Seminar by,
Dr. Weile Yan

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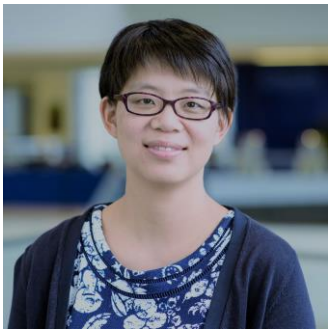

Biogeochemical Processes and Engineered Surfaces for Sustainable Remediation of Chlorinated Solvent-impacted Sites

Abstract: Reactive materials such as iron sulfides and zero-valent iron play an important role in the abiotic attenuation of chlorinated solvents at groundwater contamination sites, and at the same, remediation of chloroethenes using organohalide-respiring bacteria has seen increasing applications in the field. However, chemical or biological remediation alone each have their own limitations. This talk will discuss the development of coupled biotic-abiotic approaches for reductive degradation of tri- and tetra-chloroethenes (TCE and PCE), chemicals widely in many industrial and commercial applications and frequently detected at complex legacy sites. The presenter will go over the conventional abiotic reductants including zero-valent iron and their tendency to be passivated in realistic groundwater matrices and explain the concept of using biological sulfate reduction to tailor the surface chemistry of solid reductants to enable more sustained, selective, and cleaner remediation strategies for chlorinated solvent sites. The presenter will also discuss her ongoing work about developing molecular diagnostic tools to measure the long-term attenuation rates of chlorinated solvents in the field.

Biosketch: Dr. Weile Yan received her B.Eng. and Ph.D., both in Environmental Engineering, from the National University of Singapore and Lehigh University, respectively. She was a post-doctoral associate at Princeton University and taught at Texas Tech University as an assistant/associate professor in the Civil, Environmental, and Construction Engineering Department between 2011 – 2019. Currently, Dr. Yan is an associate professor in the Department of Civil and Environmental Engineering at the University of Massachusetts Lowell. Her research efforts focus on contaminant transformation mediated by earth abundant materials and reactions mediated by natural or engineered mineral or metal systems. She pursues applications of these findings to subsurface remediation and sustainable water reuse options.

Date: Friday April 1st, 2022
Time: 4:00 – 4:50 PM
Zoom Meeting ID: 936-2704-9507

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