

Abstract Submitted
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Al Nanowire Arrays For Plasmonic Devices¹ NATHAN T. NESBITT, AARON H. ROSE, YITZI M. CALM, JUAN M. MERLO, STEVE SHEPARD, GREG MCMAHON, CHIA-KUANG TSUNG, MICHAEL J. BURNS, MICHAEL J. NAUGHTON, Boston College — Aluminum nanowires have been fabricated in ordered vertical arrays on bulk Al foil with controlled wire dimensions and spacing. Large aspect ratio wires were obtained, including sub-micron wire diameters and supra-10 μm height. The somewhat novel method of fabrication utilizes nanoimprint lithography and the economical electrochemical anodization process used to make anodized aluminum oxide (AAO) templates, suggesting potential facile production and scalability. To our knowledge, arrays of vertical metallic nanowires (i.e. differing from semiconductor nanowire or carbon nanofiber arrays) of the obtained dimensions have not previously been reported. These dimensions may be favorable for nanoscale photonic and plasmonic transmission, nanocoax solar cells, and non-diffraction-limited optical microscopy.

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