Sustainable Nanotechnology Organization
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SNO REPORT

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President's Letter

Dear SNO Members,

It is an honor to me to write this first "President Letter" to address all of you about the exciting things happening in our organization. First, I would like to recognize the incredible work that Omowunmi 'Wunmi" Sadik did as former president, not only co-founding this organization, but also during the early years bringing SNO from a concept to our current stage with hundreds of members. Wunmi, thank you for all your dedication to SNO.

This new SNO cycle, started with the 7th Sustainable Nanotechnology Conference in Arlington, Virginia (November Nov 8th to 10th), where recurrent and new participants met to discuss about the latest advances on nanotechnology research in the areas of food and agriculture, water, fate and exposure, ecotoxicology, life cycle, sensors, green synthesis, nanomedicine, and education/social aspects. The conference had a tribute session to the SNO co-founder Dr. Barbara Karn for her great contributions promoting sustainable nanotechnology in our organization as well as in the past during her tenure at the USEPA and NSF. Additionally, in the technical program the conference had several instances to highlight the work of new researchers and students. The posters and Nano Pitch competitions as well as the thematic lunches were great opportunities for students to network among their peer and well-established researchers. I would like to thank all sessions chairs, volunteers and SNO board members for their valuable support to this event, specially Dr. Elijah Petersen (NIST), chair of the conference, for his efforts to make this conference a success.

As is traditional during the conference we recognized the work of emerging and established investigators and nanotechnology advocates. This year Dr. Andrea Hicks (University of Wisconsin-Madison) received the Emerging Investigator Award, while Lynn Bergeson (Bergeson & Campbell PC) received the SNO award. Finally, the SNO Board Members met and voted for the next Sustainable Nanotechnology conference to take place at San Diego, California and that it will be co-chaired by Dr. Vicki Grassian (University of California, San Diego) and Paul Westerhoff (Arizona State University).

I like to end this note thanking all members for their participation in SNO. As we prepare for our next conference, we would like to hear from you about how we can continue supporting your research or outreach efforts in the area of sustainable nanotechnology. Please do not hesitate to email me at craver@uri.edu or vinka.craver@susnano.org with comments and suggestions.

Enjoy the newsletter!

Vinka Craver
SNO President
Associate Professor
Civil and Environmental Engineering
University of Rhode Island

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Highlights from SNO Conference 2018

Washington, DC

The 7th SNO conference was organized by Dr. Elijah Petersen (Conference Chair), Dr. Barbara Karn (SNO Executive Director and Co-founder), and Dr. Vinka Craver (SNO President), in Washington, DC from November 8-10, 2018. Like previous years, researchers and administrators from industry, government and academic institutions including students, post-docs, and professors attended the conference sharing exciting research, outreach, and policy development on sustainable nanotechnology.

Drs. Illya Medina (left) and Vinka Craver (right) with the SNO Conference Banner

The sessions covered a wide range of topics

- Tribute to Barbara Karn
- Food/Agriculture
- Water
- Fate and Exposure
- Ecotoxicology
- Life Cycle
- Sensors/Measurement
- Green Synthesis
- Education/Social Aspects
- Nanomedicine

Dr. Vinka Craver receives the SNO Gavel from SNO Co-Founder Dr. Barbara Karn as she becomes SNO President

Gala Dinner at the SNO Conference 2018

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Highlights from SNO Conference 2018

Washington, DC

2018 SNO Plenary Speakers

Mihail Roco, Ph.D.

Dr. Roco is the Senior Advisor for Science and Engineering at the National Science Foundation and founding chair of the U.S. National Science and Technology Council's subcommittee on Nanoscale Science, Engineering and Technology (NSET). He opened the SNO 2018 conference with the plenary talk “New nanotechnology trends, new responsibilities”

Treye Thomas, Ph.D.

