Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Long Range Directional Growth of Electrochemical Nanowires
PREM THAPA, BRET FLANDERS, Oklahoma State University — We report on the directional growth of crystalline metallic nanowires between targeted sites in on-chip circuitry. We observed that 200 nm diameter, needle-shaped wires grow between the electrodes after the deposition of 10 μl aqueous indium acetate solution and application of a 10 MHz alternating voltage. This effect occurs even when the electrodes are separated by as much as 100 μm. Hence, this effect is indicative of a long-range interaction, which is surprising given that this occurs in an electrolytic solution where Debye screening is expected. In this talk, we will discuss the possible origin of this long-range interaction. This capability provides an innovative way to interface multiple nanowires to a single cell membrane, enabling the future study electrophysiological events in live cells.

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Date submitted: 04 Dec 2006 Electronic form version 1.4