



Stony Brook University

Department of Civil Engineering
College of Engineering and Applied Sciences

FALL 2022 SEMINAR SERIES

Dr. Wei Li, Ph.D.

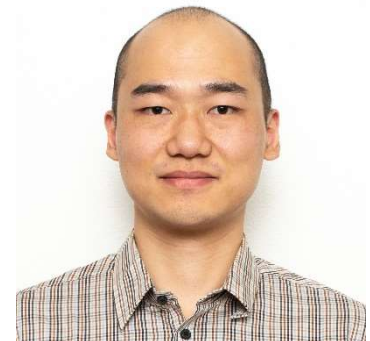
Assistant Professor, Department of Civil Engineering,
Stony Brook University

Friday, October 7th, 1:00 – 1:55 PM
Frey Hall Room 201

To see the geosystems like never before

Abstract

Geosystems sustain the life and infrastructure above; and host water, wastes, and resources within. The proper engineering of geosystems is critical to address many societal sustainability challenges, such as infrastructure resilience against geohazards, CO₂ storage and enhanced energy recoveries. However, the geosystems of interest are buried deep and hardly accessible for study. It is challenging for us to gain the correct understanding and make the right engineering decisions on such systems. In this talk, I will present two studies that enable us to see the geosystems like never before. I will start by presenting a theoretical and experimental investigation of how flow and dissolution drive the evolution of geosystems. Then, I will introduce a novel experimental technique, photoporomechanics, that visualizes the evolving effective stress field in fluid-filled granular media. I will conclude my talk with a research plan on how to engineer sustainable and resilient geosystems.



Speaker Biography

Dr. Li is an Assistant Professor in the Department of Civil Engineering at Stony Brook University. He obtained his bachelor's degree in Hydraulic Engineering from Tsinghua University in 2012. He then spent ten years at MIT pursuing his master's and Ph.D. degrees and working as a postdoc. He is strongly interested in the geosystems centered on infrastructure and energy. The overarching goal of his research is to advance the engineering of geosystems in the context of climate change, infrastructure resilience, and energy- and water resources. His research involves innovative experimenting, visualization, and modeling of geosystems of various scales, to elucidate the fundamental physics and guide the real-life engineering of geosystems.