Physical Chemistry Student Seminar

“Self Assembled Networks of Synthetic Synapses for Brain-Inspired Hardware”

Efforts to create brain-inspired hardware have been bolstered by recent developments in nanoscale circuit elements that exhibit synapse-like properties. However, conventional fabrication techniques are unable to efficiently generate structures with the complex interconnectivity found in biological neuronal networks. Instead, a self-assembly method is investigated as a means of producing brain-inspired hardware, consisting of millions of interconnected inorganic synapses embedded in a network of silver nanowires. During electrical stimulation, emergent behaviors unique to the complex network of atomic switches are observed that bear similarities to brain activity. These devices display the functional characteristics required for implementing unconventional, biologically and neurally inspired computational methodologies in a synthetic experimental system.

Presented by

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Thursday, December 4, 2014

12:00 P.M.

2033 Young Hall