Dr. Thomas is the Leader of the Chemicals Hazards Program team Nanotechnology and Emerging Materials Program in the U.S. Consumer Product Safety Commission's (CPSC) Office of Hazard Identification and Reduction. He delivered the plenary talk called “Health and Safety Implications of Emerging Materials and Technologies in Consumer Products – Lessons Learned from Nanotechnology EHS”

Barbara Karn, Ph.D.

Dr. Karn is currently Co-founder and Executive Director of The Sustainable Nanotechnology Organization (SNO). Her plenary talk was called “Paradigm Shifts, Interdisciplinary Marriage, and Legacy”

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Highlights from SNO Conference 2018

Washington, DC

2018 SNO Plenary Speakers

Hongda Chen, Ph.D.

Dr. Hongda Chen is the National Program Leader for Bioprocess Engineering and Nanotechnology at National Institute of Food and Agriculture (NIFA), USDA . His plenary talk was called "Sustainable Nanotechnology in Agriculture and Food Systems"

Lynn Bergerson, J.D

Ms. Bergeson is the managing partner at the Bergeson & Campbell, P.C. (B&C®). Her plenary talk was called "Legal Aspects/Policy Considerations"

Scott Brown, Ph.D.

Dr. Brown is currently Principal Investigator at The Chemours Company. His plenary talk was called "Nanomaterials and Emerging Technologies: Perspectives on Policy, Standardization, and Future Needs."

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Highlights from SNO Conference 2018

Washington, DC

2018 SNO Award: **Lynn Bergeson, J.D.** Bergeson & Campbell, P.C

SNO Co-Founder Dr. Barbara Karn is giving SNO Award to Ms. Bergeson

The SNO Award is given annually to a top contributor in the field of sustainable nanotechnology. **Ms. Lynn Bergeson** was honored with the 2018 SNO Award for her contribution and roles in the understanding and advocacy of the policy and regulation for the advancement of sustainable nanotechnology concepts in the industry, consumer, and government level. She is the managing partner at the Bergeson & Campbell, P.C. (B&C®). Ms. Bergeson has been advocating for sustainable nanotechology in the industrial sector and counseling corporations, trade associations, and business consortia on a wide range of issues pertaining to chemical hazards, exposure and risk assessment, risk communication, minimizing legal liability, and evolving regulatory and policy matters pertinent to products of nanotechnologies.

Congratulations to Ms. Bergeson on this well-deserved SNO Award.

2018 SNO Emerging Investigator: **Andrea Hicks, Ph.D.** University of Wisconsin

SNO President Dr. Vinka Craver is giving SNO Emerging Investigator Award to Dr. Hicks

The 2018 SNO Emerging Investigator award was granted to Dr. Andrea Hicks, Assistant Professor at University of Wisconsin Madison, Department of Civil and Environmental Engineering. Professor Hicks received her B.S. degree from Michigan Technical University, M.S. degree from Clemson University and her Ph.D. from the University of Illinois – Chicago. At the University of Wisconsin-Madison, she has contributed to promote sustainable nanotechnology concepts on her research and teaching activities. In two of her courses, "Environmental Sustainable Engineering" and "Civil and Environmental Engineering Decision Making" she incorporated aspect to nanotechnology that are specific to this field. Her efforts have been recognized by NSF's funding a research and educational grant to incorporate citizen science into nanotechnology research. In her research she focuses on environmental systems analysis, life cycle assessment and environmental implications of technology with emphasis on nanotechnology as evidenced by her high-quality publications in *Environmental Science: Nano*.

Congratulations to Professor Hicks on this well-deserved award.

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Highlights from SNO Conference 2018
Washington, DC

2018 SNO Student Travel Award

In 2018 Conference, SNO recognized 17 students including undergraduates and graduates from US Institutions with travel awards based on their motivation, experience, and advancement in sustainable nanotechnology research which encourages them to participate in the conference and present their interesting and exciting ongoing research projects amongst the stalwarts in the field of sustainable nanotechnology.

