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Single wall carbon nanotubes transparent electronics¹ YUN-HI LEE, JI-YOUNG NOH, J.-H. LEE, H.-S. KWON, National Research Laboratory, Nano Device Physics Lab, Department of Physics, Korea University, KOREA — This work introduces a new junction method for single wall carbon nanotube-based transparent devices and report on their gate-dependent electro-magnetic behaviors. In order to realize the transparent CNT-based electronics we designed a diluted magnetic impurity doped transparent catalyst electrode. The suspended single wall nanotube channel showed ambipolar operation and almost the same low barrier height for the holes and electrons, which was determined by temperature dependent current measurements as functions of bias and gate voltage. Though at present the junction is not selective with respect to which types of carriers can be controlled in electric, we anticipate being able to provide a promising unit for spintronics.

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