



College of Engineering Distinguished Seminar Series

Presents

Recent Advances in the Interfacial Engineering of Biological and Synthetic Materials

by

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Date: Friday, January 20, 2012

Time: 10:00- 11:00 am

Place: Room S105 in Technology Hall

Abstract:

The past decade has witnessed important advances in methodologies that permit engineering of the interfaces of soft materials with precisely controlled properties relevant to a broad range of technological contexts. This presentation will present an overview of these advances and then illustrate their application through two focused examples. The first example will address the creation of functional interfaces of liquid crystalline materials. Whereas interfacial engineering of liquid crystals underlies the realization of liquid crystal display technology, it is now possible to control the bio/chemical functionality of LC interfaces in ways that were not previously possible. These advances are opening new potential applications of liquid crystals related to chemical and biological sensing. The second example to be discussed in this presentation will address the use of soft polymeric films to modify the interfacial properties of biological tissues. Specifically, recent efforts to use ultrathin polymeric films to engineer the interfacial properties of wound beds so as to promote wound healing will be described.

Background:

Dr Nicholas L. Abbott is the Sabota Chair Professor in the Chemical and Biological Engineering Department at the University of Wisconsin in Madison and the 2010 AIChE Charles M.A. Stine Award winner. He received his PhD in Chemical Engineering in 1991 from the Massachusetts Institute of Technology. His research focuses on the design and engineering of organic interfaces which are a critical element of many technologies emerging from fundamental advances in the life sciences, nano-scale materials sciences and information sciences. Dr. Abbott has collaborated extensively with researchers from the life sciences (virology, molecular biochemistry, veterinary medicine) as well as physical sciences (physics and chemistry). He is also the co-founder of Platypus Technologies (www.platypustech.com) and has published his work in over two hundred articles (<http://abbottlab.che.wisc.edu/publications.html>).