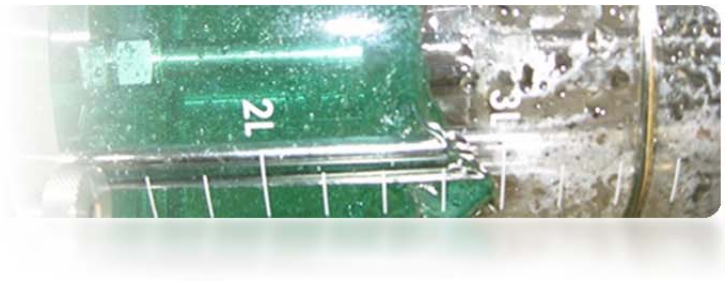
UCLA ENGINEERING
Chemical and Biomolecular Engineering



SEMINARS IN CHEMICAL AND BIOMOLECULAR ENGINEERING

Friday, January 15, 2016 10:00AM

PENTHOUSE → BH8500

Presented by

Dr. Christopher Bates

Postdoctoral Fellow, Chemistry and Chemical Engineering

California Institute of **T**echnology

"Block Copolymers: From Fundmental Science to Technological Applications"

Block copolymers (BCPs) provide widespread utility across numerous commodity and technological applications. This talk will convey fresh insight into two aspects of BCP self-assembly: the development of materials for next-generation microelectronic devices and the consequences of polymer connectivity and architecture on bulk microphase behavior. Particular attention is focused towards the thin film physics of BCPs containing inherent plasma etch resistance and associated processes that enable fast thermal annealing. The practical utility of these materials and techniques is demonstrated through integration into established directed self-assembly protocols compatible with industrial manufacturing. To augment these technology-driven innovations, unanticipated discoveries in bulk ABC triblock brush polymer phase behavior underscore the importance of unraveling fundamental polymer thermodynamics with consequences for future material design.

Christopher M. Bates *earned a B.S. degree in Chemistry at the University of Wisconsin–Madison in 2007 and received a Ph.D. from The University of Texas at Austin in 2013 under the guidance of C. Grant Willson. He currently holds a postdoctoral scholar position with Robert H. Grubbs at the California Institute of Technology. Christopher's research interests include polymer science and materials engineering.*