Students award winners at SNO 2018

List of Students: Ezer Castillo, *Binghamton University*; Peter Clement, *University of Minnesota*; Tonoy Das, *North Dakota State University*; Justine Gordon, *Binghamton University*; Aadithya Jeyaranian, *University of Central Florida*; Elizabeth Lux, *University of Rhode Island*; Novin Mehrabi, *SUNY University at Buffalo*; Nicholas Niemuth, *University of Wisconsin-Milwaukee*; Kaitlin Pearce, *Georgia State University*; Hoang Pham, *North Dakota State University*; Mohammad Saleh, *Carnegie Mellon University*; Brianna Scharf, *SUNY University at Buffalo*; Shetda Shakiba, University of Houston; Zachary Shepard, *University of Rhode Island*; Simon Waihenya, *SUNY- Binghamton*; Yuqing Ye, *University of Texas at El Paso*; Qinmin Zheng, *The George Washington University*.

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Highlights from SNO Conference 2018
Washington, DC

Best Student Poster Awards (Presented by Drs. Vinka Craver and Nirupam Aich)

Becky J. Curtis
University of Wisconsin Milwaukee
First Place

Ana C. Barrios
Arizona State University
Second Place

Brianna Scharf
University at Buffalo SUNY
Third Place

NanoPitch Contest Winners (Presented by Drs. Vinka Craver and Achintya Bezbaruah)

Irem Ustunol
University of California San Diego
First Place

Tonoy Das
North Dakota State University
Second Place

Elizabeth Lux
University of Rhode Island
Second Place

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Sustainable Nanotechnology Research Highlights

Dr. Debora Frigi Rodrigues

Dr. Debora Frigi Rodrigues is an Associate Professor of Civil and Environmental Engineering at the University of Houston. Her innovative approach was recognized by the National Science Foundation (NSF) through the prestigious NSF Early CAREER Award in 2012 and other federal funding. Her research accomplishments have also been recognized by the Sustainable Nanotechnology Organization (SNO) with the inaugural Emerging Investigator award in 2014; the U.S. Dept. of Energy (DoE) with the C3E Research Award in the area of water-energy nexus; and the 28th HENAAC Conference, in which she was the Environmental Award honoree. In 2017, she was invited to attend the Prestigious Frontiers of Engineering (FOE) program of the National Academy of Engineering (NAE) in US.

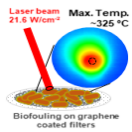
http://www.cive.uh.edu/faculty/rodrigues
dfrigirodrigues@uh.edu

Dr. Rodrigues has developed a transformative research approach in nanotoxicological science that integrates the fields of microbial ecology and environmental biotechnology with traditional environmental engineering techniques to better address challenges in environmental quality, sustainability and security of nanomaterials.

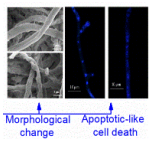
"We are looking to protect and more effectively treat water by using the unique properties of nanomaterials and at the same time understand any potential impact of nanomaterials to the water ecosystem."

Dr. Rodrigues' research interests are directly related to the water-energy nexus. She has been doing research to combine clean bio- and nano-technologies to reduce energy costs in water and wastewater treatment, which typically account for about 40 percent of total energy consumed in municipalities. In addition to treating water, these technologies also aim to produce clean alternative sources of energy and applications, i.e., biofuels, or recycle essential nutrients in contaminated water for reuse in agriculture.

Dr. Rodrigues' selected research articles in the field of sustainable nanotechnology

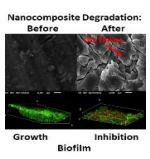


Bandara, Pasan C. et al., 2018. Investigation of thermal properties of graphene-coated membranes by laser irradiation to remove biofoulants. 2019. *Environmental Science & Technology*.

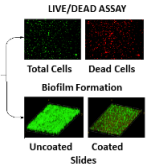


Chaves-Lopez, Clemencia et al., 2018. Antifungal Properties of h- and α- Molybdenum trioxide in two Species of *Aspergillus*: Comparative Analysis of Morphological, Enzymatic and Metabolic Responses. *Nanoscale*,10, 20702-20716.

