# REPORT DOCUMENTATION PAGE

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			UU		19b. TELEPHONE NUMBER 414-382-1713		

# RPPR Final Report

as of 10-Apr-2020

Agency Code:

Proposal Number: 74939CHCF Agreement Number: W911NF-19-1-0187

**INVESTIGATOR(S):** 

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Country: USA

DUNS Number: 075712877 EIN: 050300482

Report Date: 30-Jun-2020 Date Received: 10-Apr-2020

Final Report for Period Beginning 01-Apr-2019 and Ending 31-Mar-2020

Title: 2019 Environmental Nanotechnology Gordon Research Conference and Seminar

Begin Performance Period: 01-Apr-2019 End Performance Period: 31-Mar-2020

Report Term: 0-Other

Submitted By: Ph.D. Nancy Gray Email: grants@grc.org

Phone: (401) 360-1505

**Distribution Statement:** 1-Approved for public release; distribution is unlimited.

STEM Degrees: 0 STEM Participants: 49

**Major Goals:** The goals of the Environmental Nanotechnology Gordon Conference are to draw attention to the need to proactively manage the emergence and implementation of nanotechnology into large scale commercial activities and products as to avert such problems that arose with earlier materials/chemical research and application (such as those involving DDT, leaded gasoline, PCBs, CRCs and numerous other substances – now including fluorinated surfactants) and to explore and discuss opportunities for using nanotechnology to benefit society through its role in technology development.

This is a critical research nexus for several reasons that are likely of high interest to the Army: 1.) New technologies will be developed and applied using nanotechnology by the military (and even by our adversaries), which will interface with the environment; 2) There are a number of important yet unresolved questions concerning the safety of such materials; 3) The potential exposure scenarios, and their interaction with the biological and environmental systems are still largely unknown 4) Nanomaterials and nano-enabled technologies are being created that can aid the military in the development of sensors, water treatment technologies, and environmental cleanup technologies. Other questions relate to how these materials, may transform and/or move through various environmental or biological media or from one media to another across the life cycle of nanomaterials. Finally, the tremendous success of Gordon Conferences at facilitating meetings that are in depth, intense scientific discussions involving scientific leaders in their disciplines and communities has been well documented. In this spirit, the overall objective of the 2019 Gordon Research Conference on Environmental Nanotechnology is to bring together prominent investigators who are at the forefront of their research fields and provide unique opportunities for early career investigators, postdoctoral and graduate students to present their work to and engage the larger community.

Accomplishments: The goals of the 2019 Environmental Nanotechnology Gordon Research Conference (GRC) were to highlight the potential environmental benefits of nanoscale materials and technologies while managing potential risk of implementation. There still exists a number of important unresolved questions concerning the potential environmental and health impacts of the use and production of these materials. This 5th GRC on environmental nanotechnology focused on the development of nanotechnology to minimize environmental impacts way as well as the potential of nanotechnology to solve critical environmental problems in energy, agriculture, food, and health that can have positive environmental impact. The conference also focused on topics such as in-situ measurement(s) of nanomaterials in complex matrices, cutting-edge research to determine the molecular

# **RPPR Final Report**

as of 10-Apr-2020

interactions of these materials with biological entities and model these interactions. In addition, the meeting discussed nanomaterials that may provide new solutions to pressing environmental problems – especially those associated with the food-water-energy nexus. These included nanotechnology-based sensors for humidity, nutrients, water quality, and biological and chemical contamination as well as biosensors for pathogens, nanotechnology enabled agricultural plant-based products, and nanomaterials for remediation of contaminants in water, soil, and air. The conference also included a specific session focused on cutting-edge of nanotechnologies, taking a futuristic look at new directions in the field to inform research and engage our community. Environmental Nanotechnology Gordon Research Conference has been a tremendous forum to foster cross-disciplinary and intense scientific discussions involving leaders across scientific fields.

The Gordon Research Seminar (GRS) on Environmental Nanotechnology hosted three engaging science sessions, featuring talks from submitted student and post-doc abstracts. Topics included the design and use of nanomaterials for environmental applications, novel methodologies enabling the study of the potential negative impacts of nanoenabled products, and public policy and educational outreach as they apply to the sustainable use of nanotechnology. An important goal of the 2019 meeting was to inspire attendees to consider the broader context of their research efforts. Attendees had abundant opportunities for discussion and networking with both peers and leaders in the field from a variety of career paths during poster sessions, a mentoring session, a networking lunch, and informal social activities.

**Training Opportunities:** Speakers, discussion leaders, poster presenters and attendees simultaneously contributed to and benefited from the collective skills and experience shared throughout the conference. The funding provided by was invaluable to the success of the Conference.

