SUPPORTING INFORMATION

Reduction-Controlled Viologen in Bisolvent as an Environmentally Stable n-Type Dopant for Carbon Nanotubes

Soo Min Kim,[†] Jin Ho Jang,[†] Ki Kang Kim,[†] Hyeon Ki Park,[†] Jung Jun Bae,[†] Woo Jong Yu,[†] Il Ha Lee,[†] Gunn Kim,[†] Duong Dinh Loc,[†] Un Jeong Kim,[‡] Eun-Hong Lee,[‡] Hyeon-Jin Shin,[§] Jae-Young Choi,[*,§] and Young Hee Lee[*,†]

[†]*Department of Nanoscience and Nanotechnology, Department of Physics, and Center for Nanotubes and Nanostructured Composites, Sungkyunkwan Advanced Institute of Nanotechnology, Sungkyunkwan University, Suwon 440-746, Korea*

[‡]*Frontier Research Laboratory, Samsung Advanced Institute of Technology, P.O. Box 111 Suwon, 440-600, Republic of Korea*

[§]*Display Device & Material Laboratory, Analytical Engineering Center, Samsung Advanced Institute of Technology, P.O. Box 111, Suwon 440-600, Korea*

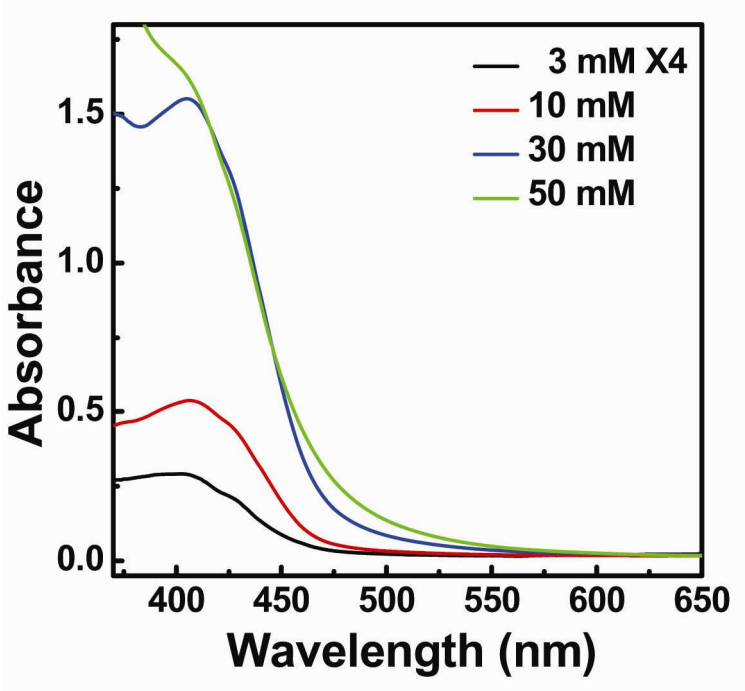

***Figure S1*:** Optical absorption spectra of the BV-doped CNTs with different concentrations. The main peak originating from V^0 appeared near 405 nm. This peak position was not altered with different concentrations, but the intensity increased with increasing concentrations. This confirms that the separated V^0 in toluene from the reduced viologen did not contain any other charged viologens such as V^{1+} and V^{2+}. Thus, the separation yield of extracting only V^0 was high.

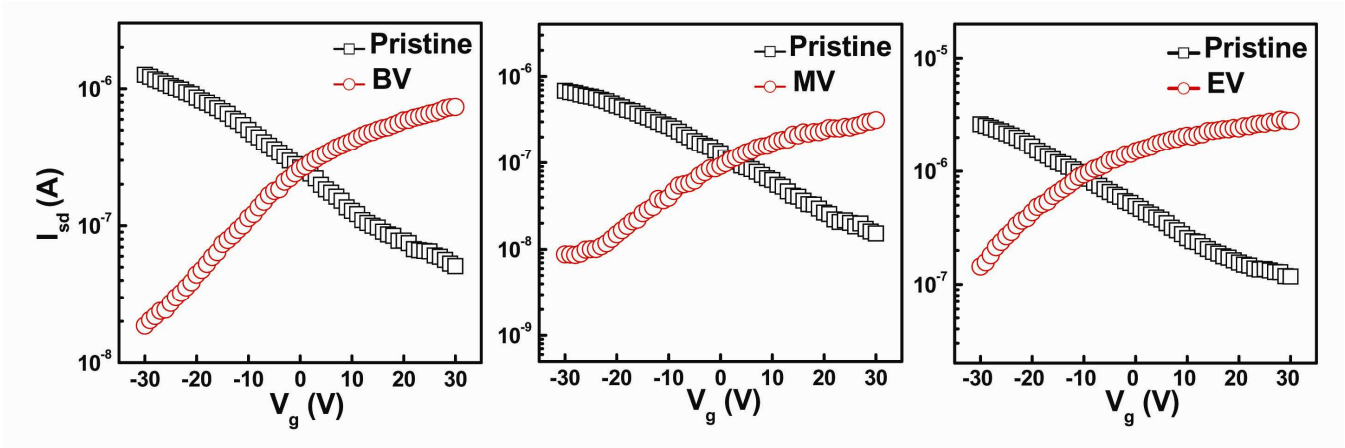

***Figure S2*:** I-V characteristics of 5 mM benzyl viologen, methyl viologen and ethyl viologen-treated TFTs. The large off-currents were observed in the cases of MV and EV, whereas relatively small off-current was observed in the case of BV. From a device point of view, BV is a good n-type dopant with high on-current and low off-current.