Nguyen, H.N.; Rodrigues, D.F., 2018. Chronic toxicity of graphene and graphene oxide in sequencing batch bioreactors: A comparative investigation. *Journal of Hazardous Materials*. 343, 200-207.



Fan, Jingjing et al., 2017. Biodegradation of graphene oxide-polymer nanocomposite films in wastewater. *Environmental Science: Nano*. DOI: 10.1039/C7EN00396J.



Nguyen, Hang N. et al. 2017. Designing polymeric adhesives for antimicrobial materials: poly(ethylene imine) polymer, graphene, graphene oxide and molybdenum trioxide – a biomimetic approach. *Journal of Materials Chemistry B*. DOI: 10.1039/C7TB00722A

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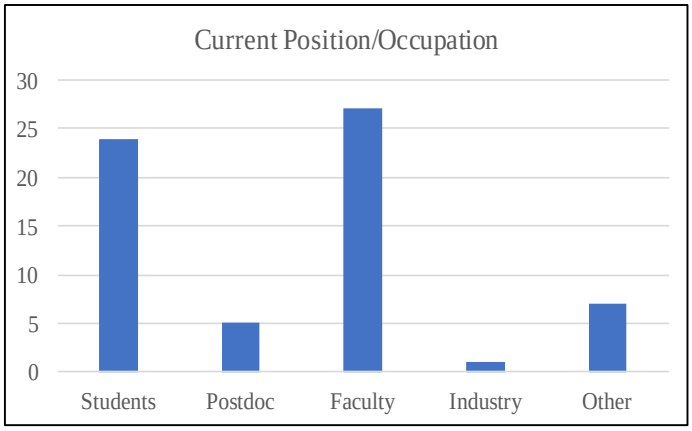
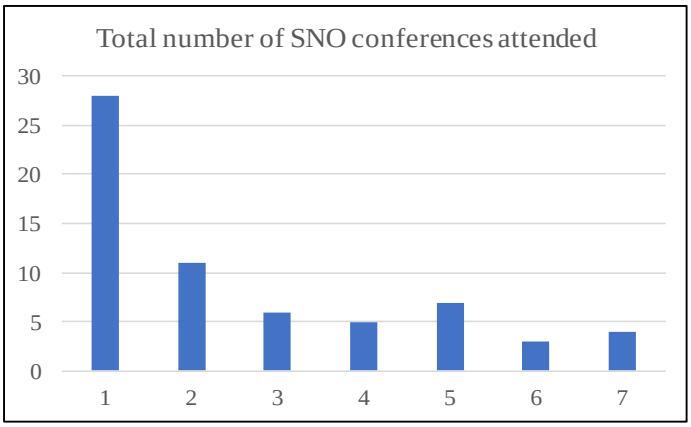
SNO Conference 2018