**Results Dissemination:** The final program was posted on the GRC website.

Honors and Awards: Nothing to Report

**Protocol Activity Status:** 

Technology Transfer: Nothing to Report

# G<sub>C</sub>

#### GORDON RESEARCH CONFERENCES

#### FINAL PROGRESS REPORT Army Research Office Environmental Nanotechnology GRC/GRS

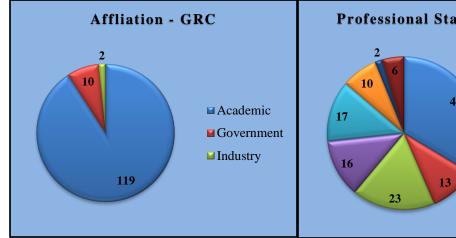
Grant Number W911NF-19-1-0187

#### **Operational Summary**

The Gordon Research Conference (GRC) and Gordon Research Seminar (GRS) on Environmental Nanotechnology were held at the Jordan Hotel at Sunday River in Newry, Maine from June 1-7, 2019. The meeting covered a variety of scientific topics and the content presented was highly rated by participants.

# Conference Participants Conference Participants Conference Participants Conference Participants

The Conference was well-attended with 131 participants. Scientists from academia represented 90% of the participants while attendees from government accounted for 8% and those from industry totaled 2%. The meeting also attracted a strong mix of young investigators and senior scientists. Students and post-docs accounted for 44% of all attendees. Approximately 47% of the participants at the 2019 meeting were women.

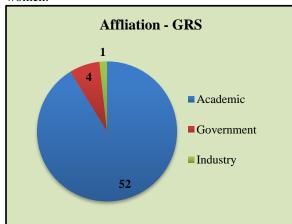


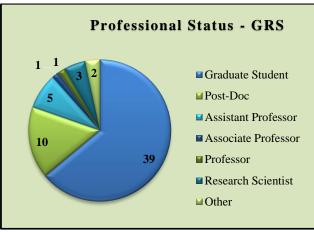




#### **Seminar Participants**

The Conference was well-attended with 61 participants. Scientists from academia represented 91% of the participants while attendees from government accounted for 7% and those from industry represented 2%. Students and post docs combined accounted for 80% of all attendees. Approximately 51% of the participants at the 2019 seminar were women.





## Conference Program

The goals of the 2019 Environmental Nanotechnology Gordon Research Conference (GRC) were to highlight the potential environmental benefits of nanoscale materials and technologies while managing potential risk of implementation. There still exists a number of important unresolved questions concerning the potential environmental and health impacts of the use and production of these materials. This 5th GRC on environmental nanotechnology focused on the development of nanotechnology to minimize environmental impacts way as well as the potential of nanotechnology to solve critical environmental problems in energy, agriculture, food, and health that can have positive environmental impact. The conference also focused on topics such as in-situ measurement(s) of nanomaterials in complex matrices, cutting-edge research to determine the molecular interactions of these materials with biological entities and model these interactions. In addition, the meeting discussed nanomaterials that may provide new solutions to pressing environmental problems – especially those associated with the food-water-energy nexus. These included nanotechnology-based sensors for humidity, nutrients, water quality, and biological and chemical contamination as well as biosensors for pathogens, nanotechnology enabled agricultural plant-based products, and nanomaterials for remediation of contaminants in water, soil, and air. The conference also included a specific session focused on cutting-edge of nanotechnologies, taking a futuristic look at new directions in the field to inform research and engage our community. Environmental Nanotechnology Gordon Research Conference has been a tremendous forum to foster cross-disciplinary and intense scientific discussions involving leaders across scientific fields.

The Gordon Research Seminar (GRS) on Environmental Nanotechnology hosted three engaging science sessions, featuring talks from submitted student and post-doc abstracts. Topics included the design and use of nanomaterials for environmental applications, novel methodologies enabling the study of the potential negative impacts of nanoenabled products, and public policy and educational outreach as they apply to the sustainable use of nanotechnology. An important goal of the 2019 meeting was to inspire attendees to consider the broader context of their research efforts. Attendees had abundant opportunities for discussion and networking with both peers and leaders in the field from a variety of career paths during poster sessions, a mentoring session, a networking lunch, and informal social activities.

#### **Conference Budget**

Funding provided by the Army Research Office supported partial registration for 7 post docs, 1 associate professor, 3 graduate student and 9 assistant professors at the GRC and partial registration for 5 assistant professors, 3 post docs, 12 graduate students, 1 administration, and 1 professor at the GRS.

# **Conference Feedback**

Participants had an opportunity to provide feedback at the end of the Conference. The feedback collected from the meeting was extremely positive. Evaluations included numerous positive remarks regarding the diversity of speakers, networking opportunities and the discussions after each talk. Evaluations from the GRS included positive comments regarding the professional development session, informal discussions and the oral talks.

GRC would like to thank the Army Research Office for its continued support of the meetings. The contributions received have been critical to the success of the conferences and are having a measurable impact in advancing the frontiers of science worldwide.

