

Abstract Submitted  
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**A Real Time Detection System for Dielectrophoretic Deposition of Carbon Nanotubes**<sup>1</sup> SEBASTIAN SORGENFREI, INANC MERIC, AUSTIN AKEY, SARBAJIT BANERJEE, SAMI ROSENBLATT, IRVING P. HERMAN, KENNETH SHEPARD, Columbia University — Single-walled carbon nanotubes (SWCNTs) have showed considerable potential as building blocks for electronics and sensors but are very difficult to integrate and assemble into larger systems. Dielectrophoretic deposition allows the large-scale positioning and alignment of SWCNTs but requires precise control to reproducibly generate single-tube devices. We investigate dielectrophoretic deposition of SWCNTs using an *in situ* detection system. This apparatus locks into both a small AC signal and the large, mixed-down dielectrophoretic signal, generated by the nonlinearities of the device, making it possible to halt deposition once a nanotube has made electrical contact. This results in a higher yield of single SWCNTs deposited between two electrodes.

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