	35 (92%)	4.87	0.47
Support	NA	Unsupportive	Somewhat unsupportive	Neutral	Somewhat supportive	Supportive	Mean	SD
					7 (18%)	31 (82%)	4.82	0.39

Quantifiable assessment from independent evaluator is a valuable tool used by center leadership to maintain a strong climate.

CSN Efforts to Address NAS Recommendations (In Progress)

- **Developing Expectations of Professional Conduct Document**. Center values, expectations, resources, and procedures for reporting violations.
- **Online resources**. What to do if you experience harassment at your center institution.
- **Other Recommendations**. Discussing NAS recommendations that can be implemented in a distributed center, strategies for making those changes.

CSN Expectations of Professional Conduct WORKING GROUP
Contents



12. University of Wisconsin - Madison

Resources for UW-Madison students/employees who experience or learn about incidents of sexual harassment, sexual assault, stalking, or dating violence

Roadmap, Rights & Resources, Dept of Chem Climate/Diversity

- Victim/Survivor Roadmap - "Navigating after the experience of sexual harassment and sexual assault, stalking or dating violence can be very difficult. Let this be your guide to finding the tool and support you need on and off the University of Wisconsin-Madison campus. ***Whether you're looking for support, advice, to report, or a referral, our trained support team is ready to help.*** This guide provides a complete list of campus agencies designed to support you."
- Victim's Rights and Resources - "A student or employee who reports to an institution of higher education that the student or employee has been a victim of domestic violence, dating violence, sexual assault, or stalking, whether the offense occurred on or off campus, shall be provided with a written explanation of the student or employee's rights and options. This document outlines those rights and options and ***should be provided to any student or employee who reports***."
- Climate and Diversity Resources - UW-Madison Dept of Chemistry

Title IX web pages (Definitions, Reporting, Options & Expectations)

- UW-Madison Title IX - Sexual Harassment page (includes definitions)
  - UW-Madison Reporting Options & Expectations - Includes sex discrimination, sexual harassment, sexual assault, dating violence, domestic violence or stalking.
- **Reporting what happened to you** (if an incident ***happens to you***) - LINK
- **What reporting option works best for you?**
  - Discuss the incident with a confidential resource
  - Report to UW-Madison what a **student** did to you
  - Report to UW-Madison what a **university employee** (faculty or staff) did to you
  - Report the incident to the police

Campus and Off-campus Resources

Campus Resources list

UHS EVOC (End Violence on Campus) Victim Advocacy – provides confidential victim advocacy including emotionally supportive counseling, case management, support groups, and information/referral.
- Email: evoc@uhs.wisc.edu
- Website
- Appointments: (608) 265-5600 (option 3)

UHS Counseling and Consultation — provides mental health services including individual, group, couples/partner counseling, psychiatric services, and a 24-hour crisis support phone line.
- Website
- Crisis Line: (608) 265-5600 (option 9)

UHS Medical Services – provides medical services including physical exams (not medical forensic exams), sexually transmitted infection (STI) screening, emergency contraception, and pregnancy testing.
- Website
- After Hours Nurse Line: (608) 265-5600 (option 1)
- Medical and Mental Health Appointments: (608) 265-5600
- 333 East Campus Mall, Madison, WI

The **McBurney Disability Resource Center** provides services to students with disabilities to insure accessibility to University programs. The McBurney Disability Resource Center offers accommodations counseling, evaluation referral, disability-related information, adaptive technology counseling and equipment, and interpreter services for academically related purposes.
- Email: mcburney@studentlife.wisc.edu
- Website
- Voice (608) 263-7956
- Text (608) 265-2998
- 702 W. Johnson St., #2104, Madison, WI 53715

OFF-Campus Resources list

Unity Point Health Meriter Forensic Nurse Examiner – provides emotional support, physical examination and wellness checks, collection of medical-forensic evidence, assistance with reporting to police when requested (mandatory reporting for children), assistance with concerns about sexually transmitted infection and pregnancy, assistance with safety planning and development of a medical follow-up plan.

We welcome any advice for developing a standard for culture & climate in distributed research centers.

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The Center for Sustainable Nanotechnology