Dr. Rebecca Klaper, GRC Chair University of Wisconsin-Milwaukee Dr. John Fortner, GRC Vice-Chair Yale University

Dr. Eric Melby, GRS Chair Columbia Basin College Dr. Alyssa Deline, GRS Chair Johns Hopkins University

Dr. Nancy Ryan Gray President and Chief Executive Officer Gordon Research Conferences

# **Environmental Nanotechnology**

## **Gordon Research Conference**

# Preventing and Solving Problems with Environmental Nanotechnology

June 2 - 7, 2019

Chair: Rebecca Klaper Vice Chair: John D. Fortner

#### **Conference Program**

4:00 pm - 6:00 pm Poster Session

Conference Program	n
Sunday	
2:00 pm - 9:00 pm	Arrival and Check-in
6:00 pm - 7:00 pm	Dinner
7:30 pm - 7:40 pm	Introductory Comments by GRC Site Staff / Welcome from the GRC Chair
7:40 pm - 9:30 pm	New Ideas on Properties of Nanomaterials Related to Environmental Risk
	Discussion Leader: Reginald Rogers (University of Missouri, USA)
7:40 pm - 7:50 pm	Introduction by Discussion Leader
7:50 pm - 8:20 pm	Anders Baun (Technical University of Denmark, Denmark)
	"Nanomaterials Testing and Environmental Protection: Do We Answer the Right Questions?"
8:20 pm - 8:40 pm	Discussion
8:40 pm - 9:10 pm	Lisa Friedersdorf (National Nanotechnology Coordination Office, USA)
	"What Have We Learned and Where Are We Going?"
9:10 pm - 9:30 pm	Discussion
Monday	
7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	Next Generation Nano-Enabled Treatment Technologies
	Discussion Leader: Howard Fairbrother (Johns Hopkins University, USA)
9:00 am - 9:10 am	Introduction by Discussion Leader
9:10 am - 9:40 am	Nathalie Tufenkji (McGill University, Canada)
	"Nanotechnologies for Water Purification and Antimicrobial Surfaces"
9:40 am - 10:00 am	Discussion
10:00 am - 10:30 am	Coffee Break
10:30 am - 11:00 am	Peng Wang (King Abdullah University of Science and Technology, Saudi Arabia)
	"Nano-Enabled Sunlight-Driven Clean Water Production"
11:00 am - 11:20 am	Discussion
11:20 am - 11:50 am	Michael Wong (Rice University, USA)
	"Catalytic Converters for Water: The Nano Do's and Don'ts"
11:50 am - 12:10 pm	Discussion
12:10 pm - 12:20 pm	Short Talk Selected from Poster Abstracts
12:20 pm - 12:30 pm	Discussion
12:30 pm - 1:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
3:00 pm - 4:00 pm	The GRC Power Hour <sup>TM</sup>
	The GRC Power Hour <sup>TM</sup> is designed to address challenges women face in science and issues
	of diversity and inclusion. The program supports the professional growth of all members of
	our communities by providing an open forum for discussion and mentoring.
	Organizer: Nadine Kabengi (Georgia State University, USA)

5.00 <b>5</b> .00	
6:00 pm - 7:00 pm	Dinner
7:30 pm - 9:30 pm	Application of Nanotechnology with Environmental Implications
	Discussion Leader: Man Chi Lo (Hong Kong University of Science and Technology, Hong Kong SAR China)
7:30 pm - 7:40 pm	Introduction by Discussion Leader
7:40 pm - 8:10 pm	Juan Pablo Giraldo (University of California, Riverside, USA)
7.40 рш 0.10 рш	"Turning Plants into Technology in the Field Through Nanobioengineering"
8:10 pm - 8:30 pm	Discussion
8:30 pm - 9:00 pm	Peter Vikesland (Virginia Tech, USA)
•	"Nanotechnology Enabled Environmental Sensing"
9:00 pm - 9:20 pm	Discussion
9:20 pm - 9:30 pm	General Discussion
Tuesday	
7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	Exploring Mechanisms and Molecular Interactions of Nanoscale Materials with Biological Systems
	Discussion Leader: François Perreault (Arizona State University, USA)
9:00 am - 9:10 am	Introduction by Discussion Leader
9:10 am - 9:40 am	Greg Goss (University of Alberta, Canada)
	"Environmental Factors and Their Effects on Toxicity of Nanomaterials"
9:40 am - 10:00 am	Discussion
10:00 am - 10:30 am	n Group Photo / Coffee Break
10:30 am - 11:00 am	n Guibin Jiang (Chinese Academy of Sciences, China)
	"Environmental Nanotechnology and Impact Studies in China: Progress and Perspective"
11:00 am - 11:20 am	n Discussion
11:20 am - 11:50 am	n Christine Payne (Duke University, USA)
	"TiO2 Nanoparticle-Cell Interactions: From Molecules to Mice"
11:50 am - 12:10 pn	
	n Short Talk Selected from Poster Abstracts
12:20 pm - 12:30 pn	
12:30 pm - 1:30 pm	
1:30 pm - 4:00 pm	Free Time
4:00 pm - 6:00 pm	Poster Session
6:00 pm - 7:00 pm	Dinner
7:30 pm - 9:30 pm	Sustainable Nano: Green Design and Life Cycle Assessment
7.20 7.40	Discussion Leader: Desiree Plata (Massachusetts Institute of Technology, USA)
7:30 pm - 7:40 pm	Introduction by Discussion Leader
7:40 pm - 8:10 pm	Leanne Gilbertson (University of Pittsburgh, USA)  "Designing Sustainably at the Nano-Scale"
8:10 pm - 8:30 pm	Discussion
8:30 pm - 9:00 pm	Audrey Moores (McGill University, Canada)
6.50 pm - 3.00 pm	"Solvent-Free Techniques for the Design of Sustainable Nanomaterials"
9:00 pm - 9:20 pm	Discussion
9:20 pm - 9:30 pm	General Discussion
Wednesday	

