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**Performance Enhanced Photoconductive Channels Based on (Carbon Nanotube)-(CdS Nanowire) Hybrid Nanostructures** MYUNGJAE YANG, HYUNGWOO LEE, Department of Physics and Astronomy, Seoul National University, KWANG HEO, Interdisciplinary Program in Nano-Science and Technology, Seoul National University, ABBAS MAAROOOF, Department of Physics and Astronomy, Seoul National University, YONGJU PARK, SEUNGUK NOH, School of Electrical Engineering and Computer Science, Seoul National University, JUNE PARK, Department of Physics, Chung-Ang University, JIKANG JIAN, School of Physical Science and Technology, Xinjiang University, CHANGHEE LEE, School of Electrical Engineering and Computer Science, Seoul National University, MAENGJE SEONG, Department of Physics, Chung-Ang University, SEUNGHUN HONG, Department of Physics and Astronomy, Seoul National University — Previous researches showed that the performance of photoconductive channels based on individual CdS *nanowires* (NWs) is improved compared to the CdS *bulk* or *thin-film*-based channels. However, the assembly of a single NW is usually complex and time-consuming. Herein, we report a high-performance photoconductive channel based on CNT–CdS NW hybrid nanostructures, which can be easily prepared on both flat and curved substrates. In our experiments, the CNT-network-based channel was fabricated using a directed assembly method. We found that our channels exhibited much larger photocurrent and faster photoresponse than those of previously reported CNT or CdS NW-based channels. In addition, we fabricated the channels on a curved surface.

Myungjae Yang  
Department of Physics and Astronomy, Seoul National University

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