

Abstract Submitted  
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**Large-Scale** **‘Surface-**  
**Programmed Assembly’ of Carbon Nanotube-Based Biosensors**<sup>1</sup> DONG  
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HONG, School of Physics, Seoul National University, Seoul, Korea — The unique  
electrical properties of single-wall carbon nanotubes (swCNT) have generated a huge  
amount of research on nanoelectronic devices and nanosensors. However, a lack of  
mass-production method of such devices has been holding back their practical appli-  
cations. Herein, we present a method to assemble a large scale array of swCNT-based  
biosensors. In this method, self-assembled monolayer patterns direct the ‘selective  
assembly’ and ‘alignment’ of swCNTs onto substrates in the swCNT solution without  
relying on any external forces. Using this method combined with microfabrication,  
we successfully demonstrated the fabrication of 256 x 256 swCNT-junction array  
on transparent glass substrates. Furthermore, by immobilizing glucose oxidase or  
L-glutamate oxidase on the CNT junctions, we fabricated swCNT-based biosensors  
for real-time detection of glucose or L-glutamate, respectively.

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