

Abstract Submitted  
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**Single-biomolecule circuits with carbon nanotube wiring** JOHN CORONEUS, Departments of Molecular Biology and Biochemistry, and Physics and Astronomy, University of California Irvine, Irvine, CA 92697, BRETT R. GOLD-SMITH, VAIKUNTH KHALAP, ALEXANDER KANE, GREGORY A. WEISS, PHILIP G. COLLINS — Because of their size and chemistry, carbon nanotubes offer a unique opportunity to couple solid-state electronics with individual proteins or other biomolecules. This talk will describe our success covalently attaching single proteins to functioning, nanotube-based electronic devices. Because the nanotubes are sensitive, one-dimensional conductors, their electrical properties are greatly altered by this attachment, even when only one or two proteins are bound. The single-molecule circuits which result allow the dynamics of molecules to be directly observed without ensemble averaging. This work is partly supported by NSF grant EF-0404057.

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