

Atomic Membranes

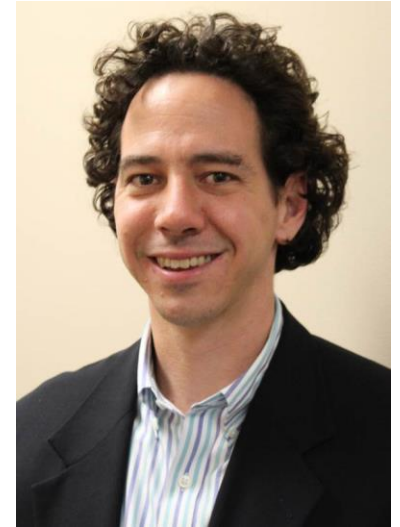
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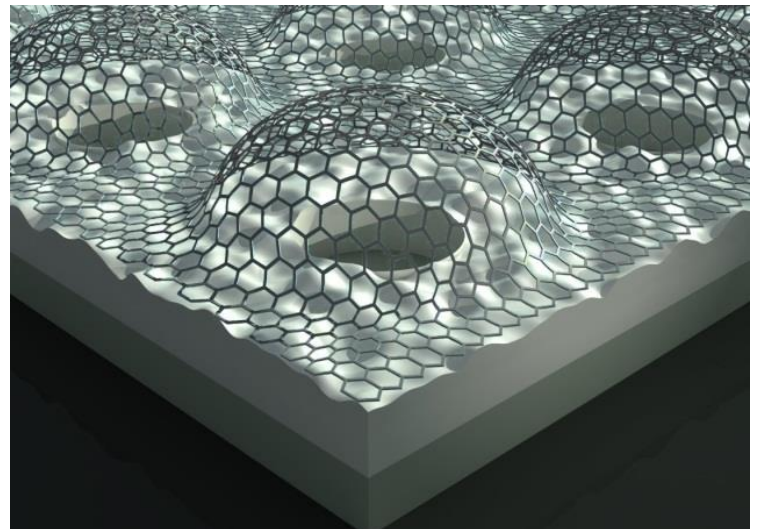
1:30 – 2:30 PM

Venue: CP 197, MMC



Abstract: Imagine a sheet of paper only one atom thin with atomic bonding similar to diamond. Graphene, a single layer of graphite, is such a structure. It is the first two dimensional atomic crystal and consists solely of carbon atoms covalently bonded in a hexagonal chicken wire lattice. This unique atomic structure gives it remarkable electrical, mechanical, and thermal properties. Moreover, graphene represents only one of a whole class of 2D materials that include metals, insulators, and semiconductors. It is the mechanical properties of these wonder material that fascinate our group the most. They are the thinnest materials in the world and impermeable to standard gases. In this talk, I will review our recent experimental results on atomic membrane adhesion, atomically thin semipermeable membranes for ion and gas separation, and flexible electronics based on 2D semiconductors.

Biography: Scott Bunch is currently an Assistant Professor at Boston University in the Department of Mechanical Engineering (Primary), Division of Materials Science and Engineering (Primary), and Department of Physics (Courtesy). He is primarily interested in the mechanical properties of atomically thin materials such as graphene. He received his B.S. degree in Physics from Florida International University (2000) and a Ph.D. in Physics (2008) from Cornell University where he studied the electrical and mechanical properties of graphene. After finishing his Ph.D., he spent 3 months as a postdoctoral researcher in the Laboratory of Atomic and Solid State Physics at Cornell University studying nanoelectromechanical systems. Before moving to Boston University, he was an Assistant Professor of Mechanical Engineering at University of Colorado at Boulder from 2008-2013. His awards include a Ph.D. fellowship from Lucent Technologies, Bell Laboratories (2000-2004), the DARPA MTO Young Faculty Award (2008), and the NSF CAREER Award (2011).



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