Supplementary material (ESI) for Journal of Materials Chemistry

Coating Single-Walled Carbon Nanotubes with Cadmium Chalcogenides

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Supplementary Materials

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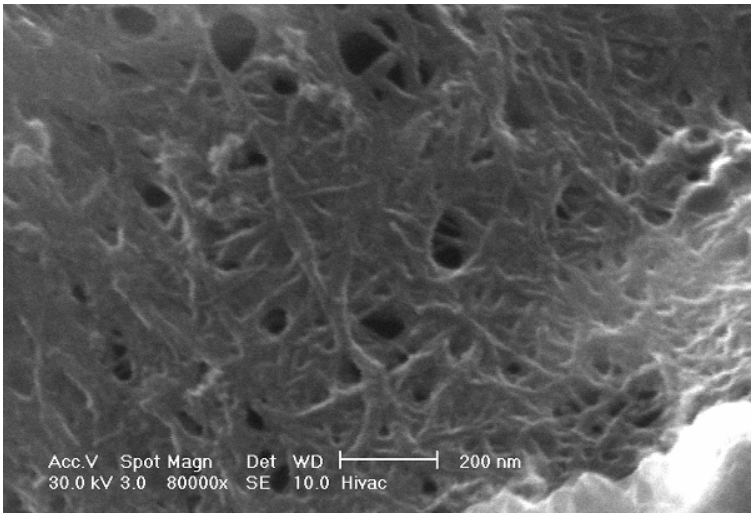

Fig. S1. SEM images of CdSe-SWNT deposited from TOPO solution after 30 min. showing the formation of CdSe particles (bright area in the lower right of the image).

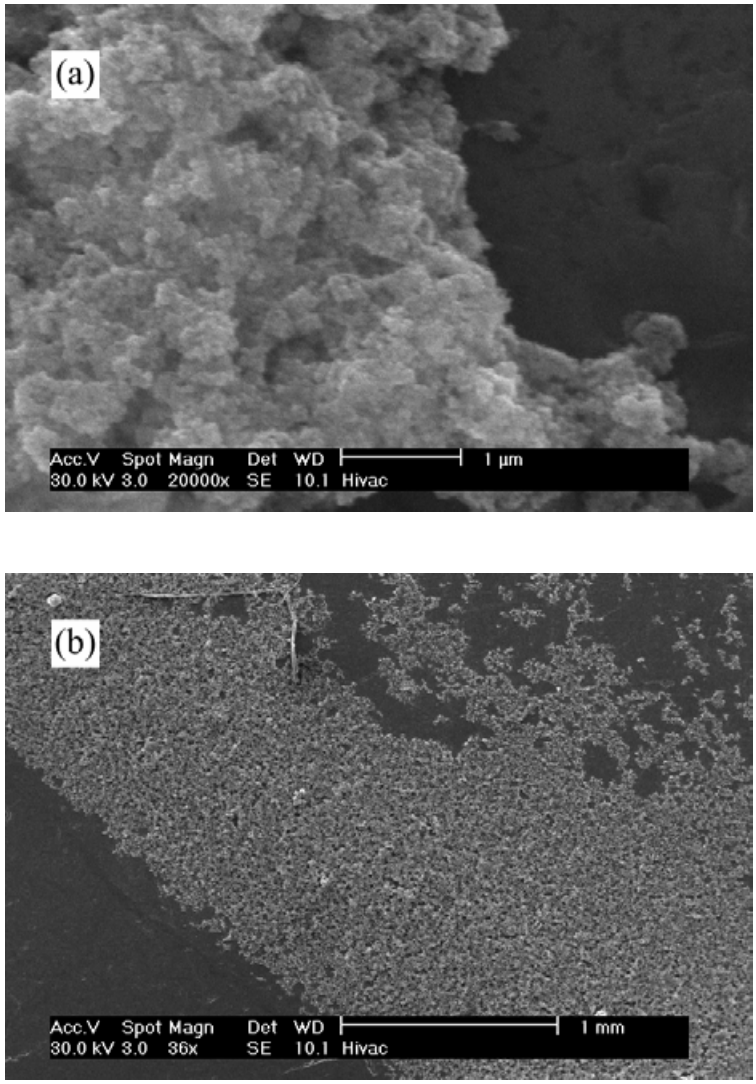

Fig. S2. SEM images of coated SWNTs in ODE solvent, showing the formation of ca. 0.1 μm colloids of CdSe, and virtually no SWNTs exposed.

