

Electronic Supplementary Information

Doping strategy of carbon nanotubes with redox chemistry

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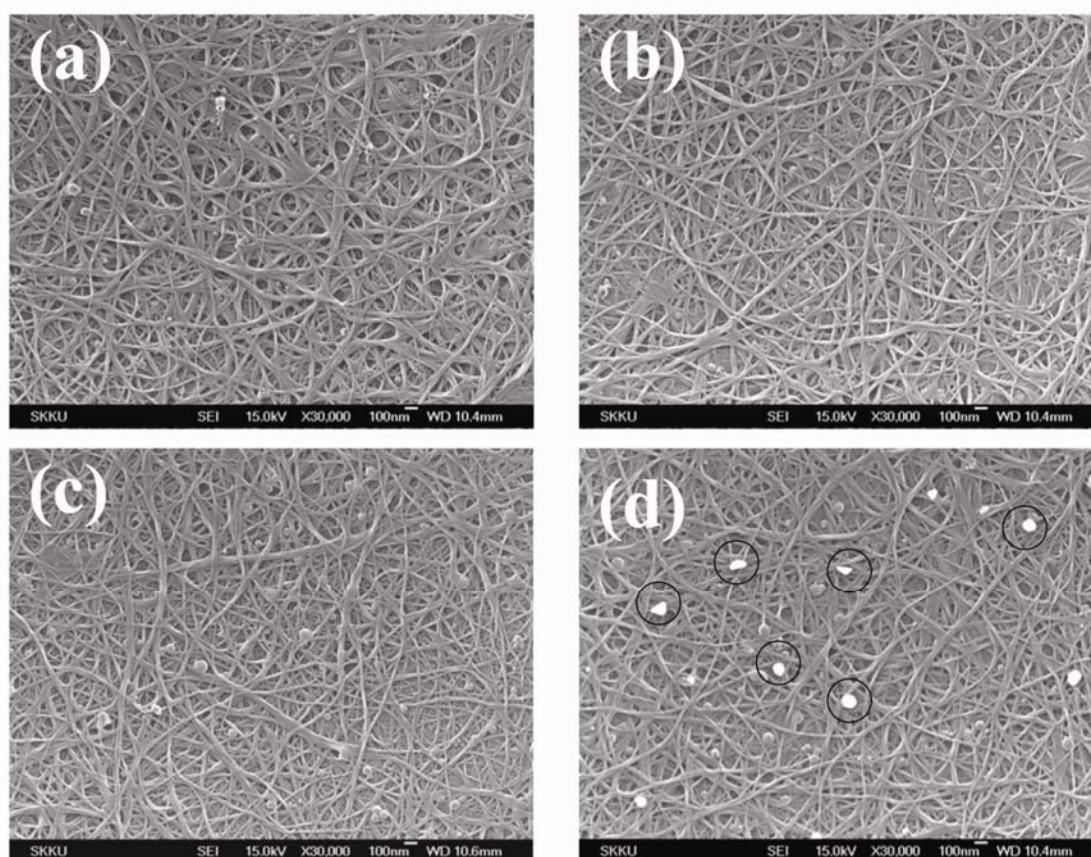


Fig. S1 FE-SEM images of (a) pristine, (b) DDQ, (c) NOBF₄, and (d) AuCl₃ of 20 mM in nitromethane. The surface morphology of all samples except Au doping was similar to the pristine sample. However, in the case of Au doping, the Au particles were clearly seen in white color (open circles).

