



***BRACE CENTRE FOR WATER RESOURCES MANAGEMENT
GLOBAL ENVIRONMENTAL & CLIMATE CHANGE CENTRE
CIVIL ENGINEERING & APPLIED MECHANICS***

SEMINAR

**FOULING AND CHEMICAL CLEANING OF NANOFILTRATION
MEMBRANES: EFFECTS OF SOLUTION CHEMISTRY AND FOULANT
INTERACTIONS**

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Fouling caused by colloidal materials and dissolved organic matter, and subsequent chemical cleaning of nanofiltration (NF) membranes in drinking water purification and wastewater reclamation are often inevitable. In order to unravel the mechanisms of fouling and chemical cleaning, it is critical to understand foulant-membrane, foulant-foulant, and foulant-cleaning agent interactions. In this study, such interactions were quantified by interfacial force measurement with atomic force microscopy (AFM) in an aqueous environment. Experimental results revealed that the fouling process was greatly impacted by the solution chemistry of the feed stream, which affects the foulant-membrane as well as foulant-foulant interactions. Interactions of colloidal and dissolved organic foulants were found to significantly alter the behavior of each other, leading to substantially enhanced colloidal deposition on the membrane surface and consequently greater overall fouling rate. However, the structure of the combined colloidal/organic fouling layer allowed easy cleaning of the fouled membranes.

Qilin Li, (M.S. & Ph.D. Urbana-Champaign) is currently an Assistant Professor in the Department of Civil, Construction and Environmental Engineering at Oregon State University. She will join the faculty of Civil and Environmental Engineering at Rice University in January, 2006. Her main research interests center on advanced technologies for water quality control, such as adsorption and membrane filtration.

Thursday, November 10, 2005

Trottier Building, Room 1090

2:30 - 3:30

EVERYONE WELCOME

