



Faculty of Engineering and Applied Science

Chemical Engineering Seminar Series



Research Innovations in Drug Delivery Technologies for Unmet Medical Needs

Dr. Xiao Yu (Shirley) Wu /University of Toronto
Thursday, November 24, 2016, 2:30pm
Dupuis Hall, Room 215



ABSTRACT

Despite advances in technologies, there still are many diseases that affect hundreds of millions of people worldwide needing more effective treatment, such as cancer, diabetes, and diseases in the central nervous system (CNS). Having identified several major unmet medical needs, Prof. Wu and her directed Advanced Pharmaceutics and Drug Delivery Laboratory have developed a variety of drug delivery technologies by integrating multidisciplinary knowledge and techniques, including pharmaceutics, pharmacology, oncology, chemistry, engineering, and nanotechnology. In this seminar, Prof. Wu will discuss research innovations pursued by her group in the development of new drug delivery systems, namely synergistic drug combination nanoparticles for enhanced chemotherapy of multidrug resistant and metastatic breast cancer, hybrid bioreactive manganese dioxide nanoparticles for remodeling tumor microenvironment and improving tumor radiation therapy, intelligent closed-loop insulin delivery system for diabetes, and blood brain-barrier (BBB) penetrating nanoparticles for treatment of brain cancer and CNS diseases. She will also introduce computer-aided design of controlled release drug delivery systems developed by her group and collaborators.