

Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

The Dielectrophoretically Guided Growth of Submicron, Near Single Crystal Indium Wires¹ BRET FLANDERS, Oklahoma State University, ISHAN TALUKDAR, Oklahoma State university, BIROL OZTURK, Oklahoma State University, TETSUYA MISHIMA, University of Oklahoma — Dielectrophoresis was used to direct the growth of crystalline indium wires between lithographic electrodes immersed in solutions of indium acetate. Determination of the conditions that suppress side branching on these structures has enabled the fabrication of arbitrarily long needle-shaped wires with diameters between 367nm and 556nm. Electron diffraction studies indicate that these wires are crystalline indium, that the unbranched wire segments are single-crystal domains, and that the predominant growth-direction is near $\langle 110 \rangle$. This outcome constitutes a critical step towards the use of simply prepared aqueous mixtures as a convenient means of controlling the composition of submicron, crystalline wires.

¹Supported by the National Science Foundation and Oklahoma EPSCoR.

Bret Flanders
Oklahoma State University

Date submitted: 30 Nov 2005

Electronic form version 1.4