DEPARTMENT OF CHEMICAL & PHYSICAL SCIENCES

COLLOQUIUM SEMINAR SERIES

Wednesday, October 3, 2018

3:10pm in CC2150

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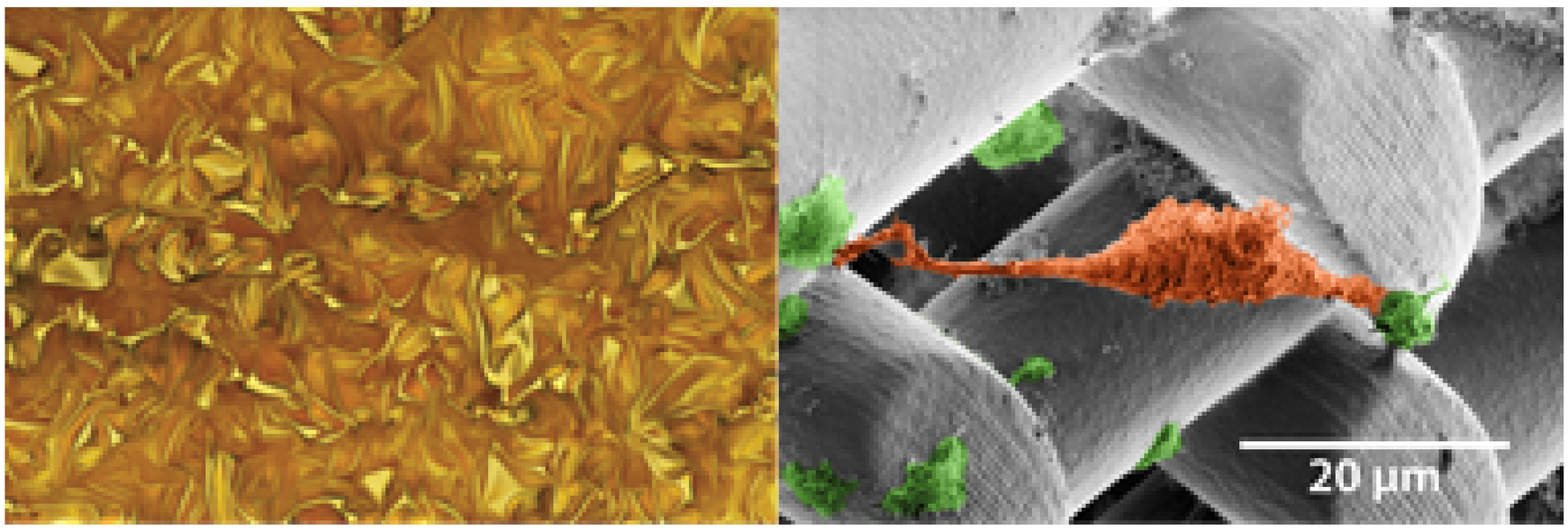
Micro- and nanostructured materials: from stretchable gold to “green” materials for tissue engineering



Surfaces with topographies containing features that span from the micro- to the nanoscale are of interest for a wide range of applications including stretchable electronics, sensing, analytical separations, and cell culture, to name a few. This presentation will describe our efforts in the fabrication and implementation of micro- and nanostructured materials. In one research focus area, our group has developed a simple, rapid, inexpensive method for the fabrication of micro- and nanostructured surfaces from a variety of thin films based on the use of thermal shrinking of polymer substrates. I will describe this bench-top approach to fabrication, demonstrate the different length scales of the topographies produced, and show examples of the multiplicity of materials that can be used in this fabrication technique. Applications of the resulting materials to electrochemical sensors, flexible conductive materials, and cell culture and growth will also be discussed. In a second research focus area, our group has pioneered a modular approach to modify the interfacial chemistry of polysaccharides and used these to graft small molecules that render nanocellulose functional. This presentation will describe our surface chemistry approach, the characterization and some applications of the resulting materials, including the development of green 3D printing resins.