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7:30 am - 8:30 am
                   Breakfast
9:00 am - 12:30 pm Nanomaterials and Biological Systems: Modeling Interactions to Testing in Complex
                    Environments
                    Discussion Leader: Vivian Feng (Augsburg University, USA)
                   Introduction by Discussion Leader
9:00 am - 9:10 am
9:10 am - 9:40 am
                   Claus Svendson (Centre for Ecology & Hydrology, United Kingdom)
                    "Environmental Fate and Exposure Assessment of Nanomaterials: From Release into Soils, to
                    Uptake in Organisms"
9:40 am - 10:00 am Discussion
10:00 am - 10:30 am Coffee Break
10:30 am - 11:00 am Korin Wheeler (Santa Clara University, USA)
                    "A Transition to Predictive Analyses in the Next Generation of Biocorona Studies"
11:00 am - 11:20 am Discussion
11:20 am - 11:50 am Catherine Murphy (University of Illinois at Urbana-Champaign, USA)
                    "Effects of Gold Nanoparticle Surface Chemistry: Biomolecular to Ecological Impacts"
11:50 am - 12:10 pm Discussion
12:10 pm - 12:20 pm Short Talk Selected from Poster Abstracts
12:20 pm - 12:30 pm Discussion
12:30 pm - 1:30 pm Lunch
1:30 pm - 4:00 pm Free Time
4:00 pm - 5:30 pm Poster Session
5:30 pm - 7:30 pm How Science Is Guiding Decisions About Nanotechnology and the Environment
                    Discussion Leader: Nadine Kabengi (Georgia State University, USA)
5:30 pm - 5:40 pm
                   Introduction by Discussion Leader
5:40 pm - 6:10 pm
                   Timothy Malloy (UCLA School of Law, USA)
                    "Mind the Gap: Aligning Risk Governance and Innovation"
6:10 pm - 6:30 pm
                   Discussion
6:30 pm - 6:40 pm
                   Short Talk Selected from Poster Abstracts
6:40 pm - 6:45 pm Discussion
                   Short Talk Selected from Poster Abstracts
6:45 pm - 6:55 pm
6:55 pm - 7:00 pm
                   Discussion
7:00 pm - 7:10 pm
                   Short Talk Selected from Poster Abstracts
7:10 pm - 7:15 pm Discussion
7:15 pm - 7:30 pm
                   General Discussion
8:00 pm - 9:00 pm
                   Dinner
Thursday
7:30 am - 8:30 am
                   Breakfast
8:30 am - 9:00 am
                   Business Meeting
                    Nominations for the Next Vice Chair; Fill in Conference Evaluation Forms; Discuss Future
                    Site and Scheduling Preferences; Election of the Next Vice Chair
9:00 am - 12:30 pm Nano-Bio Sensing Technologies
                    Discussion Leaders: Timothy Duncan (U.S. Food and Drug Administration, USA) and
                    Chenzhong Li (National Science Foundation / Florida International University, USA)
9:00 am - 9:10 am
                   Introduction by Discussion Leader
9:10 am - 9:40 am
                    Junhong Chen (University of Wisconsin-Milwaukee, USA)
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"Nanomaterials-Based Field-Effect Transistors for Rapid Chemical and Biological Sensing"

9:40 am - 10:00 am Discussion

10:00 am - 10:30 am Coffee Break

10:30 am - 11:00 am Antje Baeumner (University of Regensburg, Germany)

"Functional Nanomaterials for Biosensors and Miniaturized Bioanalytical Systems"

11:00 am - 11:20 am Discussion

11:20 am - 11:50 am Suresh Neethirajan (University of Guelph, Canada)

"Biosensors for Agro-Defense: Enabling Safety Through 2D Materials"

11:50 am - 12:10 pm Discussion

12:10 pm - 12:20 pm Short Talk Selected from Poster Abstracts

12:20 pm - 12:30 pm Discussion

12:30 pm - 1:30 pm Lunch

1:30 pm - 4:00 pm Free Time

4:00 pm - 6:00 pm Poster Session

6:00 pm - 7:00 pm Dinner

7:30 pm - 9:30 pm Advanced Nanoscale Analyses and Imaging for Environmental Systems

Discussion Leader: Frank von der Kammer (University of Vienna, Austria)

7:30 pm - 7:40 pm Introduction by Discussion Leader

7:40 pm - 8:10 pm Ralf Kaegi (Swiss Federal Institute of Aquatic Science and Technology (EAWAG),

Switzerland)

