Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Patterned Fabrication of Zinc Oxide Nanowire Arrays[1] SAHAR KHAN[2], THOMAS LAMSON[3], HUIZHONG XU[4], St. John's University — Zinc oxide nanowires possess desirable mechanical, thermodynamic, electrical, and optical properties. Although the hydrothermal growth process can be applied in tolerable growth conditions, the dimension and density of nanowires has a complex dependence on substrate pre-treatment, precursor concentrations, and growth conditions. Precise control of the geometry and density of nanowires as well as the location of nanowires would allow for the fabrication of useful nanowaveguide devices. In this work, we used electron beam lithography to pattern hole arrays in a polymer layer on gold-coated glass substrates and synthesized zinc oxide nanowires inside these holes. Arrays of nanowires with diameters ranging from 50 nm to 140 nm and various spacings were obtained. The transmission of light through these zinc oxide nanowire arrays in a silver film was also studied.

[1]This research was supported by the Seed Grant Program of St. Johns University and the National Science Foundation under Grant No. CBET-0953645.
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Date submitted: 13 Nov 2015 Electronic form version 1.4