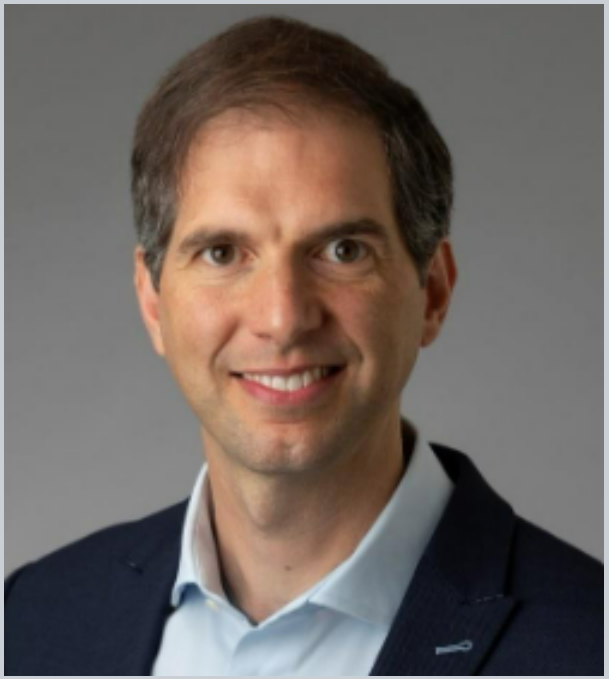
Managing per- and polyfluoroalkyl substances (PFAS) in semiconductor wastewater: occurrence, source tracking, and new materials for PFAS capture from wastewater

NC STATE UNIVERSITY

Monday, September 30th @ 12:45 pm-1:45 pm | 3301 Fitts-Woolard Hall

Abstract. A variety of organofluorine-containing compounds are used during the manufacturing of semiconductors including fluorinated polymers and small molecules that can be classified as per- and polyfluoroalkyl substances (PFASs). Emerging regulations on emissions of PFASs from industrial processes motivate studies to understand the occurrence, sources, and fate of organofluorine-containing compounds in semiconductor manufacturing facilities. This presentation will focus on recent results from projects that have characterized the occurrence of specific PFASs in fab wastewater, demonstrated the potential for organofluorine-containing compounds to be generated during specific manufacturing steps, and discovered new materials to capture PFAS from wastewater. Insights derived from these projects will help the semiconductor industry develop strategies to mitigate PFAS in their emissions.

Bio. Damian Helbling received his PhD in civil and environmental engineering from Carnegie Mellon University in May 2008. His graduate research focused on the use of sensor networks within drinking water distribution systems to monitor and control post-treatment water quality. Helbling did his postdoctoral work at the Swiss Federal Institute for Aquatic Science and Technology (Eawag) in Switzerland where he explored the environmental fate of organic chemical contaminants with a particular focus on biological transformation processes. Helbling joined the School of Civil and Environmental Engineering at Cornell University in January 2014. His research has focused on developing techniques to characterize the universe of organic molecules in water and wastewater by means of high-resolution mass spectrometry and developing technologies for the remediation of impacted water systems.



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