

HAMMOND RESEARCH GROUP

Department of Chemical Engineering



MID-SUMMER POLYMER SEMINAR

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UNIVERSITY OF FRIBOURG, SWITZERLAND



***“Harnessing proteins for
polymer synthesis, nanoreactors,
and force-responsive materials”***

ABSTRACT: Materials science and biochemistry have long been considered two separated realms of research with little overlap. However, in recent years it has become apparent that an interdisciplinary approach combining polymer chemistry and protein science is creating new opportunities to design and realize multifunctional (nano)materials, as well as to support the environmentally friendly synthesis of polymers. The talk will exemplify aforementioned with current research results of the Bruns group. The discovery that the proteins horseradish peroxidase and hemoglobin possess ATRPase activity will be presented, i.e. their ability to catalyze atom transfer radical polymerizations (ATRP). Moreover, the thermosome, a protein cage from the family of chaperonins, will be introduced as nanoreactor for ATRP, which allows the synthesis of narrowly dispersed polymers in aqueous solution. Last but not least, fluorescent proteins will be discussed as mechanically responsive molecular sensors that report microdamages within fiber-reinforced composites.



Tuesday July 22nd, 2014
Room 4-237
Seminar begins at 2:00 PM