



Graduate Seminar

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February 3, 2025 (4:00 pm - 5:30 pm), Tiernan Hall - Room 106

[Zoom Link: Click Here](#) Meeting ID: 994 3917 6432 Passcode: 058807

Unveiling processes affecting leaching of PFAS from sewage sludges and biosolids

Abstract

Per- and polyfluoroalkyl substances (PFAS) are large and diverse class of man-made organofluorine chemicals that are extremely persistent and omnipresent in the environment. PFAS can enter water resource recovery facilities (a.k.a., wastewater treatment plants) from various sources, including commercial and industrial discharges (e.g., pulp and paper plants, car washes) and from homes from the use of consumer products, such as stain- and water-resistant clothing, which can shed PFAS during washing. These PFAS then partition into either the treated wastewater effluent that is discharged into the environment or the sewage solids (i.e., sludge and biosolids) generated by WRRFs that either applied to agricultural lands or sent to landfills. This presentation will examine how the secondary treatment and sludge stabilization processes at WRRF may affect the leaching of PFAS from biosolids by changing the characteristics of the solid. In addition, it will explore how microbial weathering processes, such as decomposition of organic biopolymers, like lipids and proteins, may influence biosolids characteristics that could affect their re-release of into the environment after being land applied.

About the Speaker

Christopher M. Sales is an Associate Professor in the Civil, Architectural, and Environmental Engineering Department at Drexel University, with research expertise in environmental microbiology, environmental biotechnologies, and environmental remediation technologies. He is also Director of the Applied Plasma Biology & Chemistry Labs at the C&J Nyheim Plasma Institute of Drexel University, where he leads efforts on the research and development of innovative non-thermal plasma technologies for agriculture, food safety, public health, medicine, and environmental applications. He received a B.S.E. in Chemical & Biomolecular Engineering and a B.A. in Environmental Studies from the University of Pennsylvania; a M.S. and Ph.D. in Civil and Environmental Engineering from the University of California, Berkeley, working with Lisa Alvarez-Cohen. However, he was a post-doctoral researcher in the group of Distinguished Professor Joseph Hughes at Drexel University.