"Identification of (Engineered) Nanomaterials and the Relevance of Their (Chemical)

Transformation in Urban Waste Management Systems"

8:10 pm - 8:30 pm Discussion

8:30 pm - 9:00 pm Katie Moore (University of Manchester, United Kingdom)

"The Challenges and Opportunities of Detecting Environmental Nanomaterials with High

Spatial Resolution SIMS Imaging (NanoSIMS)"

9:00 pm - 9:20 pm Discussion

9:20 pm - 9:30 pm Closing Remarks

Friday

7:30 am - 8:30 am Breakfast 9:00 am Departure

#### **Contributors**



Gordon Research Conferences

Frontiers of Science



Carl Storm Underrepresented Minority Fellowship Program





























## **Environmental Nanotechnology**

#### **Gordon Research Seminar**

# Emerging Applications and Novel Methodologies to Assess Implications of Nanomaterials in the Environment

June 1 - 2, 2019

Chairs: Eric S. Melby and Alyssa R. Deline

# **Conference Program**

Saturday	
2:00 pm - 5:00 pm	Arrival and Check-in
3:30 pm - 3:45 pm	Introductory Comments by GRC Site Staff / Welcome from the GRS Chair
3:45 pm - 4:30 pm	Public Policy and Outreach in Environmental Nanotechnology
	Discussion Leader: Arielle Mensch (Pacific Northwest National Laboratory, USA)
3:45 pm - 3:50 pm	Introduction by Discussion Leader
3:50 pm - 4:05 pm	Drew Story (AAAS Science and Technology Policy Fellow, USA)
	"Public and Policymaker Engagement by Scientists: Avoided at One's Own Peril"
4:05 pm - 4:10 pm	Discussion
4:10 pm - 4:25 pm	Fan Wu (University of Wisconsin-Madison, USA)
	"A Citizen Science Approach for Estimating Titanium Dioxide Released from Personal Care Products"
4:25 pm - 4:30 pm	Discussion
4:30 pm - 6:00 pm	Poster Session
6:00 pm - 7:00 pm	Dinner
7:30 pm - 9:30 pm	Emerging Methods for Nanomaterial Detection and Quantification in Complex Environmental
	Matrices
	Discussion Leaders: Miranda Gallagher (Rice University, USA) and Mark Surette (Oregon
	State University, USA)
7:30 pm - 7:35 pm	Introduction by Discussion Leader
7:35 pm - 7:55 pm	Aude Bechu (McGill University, Canada)
7.55 mm 9.00 mm	"Examining Cd-Based Quantum Dots Mechanisms of Degradation in Environmental Waters"  Discussion
7:55 pm - 8:00 pm 8:00 pm - 8:20 pm	Becky Curtis (School of Freshwater Sciences, University of Wisconsin-Milwaukee, USA)
8.00 pm - 8.20 pm	"Next-Generation Battery Cathode Material Lithium Cobalt Oxide (LCO) Nanosheets and
	Metabolomic Impacts to Freshwater Crustacean Daphnia magna"
8:20 pm - 8:25 pm	Discussion
8:25 pm - 8:45 pm	Elizabeth Laudadio (University of Wisconsin-Madison, USA)
	"pH-Dependent Interaction of Phosphate and Lithium Cobalt Oxide Nanoparticles: A
	Combined Spectroscopic and Calorimetric Study"
8:45 pm - 8:50 pm	Discussion
8:50 pm - 9:10 pm	Diamond Jones (University of Iowa, USA)
	"Designed Metal Release of Complex Metal Oxides"
9:10 pm - 9:15 pm	Discussion
9:15 pm - 9:30 pm	General Discussion
Sunday	
7:30 am - 8:30 am	Breakfast
9:00 am - 11:00 am	Novel Applications of Nanotechnology for the Provision of Food, Energy and Water

