

Wednesday, January 9, 2019

LSC 3 | 12:00 - 1:00PM



## Dr. Scott Diamond

**Professor**, Department of Chemical and Biomolecular Engineering, Institute for Medicine and Engineering, University of Pennsylvania

### “Multiscale analysis of blood using microfluidics and high dimensional phenotyping”

Excessive bleeding and clotting represent the two extremes of blood function that often concern patients and their doctors. Hundreds of spatiotemporal reactions proceed within activating and aggregating platelets and the polymerizing plasma as blood clots under flow. Microfluidic devices are ideal for recreating transport physics and hemodynamic forces. We have validated several devices to study hemophilia, combinatorial platelet receptor function, drug responses, platelet quorum sensing, and von Willebrand Factor (vWF) assembly in extreme stenotic flows. With multi-scale simulation of reactive blood clotting under flow, it is now possible to predict disease risks using patient-specific hemodynamics and blood biochemistry/pharmacology. This sets the stage for point-of-care microfluidic diagnostics in emerging areas of neonatology, trauma surgery, and angiography.

Live Online Seminar Viewing:  
<https://meet.ubc.ca/hana.kim/YGHMR41Q>

