ETH zürich

ICB seminar series 2017/18
chairman: Prof. Dr. Andrew deMello

MACROMOLECULAR ENGINEERING OF HYDROGEL BIOMATERIALS

Prof. Dr. Mark Tibbitt
Macromolecular Engineering Lab
ETH Zürich, MAVT

ETH Hönggerberg, 08/11/2017
HCI G 3, 17.00 h
The Seminar will be followed by an Apéro

Abstract. The core of our research integrates concepts from organic synthesis, polymer physics, and materials engineering to design and assemble advanced polymeric materials. We tailor structural and chemical details at the molecular scale to enable predictive and tunable control over emergent (bio)material properties. Our materials are employed to understand fundamental processes in biology and materials science, and translated to solve clinical problems in the fields of drug delivery, regenerative medicine, and biomedical diagnostics. In the first part of the talk, we will explore how rationally-designed photoresponsive hydrogels can be used to control and understand cell-matrix interactions. Cell function and fate decisions are regulated by complex interactions with the surrounding extracellular matrix (ECM). In the second part of this talk, we will explore a unique class of shear-thinning and self-healing hydrogels that are fabricated from selective and reversible polymer-nanoparticle (PNP) interactions.

Speaker highlights. Prof. Mark Tibbitt joined ETH Zurich as Assistant Professor of Macromolecular Engineering in June 2017. Previously, he was an NIH Postdoctoral Fellow in the laboratory of Prof. Robert Langer in the Koch Institute for Integrative Cancer Research at the Massachusetts Institute of Technology. He received his B.A. in Integrated Science and Mathematics from Northwestern University, and his Ph.D. in Chemical Engineering at the University of Colorado Boulder under the supervision of Prof. Kristi S. Anseth. His research integrates concepts from chemical engineering, synthetic chemistry, materials science, and biology to rationally design and assemble soft matter for biomedical applications.

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