

# Graduate Seminar



## Philip Demokritou, PhD

- Henry Rutgers Chair and Professor in Nanoscience and Environmental Bioengineering  
*School of Public Health & School of Engineering, Rutgers Univ.*
- Adjunct Professor, Harvard University
- Co-Editor in Chief, Nano-IMPACT (ELSEVIER)

**November 4, 2024 (4:00 pm - 5:30 pm), Kupfrian Hall - Room 205**

[Zoom Link: Click Here](#)

**Meeting ID: 994 3917 6432 Passcode: 058807**

## **Sustainable Nanotechnology: Bio-inspired, nature-derived, and non-toxic nanomaterials for agri-food applications and beyond**

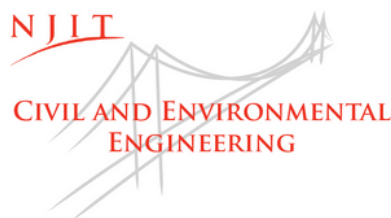
### **Abstract**

The rapid expansion of nanotechnology is a powerful scientific and economic force. However, how we balance the potential benefits of advanced nanomaterials with the potential environmental health and safety (EHS) hazards from such emerging and often inadequately characterized materials and products remains a challenge. Sustainable nanotechnology is an emerging field of interdisciplinary research that focuses on the development of “green” and non-toxic nanomaterials and technologies that can be used to tackle major societal challenges in various fields and applications.

This seminar will present highlights from current sustainable nanotechnology research projects in the agriculture and food domain in the Nanoscience and Advanced Materials Center. Projects include among others: 1) the development of green, nano-carrier platforms for targeted precision delivery of nature-derived antimicrobials for food safety applications using engineered water nanostructures (EWNS); 2) the development of biodegradable non-toxic, nano-modulating platforms to engineer interfacial processes in the gut to reduce the absorption of unwanted substances; 3) development of biodegradable smart food packaging and nanofertilizers using nature-derived biopolymers.

### **About the Speaker**

**Philip Demokritou, PhD** is the founding Director of two interdisciplinary research Centers at Harvard University: Harvard-NIEHS Nanosafety Research Center and Center for Nanotechnology and Nanotoxicology. He is also the founding Program Director of the Harvard-Nanyang Technological University/Singapore Sustainable Nanotechnology Initiative (2016-2022). He is also the founder of the Rutgers Nanoscience and Advanced Materials Research Center at Rutgers University. Demokritou is currently the Henry Rutgers Chair and Professor in Nanoscience and Environmental Bioengineering at Rutgers School of Public Health, Division Head at the Environmental Occupational Health Sciences Institute (EOHSI) and Vice Chair in the Department of Environmental Occupational Health and Justice at Rutgers School of Public Health. Before joining Rutgers in 2021, he was a Professor at TH Chan School of Public Health at Harvard University for 25 years. He is also a founding co-editor in chief of NanoImpact (Elsevier).



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