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Development of Glucose Sensors by Modified Carbon Nanotube Arrays[1] JASON MOSCATELLO, ARCHANA PANDEY, ABHISHEK PRASAD, YOKE KHIN YAP — In 2007 the CDC estimates 7.8% of the US population had diabetes, and the percentage is rising [1]. Such numbers lead to a large demand for highly selective, sensitive glucose sensors. We have used vertically-aligned multiwalled carbon nanotube (VA-MWCNT) arrays [2] to fabricate glucose sensors. VA-MWCNTs were embedded in PMMA and polished to expose the tips. The tips were functionalized by carboxyl groups, then modified by immobilization of glucose oxidase. Initial results on sensors of this type were previously reported [3], but we have further characterized to include lowest detection limits, enzyme lifetime, and performance stability. Comprehensive electrochemical data will be presented along with Raman, IR, and SEM. 1. National Diabetes Fact Sheet, Centers for Disease Control and Prevention, U.S. Department of Health (2007) 2. J. Menda et al., Appl. Phys. Lett., 87, 173106-3 (2005) 3. Y. Lin, F. Lu, Y. Tu, Z. Ren, Nano Lett., 4, 191-195 (2004)

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