Discussion Leaders: Véronique Adam (EMPA - Swiss Federal Laboratories for Materials Science and Technology, Switzerland) and Benjamin Frank (Johns Hopkins University, USA) 9:00 am - 9:05 am Introduction by Discussion Leader Akhenaton-Andrew Jones (Northeastern University, USA) 9:05 am - 9:25 am "Statistical Classification of Dynamic Bacterial Growth with Sub-Inhibitory Concentrations of Nanoparticles and Its Implications for Disease Treatment" 9:25 am - 9:30 am Discussion 9:30 am - 9:50 am Lisa Stabryla (University of Pittsburgh, USA) "Leveraging Nanomaterial Design for Next Generation Antimicrobials" 9:50 am - 9:55 am Discussion 9:55 am - 10:15 am Dominique Porcincula (California Polytechnic State University, San Luis Obispo, USA) "Water Desalination Using Screen Printed Lyotropic Liquid Crystal: Carbon Nanotube Composite Membranes" 10:15 am - 10:20 am Discussion 10:20 am - 10:40 am Camrynn Fausey (Yale University, USA) "Removal of Arsenic with Reduced Graphene Oxide-TiO2-Decorated Nanofibrous Mats" 10:40 am - 10:45 am Discussion 10:45 am - 11:00 am General Discussion 11:00 am - 12:30 pm Poster Session Coffee will be served in the poster area from 11:00 am - 11:30 am 12:30 pm - 1:30 pm Lunch 1:30 pm - 2:30 pm Mentorship Component: Professional Development Career Panels Discussion Leader: Lisa Stabryla (University of Pittsburgh, USA) 1:30 pm - 1:35 pm Introduction by Discussion Leader 1:35 pm - 2:00 pm Panel Discussion Careers in Academia Adeyemi Adeleye (University of California, Irvine, USA) Desiree Plata (Massachusetts Institute of Technology, USA) Sharon Walker (Drexel University, USA) Korin Wheeler (Santa Clara University, USA) Ines Zucker (Tel Aviv University, Israel) Francois Perreault (Arizona State University, USA) 2:00 pm - 2:25 pm Panel Discussion Careers in Industry and Government Wade Elmer (The Connecticut Agricultural Experiment Station, USA) Robert Hamers (University of Wisconsin-Madison / Silatronix, Inc., USA) Ronald Lankone (National Institute of Standards and Technology, USA) Timothy Duncan (U.S. Food and Drug Administration, USA) 2:25 pm - 2:30 pm Closing Remarks 2:30 pm - 3:00 pm Evaluation Period Fill in GRS Evaluation Forms 3:00 pm Seminar Concludes

#### Contributors













<b>Environmental</b>	Nanotechnology	GRC R	Registration L	ist
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Name Organization Par	rticipation
Adam, Véronique EMPA - Swiss Federal Laboratories for Materials	•
Science and Technology Pos	oster Presenter
Adeleye, Adeyemi S University of California, Irvine Pos	oster Presenter
Alimi, Olubukola S McGill University Pos	oster Presenter
Allgayer, Raphaela K McGill University Pos	ster Presenter
Apul, Onur G University of Massachusetts Lowell Pos	ster Presenter
Aquino de Carvalho, Nathalia University of Pittsburgh Pos	ster Presenter
Baeumner, Antje J University of Regensburg Spe	oeaker
Baun, Anders Technical University of Denmark Spe	oeaker
Bechu, Aude M McGill University Pos	ster Presenter
Bolanos Benitez, Sandra V University College Dublin Pos	ster Presenter
Borgatta, Jaya R. University of Wisconsin Madison Pos	ster Presenter
Bothun, Geoffrey D University of Rhode Island Atte	tendee
Brown, Richard P University of Maryland Baltimore County Pos	ster Presenter
Caudill, Emily R University of Wisconsin-Madison Pos	oster Presenter
Chen, Junhong University of Wisconsin-Milwaukee Spe	oeaker
Craver, Vinka University of Rhode Island Pos	ster Presenter
Croxall, Mark University of Toronto Pos	ster Presenter
Curtis, Becky University of Wisconsin-Milwaukee Pos	oster Presenter
Daly, Clyde A Johns Hopkins University Pos	oster Presenter
Dasné, Sylvie McGill University Pos	oster Presenter
de Lannoy, Charles-François P McMaster University Pos	oster Presenter
Deline, Alyssa R Johns Hopkins University Pos	oster Presenter
Dong, Juyao (Ivy) MIT Pos	oster Presenter
DuChanois, Ryan Yale University Pos	oster Presenter
Duncan, Timothy V U.S. Food and Drug Administration Dis	scussion Leader
DuToit, Marielle Duke University Pos	oster Presenter
Fairbrother, Howard Johns Hopkins University Dis	scussion Leader
Farner, Jeffrey M McGill University Pos	oster Presenter
Farnoud, Amir M Ohio University /Chemical and Biomolecular	
Engineering Department Atte	tendee
Fausey, Camrynn L Yale University Pos	oster Presenter
Feng, Vivian Augsburg University Dis	scussion Leader
Foreman-Ortiz, Isabel U University of Wisconsin- Madison Pos	oster Presenter
Fortner, John D Yale University Vic	ce Chair
Frank, Benjamin P Johns Hopkins University Pos	oster Presenter
Friedersdorf, Lisa National Nanotechnology Coordination Office Spe	eaker
Gallagher, Miranda J Rice University Pos	oster Presenter
Gao, Juan Institute of Soil Science, CAS Pos	oster Presenter
Ghoshal, Subhasis McGill University Atte	tendee
	oeaker
Giraldo, Juan Pablo University of California, Riverside Spe	eaker
·	eaker
•	oster Presenter
•	oster Presenter
Hicks, Andrea L University of Wisconsin-Madison Pos	oster Presenter

