2019 Gordon Research Seminar on Environmental Nanotechnology:

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

June 1-2, 2019

The Jordan Hotel at Sunday River in Newry, Maine

[Seminar Website and Registration](https://www.grc.org/environmental-nanotechnology-grs-conference/2019/)

This Gordon Research Seminar represents a unique opportunity for graduate students, post-docs, and other scientists with comparable levels of experience to present and exchange new research ideas, gain professional development, and expand their professional network. The 2019 GRS on Environmental Nanotechnology will feature research poster sessions, professional development focus groups led by experienced scientists in a variety of career paths, social and networking activities, and three science sessions with research presentations. All attendees are expected to participate in the GRS as a poster or oral presenter, to attend the entire seminar, and to attend the Gordon Research Conference that follows. More information about the science sessions is included below. Speakers for these sessions will be chosen from abstracts submitted by March 1, 2019.

**Science Sessions:**

1. *Emerging Methods of Nanomaterial Detection and Quantification in Complex Environmental and Biological Matrices*

This session focuses on emerging detection and quantification methods for natural and engineered nanomaterials. Detection of these materials is complicated under real-world conditions, especially within the complex environmental and biological matrices where many researchers strive to understand the behavior of nanomaterials. This session will bring together diverse researchers to share their strategies for addressing the challenges facing nanomaterial detection and quantification in these complex matrices. Abstracts on the following topics are particularly welcome, although other relevant topics will be considered:

* Discussions of emerging analytical methods including, but not limited to, sp-ICP-MS/TOF-MS, INAA, and natural isotopes
* Studies of signal-to-noise ratio, especially when detection limits are directly impacted by background levels and naturally occurring interferences
* Research addressing the challenges associated with these techniques, such as sample cleanup and preparation
* Application of shared resources, such as user facilities (neutron and synchrotron sources) and supercomputers, and innovative technology applications (smart phones) that have been creatively leveraged to study nanomaterials in realistic matrices.
1. *Novel Applications of Nanotechnology for the Provision of Food, Energy, and Water*

This session focuses on the application of synthetic and natural nanoparticles in environmentally relevant systems. By virtue of their beneficial properties, nanomaterials have found promising utilization in a variety of environmental fields including agriculture, energy storage, and water treatment. This session aims to paint a comprehensive picture of the diverse environmentally focused systems which strongly benefit from the incorporation and application of nanoparticles. Abstracts on the following topics are particularly welcome, although other relevant topics will be considered:

* Nanomaterials for the enhancement of agriculture. This could include disease suppression, promoted growth, or understanding of nanoparticle translocation in crops as a means to target nutrient delivery
* Sustainable nanocomposite materials for applications such as sustainable packaging for extending food storage or increasing biodegradability
* Research involving nanoparticles applied in the field of energy production and storage, encompassing usage in solar cells, fuel cells, and batteries
* Application of nanoparticles for water treatment, involving efficient removal of chemical and biological contaminants, nutrient addition, and improved membranes (i.e. decreased fouling, increased flow rate)
1. *Nanotechnology and Sustainability: Educational Outreach and Public Policy Engagement*

Over that last few decades, research output on nanoscience and nanotechnology has increased exponentially, and nanotechnology has become an integral part of the public’s daily life whether they are aware or not. Educational outreach with the goal raising awareness on nanotechnology must be a priority that matches up with research progress. Related public policies must also be informed by the outcomes and application of nanoscience research. Like any emerging field of knowledge, nanoscience and nanotechnology has wide-ranging impact to sustainability that may be positive or negative. The purpose of this session is to provide a space for scientists, educators, and professionals to share their works and thoughts on engaging the public and policy makers at the interface of nanotechnology and sustainability. Abstracts on the following topics are particularly welcome, although any abstract that relates to educational outreach and public policy in the context of nanotechnology and sustainability is welcomed:

* Techniques and ideas for interactive activities that are effective for engaging K-12 students on complex concepts in nanotechnology
* Nanotechnology as a tool for sustainability-based research projects at the high school and early undergraduate level
* Bridging nanotechnology research outcome to policy formulation and public advocacy while overcoming barriers when communicating with policy makers.
* Opportunities for nanotechnology to contribute to the United Nations Sustainable Development Goals and/or other sustainability milestones
* How nanotechnology can improve its public image and be considered as an asset for sustainability