

Abstract Submitted
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Field-Effect Transistors Assembled From Functionalized Carbon Nanotubes CHRISTIAN KLINKE, JAMES HANNON, ALI AFZALI, PHAEDON AVOURIS, IBM Research Division — We have fabricated field effect transistors from carbon nanotubes using a novel selective placement scheme. We use carbon nanotubes that are covalently bound to molecules containing hydroxamic acid functionality. The functionalized nanotubes bind strongly to basic metal oxide surfaces, but not to silicon dioxide. Upon annealing, the functionalization is removed, restoring the electronic properties of the nanotubes. The devices we have fabricated show high ON current (about 1 μ A) and an ON/OFF ratio of more than $1e6$.

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