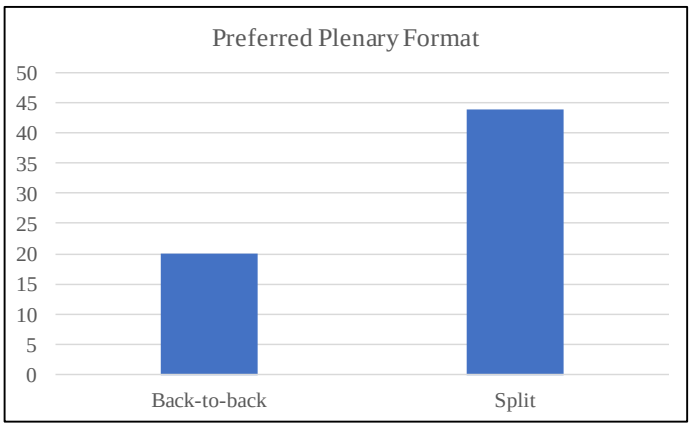
Attendee Survey Results

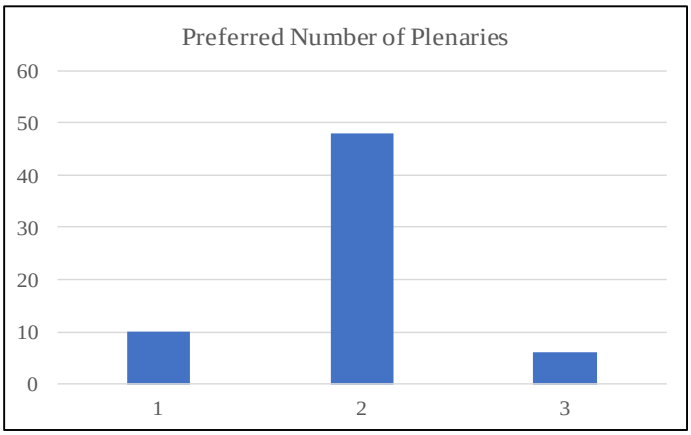
by Dr. Kyle Doudrick from the University of Notre Dame

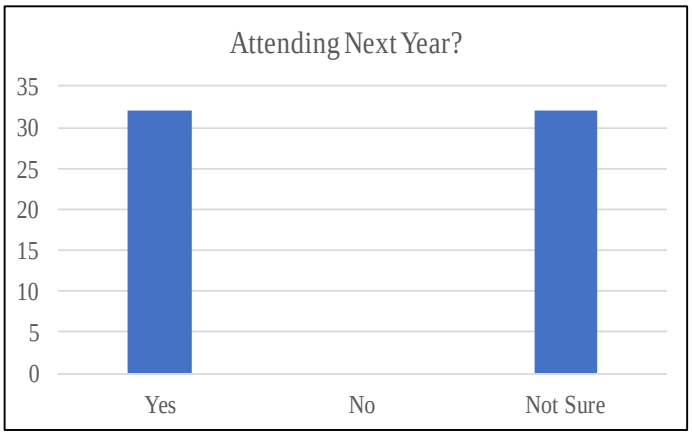
During the 2018 SNO conference, we collected data about participants' career status and opinions about different aspects of our conference. Thanks to those that participated, we hope to add your suggestions in our next conference.











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Announcing 2019 SNO Conference

8th Sustainable Nanotechnology Organization Conference Bahia Resort Hotel in San Diego California, Nov 7th-9th, 2019

Profs. Vicki Grassian, UCSD and Paul Westerhoff, ASU are the co-chairs of this year conference and are preparing and amazing program for this year conference. For more information visit our website www.susnano.org/conference. We hope to see you there!

Vicki Grassian, Ph.D.
Co-Director, Center for Aerosol Impacts on Climate and the Environment
Distinguished Chair of Physical Chemistry
Distinguished Professor, Departments of Chemistry & Biochemistry, Nanoengineering and Scripps Institution of Oceanography, University of California, San Diego

Paul Westerhoff, Ph.D., PE, BCEE
Director, EPA Center on Life Cycle of Nanomaterials (LCnano)
Deputy Director, NSF NanoSystems Engineering Research Center for NanoEnabled Water Treatment Technologies (NEWT)
Ira A. Fulton Schools of Engineering.
Regents Professor, Arizona State University

News Hit From SciTech

Wunmi Sadik, Professor of Chemistry and co-founder of the Sustainable Nanotechnology Organization was interviewed on January 9th on Public Broadcasting by Hari Srinevasan on SciTech. The show was posted on https://www.pbs.org/video/technology-can-do-everything-rmxzgk/

SciTech Now captures the latest breakthroughs in science, technology and innovation. With anchor Hari Sreenivasan, Sadik discussed the latest innovations in Biosensors and Sustainable Nanotechnology. The interview, which was 8 minutes long aired on PBS in the NYC area and in 20 markets across the country.