

# *Chez Pierre*

Presents ...

**Friday, April 13, 2012**

**12:00pm**

**MIT Room 4-331**



## **SPECIAL CHEZ PIERRE SEMINAR**

**Nayda Mason**

University of Illinois at Urbana-Champaign

### ***“Proximity Effects and Metallic States in Mesoscopic Superconductor-Normal Metal-Superconductor Arrays”***

In this talk, I will discuss our experiments on arrays of superconducting islands patterned on normal metal films. The underlying normal metal can become superconducting due to the proximity effect; thus, by changing the size and spacing of the superconducting islands, we can controllably change the superconducting properties of the metal film. Such systems are also predicted to exhibit 2D zero-temperature metallic states, which cannot be explained by conventional transport theory. I will discuss electrical transport measurements of these systems, including characterization of the superconducting transitions, vortex dynamics in a finite magnetic-field, and evidence that the system approaches unusual metallic ground states as the island spacing is increased.