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Gas sensors based on single-wall carbon nanotubes and polypyrrole-coated carbon nanotubes¹ YOUNG WOOK CHANG, Dept. of Physics, Yonsei University, JE SEUNG OH, National Core Research Center for Nanomedical Technology, Yonsei University, SEUNG HWAN YOO, JI HUN KIM, Dept. of Physics, Yonsei University, HYANG HEE CHOI, National Core Research Center for Nanomedical Technology, Yonsei University, KYUNG-HWA YOO, Dept. of Physics and National Core Research Center for Nanomedical Technology, Yonsei University, DEPT. OF PHYSICS TEAM, NATIONAL CORE RESEARCH CENTER FOR NANOMEDICAL TECHNOLOGY TEAM — We have fabricated gas sensors based on single-wall carbon nanotubes and detected NH₃ and NO₂ gas. At the room temperature, the absorbed gas molecules are not easily detached from the CNT surface. So, we have tested the gas sensor at high temperatures and investigated the temperature dependences of electrical properties of CNTs above the room temperatures. Depending on the gas atmosphere and the temperature, large hysteresis has been observed. In addition, in order to improve the properties of gas sensor, we have electro-deposited polypyrrole onto CNTs and compared with SWNT without polypyrrole.

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