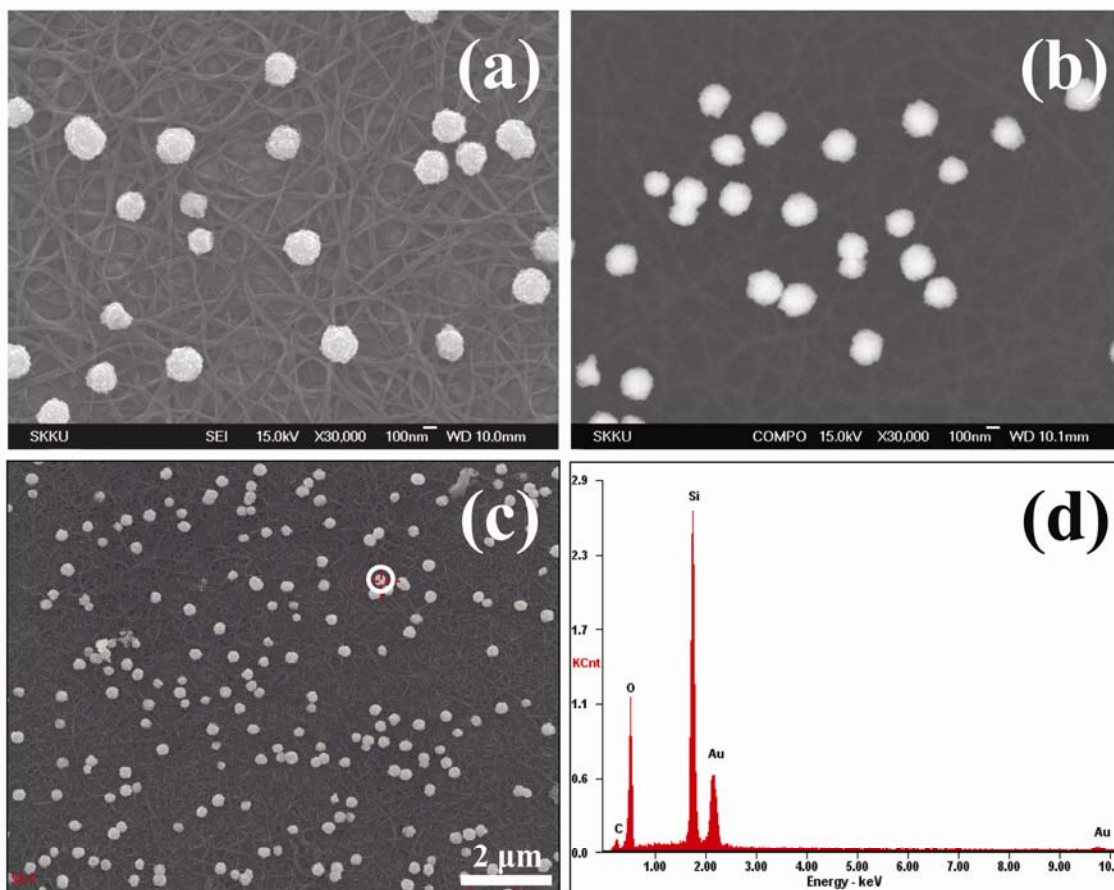


Fig. S2 The elemental analysis of Au particles on SWCNT film/quartz substrate by FE-SEM. (a) Secondary electron microscopy image, (b) backscattered electron microscopy image, and (c) secondary electron microscopy image for energy dispersive X-ray spectroscopy (EDX) of Au, and (d) EDX spectra of Au particle obtained from white open circle in (c). Extra gold deposition was not used for this study.

