

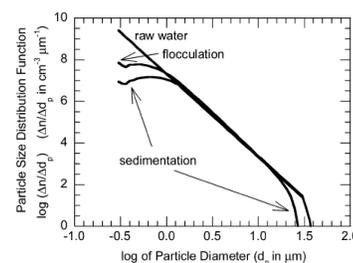
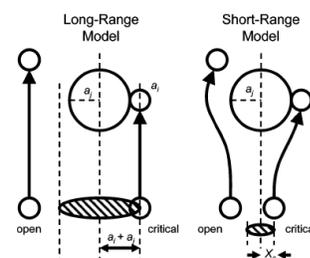
# Particles, Particles, and More Particles

**Dr. Desmond Lawler**

Nasser I. Al-Rashid Chair in Civil Engineering at the University of Texas

**Friday, 1 March 2013, 12:30 – 2:00 pm**  
**Reitz Union Grand Ballroom B-C-F-G**

Particle treatment processes are at the heart of both (surface) drinking water treatment and wastewater treatment. Many contaminants in water and wastewater are particles, are made into particles, or are removed by attaching to particles. Throughout my career, I have been pursuing the links between fundamental particle properties (particularly size distributions, but also shape, surface charge, and adsorbed materials such as natural organic matter) and the optimal design and operation of particle processes. Current work includes considering the fate of nanoparticles in conventional particle processes. Flocculation, precipitation, gravity removal processes (sedimentation, flotation, thickening), granular media filtration, and dewatering have all been the focus of my work with various Master's and Ph.D. students. In addition, we have studied the linkages of these processes to one another in conventional water treatment plants. A few of the key insights from this work include the relative insignificance of the velocity gradient in determining the success of flocculation, the importance of flow patterns in open tanks such as flocculation and sedimentation reactors, the role of detachment in the effluent water quality from granular media filters, and a design methodology for granular media filters that could save piloting costs.



Lawler, Nason, *Environ. Sci. Technol.* 2005, 39, 6337-6342

Desmond Lawler is the Nasser I. Al-Rashid Chair in Civil Engineering and a member of the Academy of Distinguished Teachers at the University of Texas. His research and teaching focus on physical/chemical treatment processes for water and wastewater, with greater emphasis on drinking water treatment. Throughout his career, he has studied particle removal processes and more recently has been studying desalination and processes for the removal of pharmaceuticals and personal care products. He served as the Secretary of AEESP for two years early in his career, and has been a board member of the Water Science and Research Division of AWWA for the past several years. He is a member of the Drinking Water Committee of the Science Advisory Board of the USEPA. Des has received several teaching awards at UT and his contributions to research and education have been recognized with major awards by AWWA, WEF, and AMTA. His 80 MS graduates are productive throughout the water and wastewater field, and 14 of his 20 PhD graduates are academicians.

