Bruce Podwal Seminar Series

The City College of New York

Activated Sludge and Aerobic Aeration-Free Wastewater Treatment with Oxygenic Photogranules

Chul Park, Professor

Department of Civil and Environmental Engineering
University of Massachusetts Amherst

12:30 – 1:30 pm, Tuesday, April 6, 2021

Online: https://ccny.zoom.us/j/89302757661

Abstract: The activated sludge process is a primary wastewater treatment method, mainly used in developed countries. Despite robustness and effectiveness, it is energy intensive and releases greenhouse gas during operation. We have recently discovered the transformation of activated sludge into photogranular biomass that can treat wastewater without aeration, which currently causes the highest energy demand in the activated sludge process, and fix CO2 by oxygenic photosynthesis. We also found that this granulation phenomenon occurs in some unexpected environments, such as glacier surfaces. The seminar will present the findings of photogranules and the development of a new granule biotechnology based on our knowledge of activated sludge and photoranules.

Biography: Dr. Chul Park is a Professor in the Department of Civil and Environmental Engineering at the University of Massachusetts Amherst. He received BS in Environmental Engineering at Youngnam University in South Korea. He obtained MS and PhD in Civil Engineering at Virginia Tech. His research areas reside in environmental bioprocesses for built and natural systems. He is particularly interested in bioaggregation phenomenon and its application for engineering systems. Dr. Park is the recipient of 2013 Paul Busch Award presented from Water Research Foundation. He has also carried out several NSF research projects, including recent grants on photogranules for aeration-free aerobic wastewater treatment.