

Takeshi Kawano wins Best Paper Award at BSAC IAB



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Takeshi Kawano

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Takeshi Kawano, a Post-Doctorate researcher from the Mechanical Engineering Department, has won one of two Best Paper awards at the Spring 2006 Berkeley Sensor and Actuator Center (BSAC) Industrial Advisory Board (IAB) meeting March 6-7. Nearly 100 attending industrial members from 39 member organizations voted for the best presentations.

This project is to develop technologies for hierarchical assembly of nanowires and nanotubes with built-in complementary metal-oxide semiconductor (CMOS) circuits that could open up a new class of devices, such as nano-based physical and biological sensors as well as nanoelectronics. This work demonstrates the formation of silicon/multi-walled carbon nanotubes (MWCNTs)/silicon heterojunctions constructed between two silicon micro-terminals using a novel technique of localized synthesis and electric-field-assisted self-assembly. CNTs with diameter of around 50 nm are grown from a silicon microheater using resistive heating and electrically directed to a cold second silicon microstructure via a local-electric-field (0.2-1volt/micron). Electrical measurements of the self-assembled silicon/CNTs/silicon show linear characteristics, that enables the potential use of these bridging CNTs as functional elements. In addition, pressure dependence of the CNTs conductivity was demonstrated, indicating pressure-sensing capability of CNTs.

Takeshi Kawano is advised by Professor [Liwei Lin](#), professor in the Mechanical Engineering Department and co-Director of the BSAC.