Plasmonic nanoantennas continue to be attractive for a variety of potential applications in nanotechnology, biology, and photonics due to their ability to tightly confine and strongly enhance optical fields. In recent years, the PROBE Lab at the University of Illinois at Urbana-Champaign has made significant developments in plasmonic nanoantenna technology by more closely exploring the rich parameter space associated with these structures. This talk will discuss our work with arrays of Au bowtie nanoantennas (BNAs) with an emphasis on harnessing their field enhancement properties for improved transport and manipulation of microparticles. In addition, recent efforts to introduce the mechanical degree-of-freedom by placing the BNAs on silicon dioxide pillars will also be discussed. Aside from the particle manipulation features that these pillar-supported BNAs (pBNAs) share with their substrate-bound counterparts, the use of pBNAs to record the optical near field will also be presented. The talk will conclude with a brief discussion on some of the future work pursued by the PROBE lab, including adapting BNAs for lab-on-a-chip applications and nanoscale acoustic generation.

Refreshments will be served before the seminar.
Please contact Tony Pulsone at pulsone@mit.edu with any questions.