Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

**Inorganic Nanotubes, Nanofluidic Transistors and DNA Translocation** PEIDONG YANG, University of California — Inorganic nanotubes, representing a new class of nanostructures, have been attracting considerable attention during the past few years. Single crystalline semiconductor GaN nanotubes can be synthesized by nanowire templated epitaxial casting method. Partial conversion of existing nanowires leads to the synthesis of silica nanotubes after etching off remaining cores. Silica nanotubes can be integrated into metal-oxide-solution field effect transistors (MOS*ol*FETs) which exhibit rapid field effect modulation of ionic conductance. Surface functionalization can change inherent carrier concentration as well channel polarity to fabricate p-type, n-type and ambipolar transistors. These nanofluidic devices were further demonstrated to be useful in single molecule sensing. Single DNA molecules can be electrically detected either by charge effect or geometry effect. These nanofluidic FETs have potential implications in sub-femtoliter analytical technology and large-scale nanofluidic integration.

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Date submitted: 02 Dec 2005 Electronic form version 1.4