

# PHYSICS AND ASTRONOMY COLLOQUIUM

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## **“Atomic Layer Deposition Origami: a technology platform for nanoscale machines, sensors, and robots”**

### Abstract

What would we be able to do if we could build cell-scale machines that sense, interact, and control their micro environment? Here I will describe a new platform we are developing for the construction of micron sized origami machines can sense their environments, respond, and perform useful functions on time and length scales comparable to microscale biological organisms. With the incorporation of electronic, photonic, and chemical payloads, these basic elements will become a powerful platform for robotics at the micron scale. As such, I will close by offering a few forward looking proposals to use these machines as basic programmable elements for the assembly of multifunctional materials and surfaces with tunable mechanical, optical, hydrophilic properties. Professor Itai Cohen is obsessed with matter in motion. At Cornell, his research has focused on investigating the behavior of microscopic and nanoscopic particles suspended in a fluid, exploring the mechanics of materials ranging from biological tissues to origami inspired metamaterials,