Hicks, Ethan C	Duke University	Poster Presenter
Hofmann, Thilo	University of Vienna	Attendee
Jiang, Guibin	Chinese Academy of Sciences	Speaker
Jiang, Yi	The Hong Kong Polytechnic University	Poster Presenter
Jones, Diamond T	University of Iowa	Poster Presenter
Jones, Akhenaton-Andrew D	Northeastern University	Poster Presenter
Joo, Sung Hee	University of Miami	Poster Presenter
Kabengi, Nadine	Georgia State University	Discussion Leader
Kaegi, Ralf	Swiss Federal Institute of Aquatic Science and Technology	Speaker
Khodakovskaya, Mariya V	University of Arkansas, Little Rock	Poster Presenter
Kinsley, Paige	University of Wisconsin - Madison	Poster Presenter
Klaper, Rebecca	University of Wisconsin-Milwaukee	Chair
Lane, Mary Kate M	Yale University	Poster Presenter
Lankone, Ronald S	NIST	Poster Presenter
Laudadio, Elizabeth D	University of Wisconsin-Madison	Poster Presenter
Lawrence, Reece	University of Toronto	Poster Presenter
Li, Yao	College of Environmental Science and Engineering/Nankai	
	University	Poster Presenter
Li, Chenzhong	National Science Foundation / Florida International University	ty
	Discussion Leader	
Liu, Haizhou	University of California, Riverside	Poster Presenter
Liu, Qian	Research Center for Eco-Environmental Sciences, Chinese	
	Academy of Sciences	Poster Presenter
Lo, Man Chi C	Hong Kong University of Science and Technology	Discussion Leader
Mahoney, Clare M	National Nanotechnology Coordination Office	Attendee
Malloy, Timothy	UCLA School of Law	Speaker
Martínez Enríquez, Arturo I	Instituto de Ecología, A.C.	Poster Presenter
Melby, Eric S	Columbia Basin College	Attendee
Mensch, Arielle C	Pacific Northwest National Laboratory	Poster Presenter
Milyutin, Yana	Technion – Israel Institute of Technology	Poster Presenter
Mitchell, Stephanie	University of Minnesota	Poster Presenter
Moore, Katie	University of Manchester	Speaker
Moores, Audrey H	McGill University	Speaker
Murphy, Catherine J	University of Illinois at Urbana-Champaign	Speaker
Murphy, Robert F	University of Illinois at Urbana-Champaign	Attendee
Nason, Jeffrey A	Oregon State University	Poster Presenter
Nazemidashtarjandi, Saeed	Ohio University	Poster Presenter
Neethirajan, Suresh	University of Guelph	Speaker
Niemuth, Nicholas	University of Wisconsin - Milwaukee	Poster Presenter
Oney, Dylan M	Oregon State University	Poster Presenter
Ostovich, Eric	UW-Milwaukee	Poster Presenter
Pariona Mendoza, Nicolaza	Instituto de Ecología, A.C.	Poster Presenter
Payne, Christine	Duke University	Speaker
Pedersen, Joel A.	University of Wisconsin - Madison	Poster Presenter
Peinetti, Ana Sol	University of Illinois at Urbana Champaign	Poster Presenter
Perreault, Francois	Arizona State University	Discussion Leader
Plata, Desiree L	Massachusetts Institute of Technology	Discussion Leader
Porcincula, Dominique H	California Polytechnic State University, San Luis Obispo	Poster Presenter

Powell, Camilah D Rice University Poster Presenter

Pulizzi, Fabio Nature Nanotechnology Attendee

Poster Presenter Qu, Guangbo Chinese Academy of Sciences Poster Presenter Rahman, Asifur Virginia Tech Riley, Kathryn R Swarthmore College Poster Presenter Rogers, Nicholas **Duke University** Poster Presenter Discussion Leader Rogers, Reginald E University of Missouri Rosenzweig, Zeev University of Maryland Baltimore County Poster Presenter

Poster Presenter

Savage, Nora National Science Foundation Attendee
Schwartz, Michael P University of Wisconsin-Madison Attendee

University of Rhode Island

Sigmon, Leslie R Johns Hopkins University Poster Presenter Sinsinbar, Gauray Nanyang Technological University Poster Presenter Soroush, Adel Poster Presenter University of Minnesota Stabryla, Lisa M University of Pittsburgh Poster Presenter Strongin, Daniel R Poster Presenter Temple University Poster Presenter Surette, Mark C Oregon State University

Svendson, Claus Centre for Ecology & Hydrology Speaker

Thornton, Brittany Lila M Duke University Poster Presenter
Torelli, Marco Adámas Nanotechnologies, Inc. Poster Presenter

Tufenkji, Nathalie McGill University Speaker

Turner, Amalia Duke University Poster Presenter Varner, Katrina E. U.S. Environmental Protection Agency Poster Presenter

Vikesland, Peter Virginia Tech Speaker

von der Kammer, Frank GUniversity of ViennaDiscussion LeaderWalch, HeleneUniversity of ViennaPoster PresenterWalker, Sharon LDrexel UniversityAttendee

Wang, Peng King Abdullah University of Science and Technology Speaker

Wang, Yan
University of Pittsburgh
Poster Presenter

Wang, Zhongying UC Berkeley Poster Presenter

Wang, Weining Virginia Commonwealth University Poster Presenter
Westerhoff, Paul Arizona State University Poster Presenter

Wheeler, Korin E Santa Clara University Speaker
Windgasse, Gabriele CDPH Attendee
Wong, Michael S Rice University Speaker

