

2018 ICEENN/CEINT Program

DAY 1 · WEDNESDAY SEPTEMBER 5th

7:30am	Bus leaves from Hilton Garden Inn Hotel Durham (<i>If you miss the bus, you can try the hotel shuttle or Uber services</i>)	
Breakfast served at Penn Pavilion Conference Center		
Hang posters at assigned numbers – see agenda or consult poster board legends for placement – posters to be displayed throughout meeting		
Start time	Speaker/Activity	Title
8:30am	Mark Wiesner	Welcome and Introduction
Session 1: Modeling and Informatics		
8:45	Keynote: Claus Svendsen	What are we talking about, and how can we most effectively share and compare our facts?
9:15	Socorro Vazques-Campo	Analysis of data gaps on human exposure, environmental release and fate for model testing in caLIBRAte project
9:35	Khara Grieger	Application and Testing of Risk Screening Tools for Nanomaterial Risk Analysis
9:50	Break	
10:10	Arturo Keller	Variation in Regional Risk of Engineered Nanoparticles: nanoTiO ₂ as a Case Study
10:30	Jim Ranville & Laurel Passantino	Small Particles, Big Findings: Key scientific and network collaboration findings from EPA,Â’s Life Cycle of Nanomaterials project
10:50	Véronique Adam	Probabilistic material flow modelling including the forms in which engineered nanomaterials are released
11:05	Jaleesia Amos	The NanoInformatics Knowledge Commons: Curating Individual Research Endeavors
11:15	Mohammad Nassar	A nanomaterial database in environmental science: the SERENADE approach
11:30	Henning Wigger	Next steps in environmental risk assessment of engineered nanomaterials considering material-specific properties
11:45	Lunch	
Session 2: Nanotoxicology and bioactivity		
13:15	Keynote: Allison Elder	Research needs for the future of nanotoxicology
13:45	Olga Tsyusko	Genetic and epigenetic mutations in <i>Caenorhabditis elegans</i> after multigenerational exposure to pristine and sulfidized silver nanoparticles
14:05	Korin Wheeler	Predictive analysis of nanoparticle protein coronas
14:25	J. Evan Ward	Ingestion, bioaccumulation and depuration of polystyrene nanoparticles by marine mussels
14:40	Peng Zhang	Shape-Dependent Transformation and Translocation of Ceria Nanoparticles in Cucumber Plants
15:00	Break	
15:20	David Hinton	Effects of Dietary Nanoplastics Exposure in Adult Japanese Medaka (<i>Oryzias latipes</i>)
15:35	Honglan Shi	Fates of Nanoparticles in Simulated Gastric Fluid Studied by Using Single Particle-ICP-MS

DAY 1 CONTINUED · WEDNESDAY SEPTEMBER 5th

All Events Held in Penn Pavillion on Duke University West Campus, 107 Union Drive, Durham NC 27708
Please Call CEINT & CEE Program Coordinator Eileen Kramer · 919.475.9750

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Start time	Speaker/Activity	Title	
15:50	Armand Masion	An integrated approach to assess the environmental risks of nanomaterials	
16:05	Break Walk to the Gardens Walk to the Chapel		
17:15	Series of 10 pop-up presentations advertising posters		#
	Benjamin Castellon	Accumulation and depuration kinetics of nanoparticles in wetland mesocosms in eastern mosquitofish (<i>Gambusia holbrooki</i>) and Asian clam (<i>Corbicula fluminea</i>)	7
	Mark Falinski	When viability assays may not be viable: Understanding the role of aggregation, surface charge and oxidative stress on MWCNT-induced risk in aquatic systems	54
	Xiaoyu Gao	CuO nanoparticle dissolution and toxicity to wheat (<i>Triticum aestivum</i>) in rhizosphere soil	15
	Vena Haynes	Phototoxic Effects of Titanium Dioxide Nanoparticles on Marine Aggregate-Associated Microorganisms	18
	Danielle Mello	Assessment of silver nanoparticle toxicity: overcoming experimental confounders and testing mitochondrial toxicity	26
	Elise Morel	Bioaccumulation and Effects of Cerium Dioxide nanoparticles on <i>Chlamydomonas reinhardtii</i> : Nanoparticles or the Free Ion?	28
	Brittany Perrotta	Engineered nanoparticles increase excretion rates of nitrogen and phosphorus by freshwater snails in wetland mesocosms	33
	Mithun Sikder	Effect of size and natural organic material on the uptake of platinum nanoparticles in the freshwater snail, <i>Lymnaea stagnalis</i>	40
	Rafael Trevisan	Effects of nanoplastics in zebrafish from waterborne and dietary exposures: maternal transfer, mitochondrial bioenergetics, and interactions with PAHs.	46
	Yueyang Zhang	Toxicity of nano-enabled azoxystrobin on zebrafish embryo	51
18:15	Reception and Poster Session		
20:00	Bus departs for Hilton Garden Inn Durham		

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DAY 2 · THURSDAY SEPTEMBER 6th, 2018

