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Single Walled Carbon Nanotube-based Aqueous Sensors SARAH LASTELLA, ARAVIND VIJAYARAGHAVAN, SWASTIK KAR, PULICKEL M. AJAYAN, CHANG Y. RYU, Rensselaer Polytechnic Institute — Single walled carbon nanotube (SWNT) field effect transistors (FETs) have been utilized as chemical specific sensors by incorporating a sensitizing agent into the nanotube sidewalls. Here we report the non-covalent sidewall functionalization of SWNT FETs through the adsorption of macro-organic molecules. The modified SWNT FETs recognize changes in pH and oxidation states through a change in current flow across the devices. These uniformly dispersed nanotubes, grown directly on the FET substrate prior to electrode deposition, enhance the available tube surface area for molecular adsorption, and thus enhance the signal sensitivity.

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