Wu. Fan University of Wisconsin-Madison Poster Presenter Xia, Zehui Poster Presenter University of Massachusetts Amherst Xie, Xing Georgia Institute of Technology Poster Presenter Poster Presenter Yao, Xiaoxiao the University of Minnesota University of Wisconsin Madison Poster Presenter Zhang, Yongqian Zhang, Yueyang University of Alberta Poster Presenter Zucker, Ines Tel Aviv University Poster Presenter

131 Attendees

Roxbury, Daniel

<b>Environmental Na</b>	anotechnology G	GRS Registration I	ist
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Environmental Nanotechnology GRS Registration List					
Name	Organization	Participation			
Adam, Véronique	EMPA - Swiss Federal Laboratories for Materials Science				
	and Technology	Discussion Leader			
Adeleye, Adeyemi S	University of California, Irvine	Speaker			
Alimi, Olubukola S	McGill University	Poster Presenter			
Allgayer, Raphaela K	McGill University	Poster Presenter			
Aquino de Carvalho, Nathalia	University of Pittsburgh	Poster Presenter			
Bechu, Aude M	McGill University	Speaker			
Borgatta, Jaya R.	University of Wisconsin Madison	Poster Presenter			
Brown, Richard P	University of Maryland Baltimore County	Poster Presenter			
Caudill, Emily R	University of Wisconsin-Madison	Poster Presenter			
Croxall, Mark	University of Toronto	Poster Presenter			
Curtis, Becky	University of Wisconsin-Milwaukee	Speaker			
Daly, Clyde A	Johns Hopkins University	Poster Presenter			
Dasné, Sylvie	McGill University	Poster Presenter			
Deline, Alyssa R	Johns Hopkins University	Chair			
DuChanois, Ryan	Yale University	Poster Presenter			
Duncan, Timothy V	U.S. Food and Drug Administration	Speaker			
Elmer, Wade H	The Connecticut Agricultural Experiment Station	Speaker			
Farner, Jeffrey M	McGill University	Poster Presenter			
Fausey, Camrynn L	Yale University	Speaker			
Foreman-Ortiz, Isabel U	University of Wisconsin- Madison	Poster Presenter			
	Johns Hopkins University	Discussion Leader			
Frank, Benjamin P	•	Discussion Leader			
Gallagher, Miranda J	Rice University				
Hamers, Robert J	University of Wisconsin-Madison / Silatronix, Inc.	Speaker			
Hernandez, Laura M.	McGill University	Poster Presenter			
Hicks, Ethan C	Duke University	Poster Presenter			
Jones, Akhenaton-Andrew D	Northeastern University	Speaker			
Jones, Diamond T	University of Iowa	Speaker			
Kinsley, Paige	University of Wisconsin - Madison	Poster Presenter			
Lane, Mary Kate M	Yale University	Poster Presenter			
Lankone, Ronald S	NIST	Speaker			
Laudadio, Elizabeth D	University of Wisconsin-Madison	Speaker			
Lawrence, Reece	University of Toronto	Poster Presenter			
Maker, Elliot J	University of Vermont	Poster Presenter			
Masterson, Caitlin	Brown University	Poster Presenter			
Melby, Eric S	Columbia Basin College	Chair			
Mensch, Arielle C	Pacific Northwest National Laboratory	Discussion Leader			
Mitchell, Stephanie	University of Minnesota	Poster Presenter			
Nazemidashtarjandi, Saeed	Ohio University	Poster Presenter			
Niemuth, Nicholas	University of Wisconsin - Milwaukee	Poster Presenter			
Oney, Dylan M	Oregon State University	Poster Presenter			
Ostovich, Eric	UW-Milwaukee	Poster Presenter			
Perreault, Francois	Arizona State University	Speaker			
Plata, Desiree L	Massachusetts Institute of Technology	Speaker			
Porcincula, Dominique H	California Polytechnic State University, San Luis Obispo	Speaker			
Rogers, Nicholas	Duke University	Poster Presenter			

Sigmon, Leslie R Johns Hopkins University Poster Presenter Sinsinbar, Gaurav Nanyang Technological University Poster Presenter Soroush, Adel University of Minnesota Poster Presenter

Stabryla, Lisa M University of Pittsburgh Speaker Story, Drew AAAS Congressional Science & Engineering Fellow Speaker

Surette, Mark C Oregon State University Discussion Leader Torelli, Marco Adámas Nanotechnologies, Inc. Poster Presenter Walch, Helene University of Vienna Poster Presenter

Walker, Sharon L Drexel University Speaker

Wang, Yan University of Pittsburgh Poster Presenter
Wang, Zhongying UC Berkeley Poster Presenter

Wheeler, Korin E Santa Clara University Speaker
Wu, Fan University of Wisconsin-Madison Speaker

Yao, Xiaoxiao the University of Minnesota Poster Presenter Zhang, Yongqian University of Wisconsin Madison Poster Presenter

Zucker, Ines Tel Aviv University Speaker

#### **61 Attendees**