7:30am	Bus leaves from Hilton Garden Inn Hotel Durham (<i>If you miss the bus, you can try the hotel shuttle or Uber services</i>)		
Breakfast served at Penn Pavilion Conference Center			
Start time	Speaker/Activity	Title	
Session 3: Nanomaterials in Consumer Products, Exposures from Releases			
8:30	Keynote: Keana Scott	Developing measurement approaches for analyzing and quantifying release from nanocomposites	
9:00	Mohammed Baalousha	Environmental concentrations of engineered nanoparticles in surface waters impacted by sewage spills in Columbia, South Carolina	
9:15	Nathan Bossa	Impact of product matrix on the exposure, fate and behavior of released nanomaterials	
9:30	Daniele Slomberg	Evaluation of environmental exposure to nanoparticulate TiO ₂ UV-filters used in sunscreens	
10:05	Jamie Lead, ICEENN Conference Series Committee Announcement		
10:10	Break		
10:30	Armand Masion	Spectroscopic monitoring of the aging of sunscreens with TiO ₂ UV filters	
10:45	Jerôme Rose	Nanotechnologies risk assessment: exposure and product life cycle driven methodology	
11:05	Series of 10 pop-up presentations advertising posters		#
	Agil Azimzada	Release of TiO ₂ nanoparticles from painted surfaces under natural weathering conditions in Northern climates: characterization using single-particle ICP-MS	3
	Katie Challis	Detection of titanium released from nano-TiO ₂ concrete weathered in a variety of U.S. climates	8
	Marco Mangayayam	Time-resolved structural characterization of sulphidized zero valent iron: insights on stability and reactivity	55
	Vicenç Pomar Portillo	Monitoring of nanomaterials release from consumer products: NANOFASE case studies	34
	Logan Rand	Daily cycling of sunscreen and mineralogic Ti-containing nanoparticles in three rivers during recreational water use	36
	Joana Sipe	Method for Quantifying Microplastic Generation Rates from Various Plastics	41
	Mark Surette	The Aging of Engineered Surface Coatings During Wastewater Treatment and the Impact on the Fate of Engineered Nanoparticles	44
	Lila Thornton	Estimation of Nanomaterial Weight Fraction in Consumer Products Using Machine Learning Methods	45
	Marielle DuToit	Conductive water filtration membranes paired with electrochemical impedance spectroscopy facilitate assessment of fouling kinetics at membrane surface and within pores	14
	Hossein Safa	Fate and transport of Ceria nanoparticles in porous media under different environmental variables; Effect of different sand grain size distribution	38
12:00	Lunch		

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DAY 2 CONTINUED · THURSDAY SEPTEMBER 6th

Start time	Speaker/Activity		
Session 4: Characterization and Detection			
13:30	Keynote: Manuel Montano	Advancing Engineered and Natural Nanoparticle Detection and Characterization in the Environment Using spICP-TOF-MS	
14:00	Matt Chan	Investigating Mono- and Divalent Cation Induced Aggregation of Gold Nanoparticles in Aqueous Environments via Surface-Enhanced Raman Spectroscopy	
14:15	Olga Borovinskaya	Extending the dimensions of multi-element single particle analysis by ICP-time-of-flight MS	
14:30	Pabel Cervantes	Detection of silver nanoparticles in wastewater streams by using single-particle ICP-MS	
14:45	Chady Stephan	Innovations in single particle ICP-MS – Accurate detection of pure and alloyed nanoparticles	
15:00	Break		
Session 5: Agricultural Applications			
15:30	Keynote: Juan Pablo Giraldo	Targeted Foliar Delivery of Nanoparticles to Organelles for Engineering Crop Stress Tolerance	
16:00	Jason Unrine	Changes in particle surface chemistry dramatically tissue and subcellular distribution of nanoparticles in plants	
16:20	Geert Cornelis	Comparing attachment efficiency for nanoparticles and soils estimated from both batch tests and saturated column tests	
16:40	Jason White	Engineered nanomaterials suppress fungal and viral crop disease	
17:00	Nick Geitner	Updates on Using Surface Attachment and Other Functional Assays for Nanoparticle Fate and Transport	
17:15	Break		
17:30	Series of 9 pop-up presentations advertising posters		#
	Eleanor Spielman-Sun	Temporal evolution of copper distribution and speciation in roots of <i>Triticum aestivum</i> exposed to CuO, Cu(OH) ₂ , and CuS nanoparticles	42
	Amalia Turner	Nanoparticle surface affinity to natural soils	47
	Garret Bland	Assessment and Optimization of an Extraction Method for Copper Oxide Nanoparticles in a Soil Matrix	4
	Nadratan Chowdhury	The Role of Naturally Occurring Nano-Phases in the Transport and Fate of Genetic Debris	9
	Lyndsey Hendriks	Online Microdroplet Calibration to Improve Accuracy of Nanoparticle Measurements in Diverse Matrices by Single-Particle ICPMS	19
	Qishen Huang	SERS-based pH Measurement of Aerosol Droplets Reveals a pH Gradient	20
	Stephanie Laughton	Evaluation of Cu-based NP Persistence following Foliar Application on <i>L. sativa</i> via sp ICP-MS measurement	23
	Nicholas Rogers	Examining Extracellular Vesicle Fate Through the Lens of Environmental Nanotechnology	37
	Sheyda Shakiba	Competitive adsorption of biomolecules and natural organic matter on titanium oxide nanoparticles	39
18:30	Adjourn → Bus will transport to dinner at The Pit in Durham, NC · After dinner, bus available back to Hilton Garden Inn Durham		

