

Abstract Submitted
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Fabrication of sealed nanofluidic channels with single wall carbon nanotube electrodes for electronic DNA detection and analysis CHIH-KUAN TUNG, Dept. of Physics, Princeton Univ., ROBERT RIEHN, Princeton Univ. / NC State Univ., LUKAS URBAN, Univ. of Illinois, Urbana-Champaign, ALI YAZDANI, ROBERT AUSTIN, Dept. of Physics, Princeton Univ. — Detection of entropically elongated polymer molecules such as DNA in nanotubes by electronic means is a challenging task. SWCNT's are attractive nanoelectrode detection elements but cannot withstand many nanofabrication techniques commonly used in making nanochannels, such as dry etching. We have used near room temperature parylene deposition to create self-sealed nanochannels which pass over SWCNTs on the substrate surface. The process is totally e-beam compatible, and therefore allows us great flexibility in addressing problems and opportunities in nanoscale electronics. We will demonstrate applications such as electronic length measurement of elongated dsDNA molecules in the sealed nanochannels.

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