

## **Title: Engineering at the Limits of the Nanoscale**

### **Abstract**

At the nanoscale, unique properties and phenomena emerge that can lead to scientific and technological paradigms beyond those classically envisioned. Exploring these opportunities at the few-nanometer regime requires unprecedented precision, resolution and control, not readily feasible through conventional techniques. In particular, the dynamic, reliable and reversible tuning of such small dimensions is a great challenge, yet a promising platform to enable reconfigurable nanodevices and systems with multifunctionalities. This talk will introduce a platform, utilizing engineering of the surface interactions, to develop mechanically reconfigurable nanostructures with sub-nanometer resolution and control. Applications of this platform in energy-efficient nanoelectromechanical switches and tunable plasmonics will be discussed.

### **Biography**

Farnaz Niroui is an Assistant Professor of Electrical Engineering and Computer Science at Massachusetts Institute of Technology. Her research pushes the limits of nanoscale engineering by developing new processing and metrology techniques to reach and study dimensions at the atomic scale, and utilizing the emerging phenomena to engineer new paradigms of active nanoscale devices and systems. Prior to MIT, Farnaz was a Miller Postdoctoral Fellow at University of California Berkeley. She received her PhD in Electrical Engineering from MIT and completed her undergraduate studies in Nanotechnology Engineering at University of Waterloo. Farnaz has been the recipient of awards including the DARPA Young Faculty Award, NSF CAREER Award, MIT EECS Outstanding Educator Award, and the Miller Research Fellowship.

