

Abstract Submitted
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Directed-Assembly of Carbon Nanotubes on Soft Substrates for Flexible Biosensor Array¹ HYOONG WOO LEE, JUNTAE KOH, BYUNG YANG LEE, TAE HYUN KIM, JOOHYUNG LEE, SEUNGHUN HONG, Department of Physics and Astronomy, Seoul National University, MIHYE YI, Korea Research Institute of Chemical Technology, YOUNG MIN JHON, Korea Institute of Science and Technology — We developed a method to selectively assemble and align carbon nanotubes (CNTs) on soft substrates for flexible biosensors. In this strategy, thin oxide layer was deposited on soft substrates via low temperature plasma enhanced chemical vapor deposition, and linker-free assembly process was applied onto the oxide surface where the assembly of carbon nanotubes was guided by methyl-terminated molecular patterns on the oxide surface. The electrical characterization of the fabricated CNT devices exhibited typical p-type gating effect and $1/f$ noise behavior. The bare oxide regions near CNTs were functionalized with glutamate oxidase to fabricate selective biosensors to detect two forms of glutamate substances existing in different situations: L-glutamic acid, a neuro-transmitting material, and monosodium glutamate, a food additive.

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