

CIVIL AND ENVIRONMENTAL ENGINEERING DEPARTMENT SEMINAR



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Date: Friday, February 2nd, 2024

Time: 12:00 – 1:30pm EST

Location: Bingham Bldg., Vose Room 138

Modeling environmental exposure for consumer-use down-the-drain ingredients using spatially resolved datasets and surface water flow modeling

Abstract: A key aspect of chemical environmental safety assessment is understanding the environmental fate, transport, and exposure of a chemical. For ingredients used in household products that go down-the-drain, exposure assessment focuses on wastewater treatment and receiving waters. Traditionally, risk assessment frameworks represent the environment as a single area using a deterministic approach and do not account for the spatial variability across a given country or region. To address this gap, we have developed a global framework to incorporate spatial variability in key determinants of down-the-drain substance environmental exposures. The framework can be applied to predict concentration distributions in river catchments across the globe and leverages large spatial datasets on population, wastewater treatment infrastructure, per capita water use, river connectivity, and river flows. In this talk, we provide an overview of environmental risk assessment, the global spatial exposure model and framework, and the application of these models to safety assessment. We will provide case studies of real-world applications of these methods to understand the safety of ingredients used in laundry and personal care products.

Bio: Dr. Susan A. Csiszar is a Senior Scientist at the Procter & Gamble Company where she leads the company's Environmental Safety and Sustainability (ESS) exposure modeling and research. Previous to this role, she was the lead ESS scientist for P&G Beauty for several years. She has over 15 years' experience in environmental science with a focus on the safe and sustainable use of consumer product chemicals. Before working at P&G, Dr. Csiszar was an ORISE Research Fellow hosted at the US EPA Office of Research & Development with a focus on exposure modeling to support both Risk and Life Cycle Assessment. She was a Dow Sustainability Postdoctoral Fellow at the University of Michigan in the Department of Environmental Health Sciences also with a focus on chemical impact and risk modeling. Susan has a Ph.D. (Chemical Engineering & Applied Chemistry) and M.Sc. (Theoretical Chemistry) from the University of Toronto and an Honors B.Sc. in Physics & Chemistry from the University of British Columbia. She has over 20 scientific publications, including in journals such as Environmental Science & Technology, Environment International, and Chemosphere.