Intensification of Wastewater Treatment for Nutrient Removal and Resource Recovery

Abstract:
Management of the N cycle has been identified as one of the Grand Challenges in the 21st century by the National Academy of Engineering, highlighting needs for further research using integrated management approaches. In a wastewater treatment plant, aeration accounts for about 40-60% of energy consumption for organic C and N removal. Innovative technologies are necessary to reduce the energy consumption in wastewater treatment and recover resources from waste streams.

Dr. Meng Wang will discuss her research on the nutrient management strategies and anaerobic digestion processes in the context of municipal and agricultural wastewater managements. In particular, she will discuss the synergistic effects of the algae and bacteria for the resource recovery from high ammonium strength wastewater. Furthermore, she will talk about the hybrid ion exchange and biological processes utilizing natural zeolite minerals to improve the system stability and regulate the intracellular contents of the biomass for different applications.