

Abstract Submitted  
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**High yield assembly and transport properties of semiconducting carbon nanotubes**<sup>1</sup> ELIOT SILBAR, KRISTY KORMONDY, PAUL STOKES, SAIFUL I. KHONDAKER, University of Central Florida, Nanoscience Technology Center and Department of Physics — AC-dielectrophoresis (DEP) typically yields a low percentage of semiconducting single-walled nanotube (SWNT) devices due to the greater force metallic SWNTs feel during the trapping process. Here we show that DEP combined with a commercially available semiconducting enriched solution allows for the large scale assembly of SWNT field effect transistors (FETs) from solution. Individual or small bundle SWNTs we assembled between 1  $\mu\text{m}$  spaced Pd source and drain electrodes using DEP. We observed FET behavior in 87% of the as-assembled devices using this fabrication method. After annealing in Ar/H<sub>2</sub> gas, the devices displayed mobilities up to 463 cm<sup>2</sup>/Vs and current on-off ratios as large as 4x10<sup>5</sup>. We will present scanning electron micrographs, full electronic characteristics, and statistics on the FET devices.

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