

2011 Materials Research Society Fall Meeting
November 28 – December 2, 2011,
Boston Massachusetts USA
SESSION FF7: Mechanical Nanofabrication, Nanopatterning, and Nanoassembly
Chair: Graham Cross
Wednesday Evening, November 30, 2011
8:00 PM
Exhibition Hall D (Hynes)

8:00 PM FF7.17

Hollow Vertical Metallic Nanocylinders via NI Binod Rizal, Stephen Shepard, Michael J. Burns, Thomas C. Chiles and Michael J. Naughton; Department of Physics & Department of Biology, Boston College, Chestnut Hill, Massachusetts.

We have used nanoimprint lithography to fabricate arrays of hollow vertical metallic nanocylinders. The fabrication process begins with arrays of NIL-fabricated SU-8 polymer replicas of silicon nanopillars. The nanocylinder array is formed by metalizing the polymer pillars, followed by mechanical polishing to remove the tops of the pillars and reactive ion etching to remove SU-8 cores. This leaves the outer cylindrical metal film as a self-supporting cylinder. Arrays of sub-wavelength diameter (e.g. 200 nm) cylinders introduce a nanoplasmonic platform merging multiple modalities for optical trapping, nanospectroscopy, sensing applications, etc. We will discuss the details of the fabrication process of these arrays as well as their physical and optical properties.