Politecnico di Torino
Department of Environment, Land and Infrastructure Engineering

DIATI

MICRO- AND NANOPLASTICS IN TERRESTRIAL ENVIRONMENTS: SAMPLING, IMPACTS, AND ENVIRONMENTAL FATE

Yingxue Yu | The Pennsylvania State University

April 28th from 11:00 to 12:00
Meeting Room DIATI Entrance 3 – 1st floor

Abstract:
Micro- and nanoplastics are recognized as emerging contaminants in the environment, yet uncertainties remain regarding their occurrence, impacts on ecosystem functioning, and environmental fate. In this talk, a sampling framework is presented that links microplastic concentration to soil sample size and spatial heterogeneity, demonstrating how inadequate sampling can bias reported abundances. Laboratory experiments show that microplastics can modify soil bulk density, water retention, and hydraulic conductivity, but critical concentrations must be reached for pronounced effects to occur. Finally, the aggregation and transport behavior of biodegradable nanoplastics is examined, revealing that despite their degradable nature, these materials exhibit high stability and mobility, which may facilitate off-site transport.

Bio:
Yingxue Yu is an Assistant Professor in the Department of Ecosystem Science and Management at The Pennsylvania State University. She received her Ph.D. in Soil Science, with an emphasis on environmental soil physics and vadose zone hydrology, from Washington State University. She holds a B.Eng. in Hydrology and Water Resources Engineering from Shandong University of Science and Technology and an M.S. in Hydrogeology from China University of Geosciences (Beijing). Her research focuses on understanding how physicochemical interactions and environmental factors govern contaminant behavior across terrestrial and aquatic environments.