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DAY 3 · FRIDAY SEPTEMBER 7th, 2018

7:30am	Bus leaves from Hilton Garden Inn Hotel Durham (<i>If you miss the bus, you can try the hotel shuttle or Uber services</i>)	
Breakfast served at Penn Pavillion Conference Center		
Start time	Speaker/Activity	Title
Session 6: Complex Interactions and Interdependencies Between Nanomaterials and their Environments		
8:30	Véronique Adam & Vicenç Pomar Portillo	Young Nanoscientists: Information and Invitation
8:40	Keynote: Gregory Lowry	Mesocosms and what we've learned about investigating complex systems
9:10	Salimar Cordero	A Tale of Two Fractionations: Identifying the reactive NOM components responsible for nanoparticle deposition
9:30	Howard Fairbrother	Surface Modification of Nanocellulose; the need to balance changes in dispersion properties with environmental impacts
9:50	Break	
10:10	Mike Hochella	Reflections of an Earth Scientist in CEINT
10:30	Sara Mason	Modeling dissolution of complex metal oxides from first-principles and thermodynamics
10:45	Jeff Farner	Are all NPs created equally? A comparison of transport and toxicity for two commercially relevant TiO ₂ NPs
11:00	Naresh Kumar	Sulfidation of Fe(III)-(oxyhydr)oxide Nanoparticles: Mechanism and Impact on Contaminant Mobility
11:15	Jerome Laisney	Ligand-promoted dissolution of TiO ₂ nanoparticles by the enterobactin siderophore in biological media
11:30	Sayakou Inoue	Structural transformation of wire-shaped Mn (oxyhydr)oxide nanoparticles with core-shell structure in aqueous solution
11:45	Lunch	
Session 7: Applications and Controlled Properties of Nanomaterials		
13:15	Peter Vikesland	Nanoparticle enabled sensing - Where are we and where are we going?
13:35	Ryan Smith	Selective Recovery of Rare Earth Elements from Coal Combustion Products Using Liquid Membrane Processes
13:50	Jiang Xu	Correlating the reactivity of nZVI and S-nZVI with their physicochemical properties
14:05	Jenny Nelson	The use of Single Particle Inductively Coupled Plasma Mass Spectrometry towards answering real-world questions in the Environmental Industry
14:20	Open Discussion – lead by Mark Wiesner <i>Takeaways, next clear directions, opportunities, lessons learned</i>	
14:50	Closing Remarks – Mark Wiesner	
15:00	Adjourned	

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Saturday Sept 8th, 2018: Training Workshop Agenda

8:00 - Bus leaves from Hilton Garden Inn Hotel Durham (*If you miss the bus, you can try the hotel shuttle or Uber services*)

9:00 – 10:30 am – PerkinElmer Workshop presented by Dr. Chady Stephan

Course Title: Trends in Single Particle and Single Cell ICP-MS: From particles detection in complex matrices to quantification of particle number and metal content in individual unicellular organisms

Highlight: This course will briefly review the theory of SP-ICP-MS focusing on the state-of-the-art innovations in hardware and software with relation to the latest applications in Environmental, Forensic and Semiconductor sciences. We will introduce the concept of Single Cell-ICP-MS and discuss the challenges faced when analyzing cells compared to NPs with an in-depth focus on the necessary validation required to accurately quantify the number of particles and/or metal content in individual unicellular organism. The implications to human and environmental health applications of this technique will be discussed: Cisplatin uptake by cancer cell, nanoparticles uptake and transformation by fresh water algae and intrinsic metal quantification.

10:30 – 11:00am – Break

11:00 – 12:30 – TOFWERK Workshop presented by Dr. Olga Borovinskaya

Course title: New horizons in elemental analysis of nanoparticles and cells with ICP time-of-flight technology: From single particles to biological tissues

Highlight: This course will focus on inductively coupled plasma time-of-flight mass spectrometry (ICP-TOFMS) and its capabilities to perform multi-element analysis of individual nanoparticles and cells in a variety of different media. We will introduce the concept of fast high-resolution 2D and 3D imaging of nanoparticles and metals in biological tissues and whole organisms using laser ablation sampling techniques, focusing on the latest developments in this field. We will illustrate selected applications of icpTOF technology in environmental nanoscience, material science and cell biology and show how the complexity of multi-parametric information-rich TOF analyses can be reduced by applying state of the art hardware and software tools.

12:30 – 1:30 – Lunch

1:30 – Adjourn – Bus available for transportation back to Hilton Garden Inn Durham