



DEPARTMENT OF CIVIL ENGINEERING

SEMINAR

**Nanotechnology for Water Treatment:  
Towards Low Energy Desalination and Water Purification****Professor Qilin Li**

Department of Civil and Environmental Engineering

NSF Nanosystems Engineering Research Center for Nanotechnology Enabled Water Treatment  
Rice University, USA

Date: June 17, 2019 (Monday)

Time: 11:00 a.m. - 12:00 noon

Venue: Room 612B, Haking Wong Building, The University of Hong Kong

**ABSTRACT**

Nonconventional water sources, including seawater, brackish water and wastewater, have become an important, and in some regions, necessary form of water supply to sustain economic growth and societal development. At the center of the various strategies utilizing these alternative water sources is desalination and water purification. A critical limitation of existing desalination technologies is the high energy consumption. Much research effort has been devoted to the development of high permeability membrane materials to lower the energy demand of desalination. However, with the energy use of reverse osmosis systems approaching the thermodynamic limit, research on factors other than membrane permeability is necessary. Use of renewable energies and “fit-for-purpose” treatment are two potential solutions to further lower energy consumption of desalination and water purification. Combination of advanced materials and novel treatment processes have shown great promise in changing the technology landscape of desalination and water purification. This presentation will highlight recent research on novel nanotechnology enabled water treatment technologies, and discuss the fundamental science, materials development, reactor and process modeling, as well as systems research towards next generation water supply systems.

**ABOUT THE SPEAKER**

Prof. Qilin Li is a Professor of Civil and Environmental Engineering, Chemical and Biomolecular Engineering, and Materials Science and Nanoengineering at Rice University. Prof. Li received her B.E. degree in Environmental Engineering from Tsinghua University in Beijing, China, her M.S. and Ph.D. degrees in Environmental Engineering from University of Illinois at Urbana-Champaign, and her post-doctoral training at Yale University. Prof. Li's research focuses on advanced technologies for water and wastewater treatment and reuse including adsorption, membrane separation, advanced oxidation and environmental nanotechnology, novel desalination methods, environmental fate and transport of contaminants, and environmental impact of nanotechnology. Prof. Li is a Fellow of International Water Association (IWA), and served as the chair for the IWA Nano&Water Specialist Group Managing Committee. She is the Associate Director for Research for the NSF Nanosystems Engineering Research Center for Nanotechnology Enabled Water Treatment (NEWT), an Associate Editor of Water Research, and a member of the US EPA Science Advisory Board's Environmental Engineering Committee. She also serves on the editorial board of Frontier of Environmental Science and Engineering.

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