

Faculty of Applied Science  
**CHEMICAL ENGINEERING**



**“Designing Novel Polyethylenes of Controlled Complex Chain Architectures  
via Palladium-Catalyzed Ethylene Polymerization”**

*Dr. Z. Ye,*

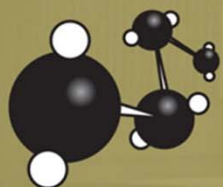
School of Engineering, Laurentian University

Thursday, Dec 1, 9:30am

Dupuis Hall, Room 217

**BIO**

Dr. Zhibin Ye is currently an Associate Professor and Canada Research Chair at School of Engineering of Laurentian University (Sudbury, Ontario). He received his Bachelor and Master's degrees from Zhejiang University (China) in 1996 and 1999, respectively, and his PhD degree from McMaster University (Hamilton, Ontario) in 2004 with all in chemical engineering. He started his independent academic career at Laurentian University in 2004. His research interests include polymer nanomaterials, polymers of complex chain architectures, transition metal catalysts and catalysis, living polymerization techniques, polymer nanocomposites, and polymer rheology. He received research awards including Ontario Premier's Early Researcher Award (2007), Canada Research Chair (2011), and Laurentian University Faculty of Science and Engineering Research Excellence Award (2011).



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## **“Designing Novel Polyethylenes of Controlled Complex Chain Architectures via Palladium-Catalyzed Ethylene Polymerization”**

### **ABSTRACT**

Chain architecture or topology of polymers is a critically important structural parameter governing intrinsically their physical properties and applications. The rapid developments in polymerization techniques, particularly “living”/controlled polymerization techniques, in the past two decades have enabled the precision synthesis of novel polymers having a broad class of complex yet well-defined chain architectures from different monomer stocks. For polyethylenes and other polyolefins synthesized via catalytic coordination polymerization, the design of their complex chain architecture/topology, however, has only started very recently with few but important developments. In this seminar, the speaker will introduce some of the works carried out in his lab on the design and synthesis of a novel class of polyethylenes having complex chain architectures, including hyperbranched, telechelic, tadpole, block, tree-like, and star, with the use of Pd-catalyzed ethylene coordination polymerization techniques. Some applications of these new polyethylene materials will also be introduced.