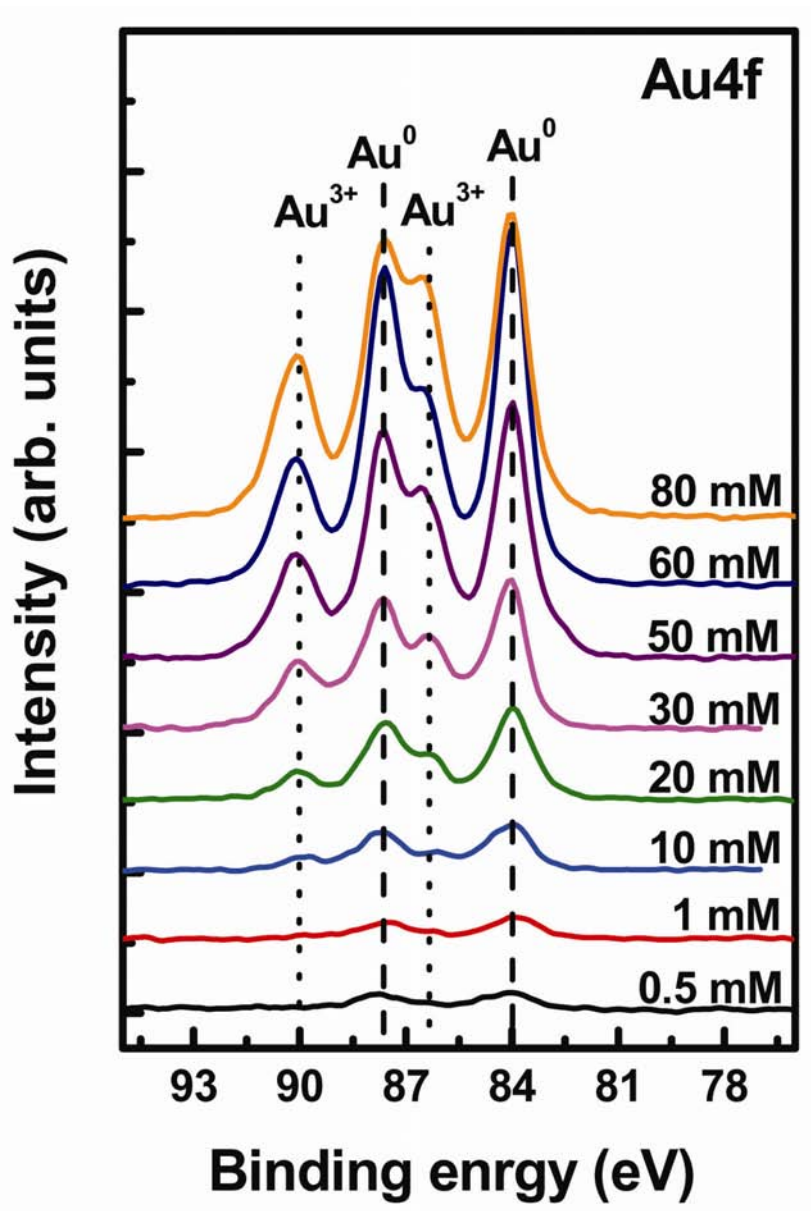


Fig. S3 XPS spectra of Au doped samples as a function of AuCl₃ concentration in nitromethane. Au³⁺ ions were reduced to Au⁰. However, the residual Au³⁺ ions also were remained.

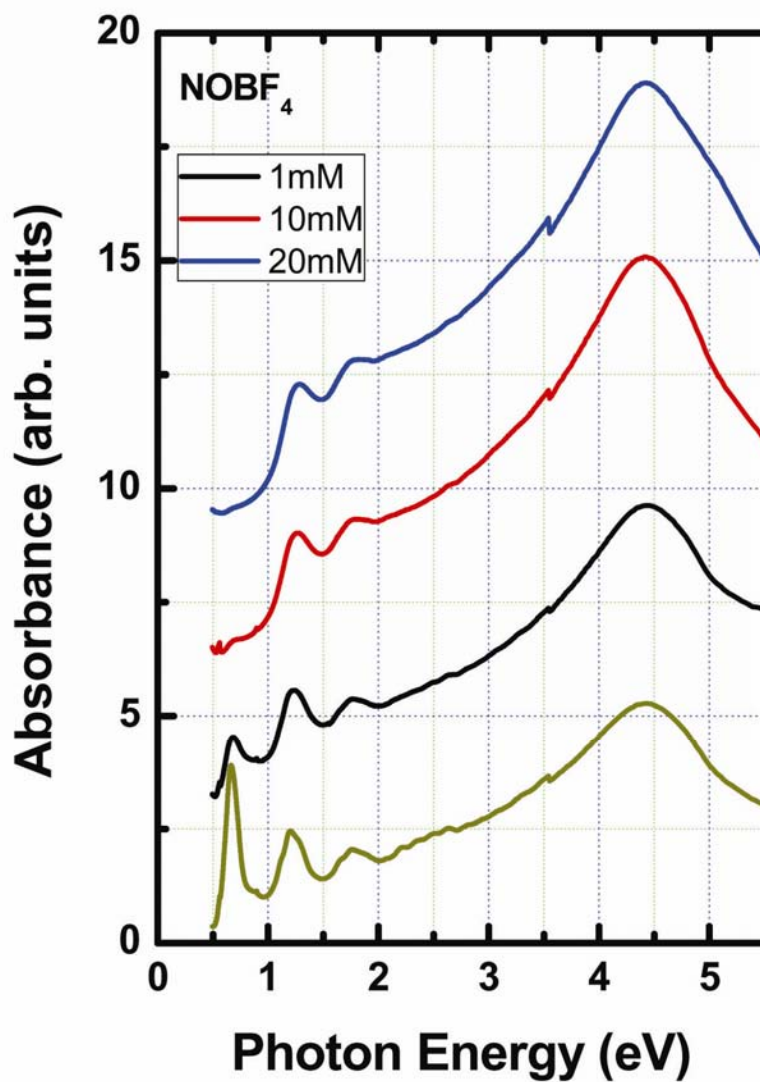


Fig. S4 Optical absorption spectra of SWCNTs doped by NOBF₄ as a function of mole concentration. π -plasmon peak located near 4.5 eV was not changed appreciably even with doping. The effect of π -plasmon to vHs transitions is thus negligible.