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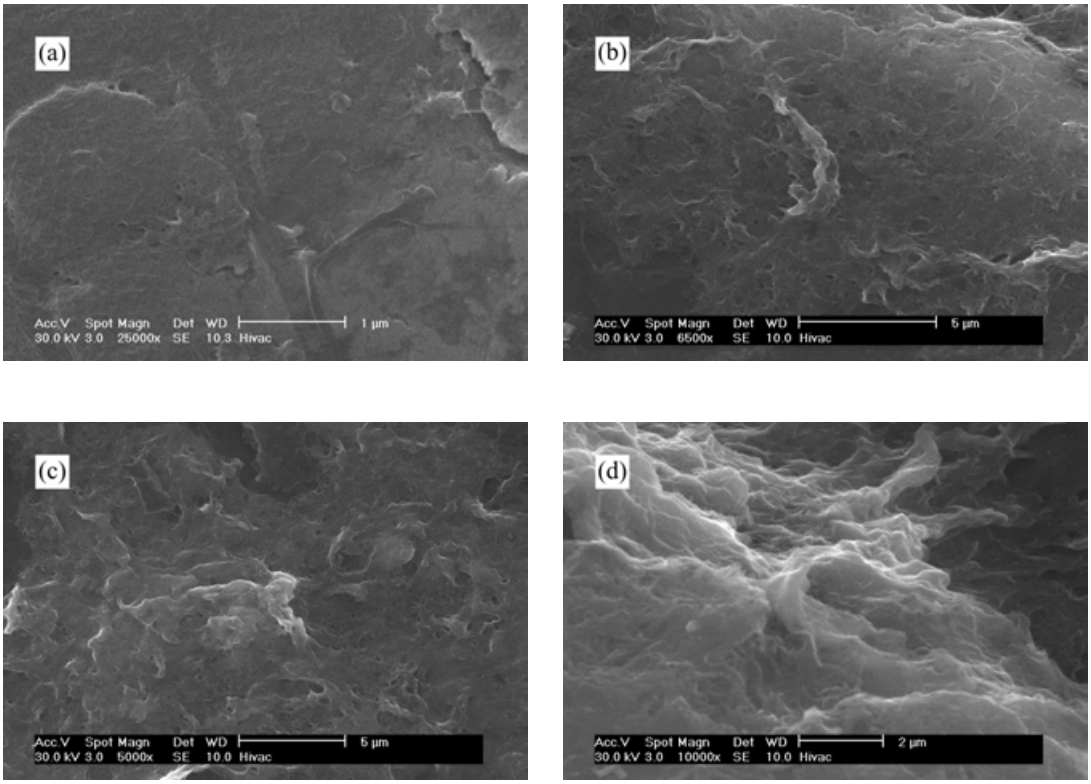

Fig. S3. SEM images of (a) uncoated SWNT mat, and coated SWNT composites at (b) 10 min., (c) 30 min., and (d) 1 hr., illustrating differences of image contrast when coatings are present.

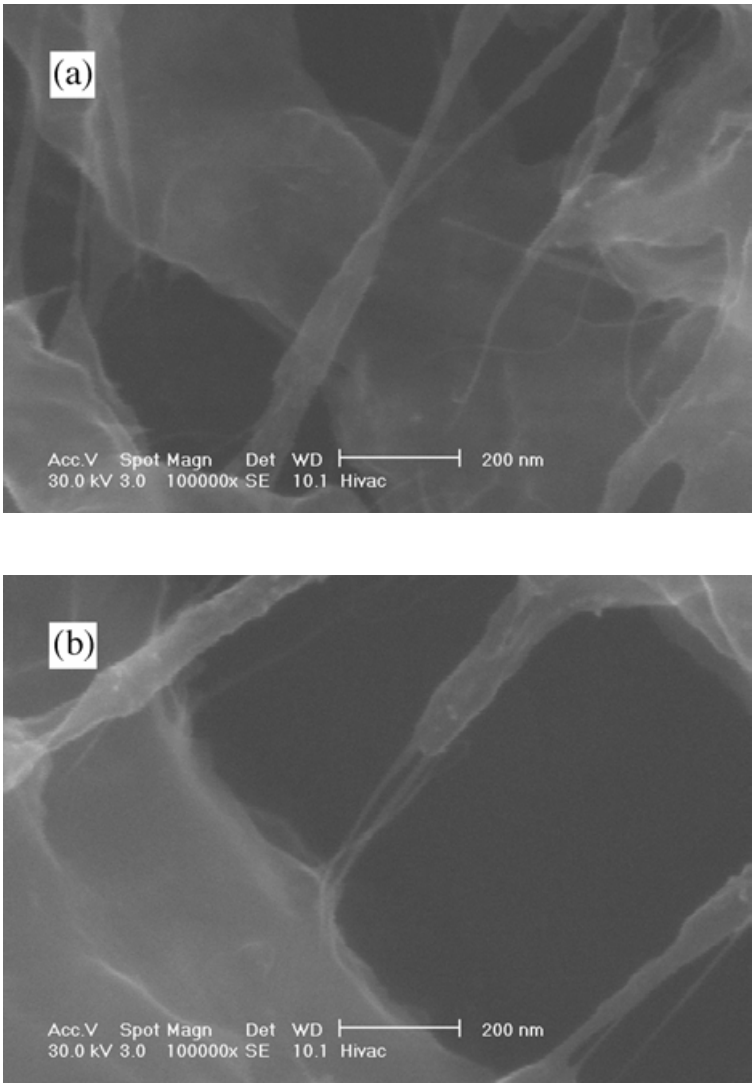

Fig. S4. SEM images of CdSe-SWNT composites formed in ODE solution: [SWNT] = 0.1 $mg.mL^{-1}$ and Cd:SWNT ratio = 107.

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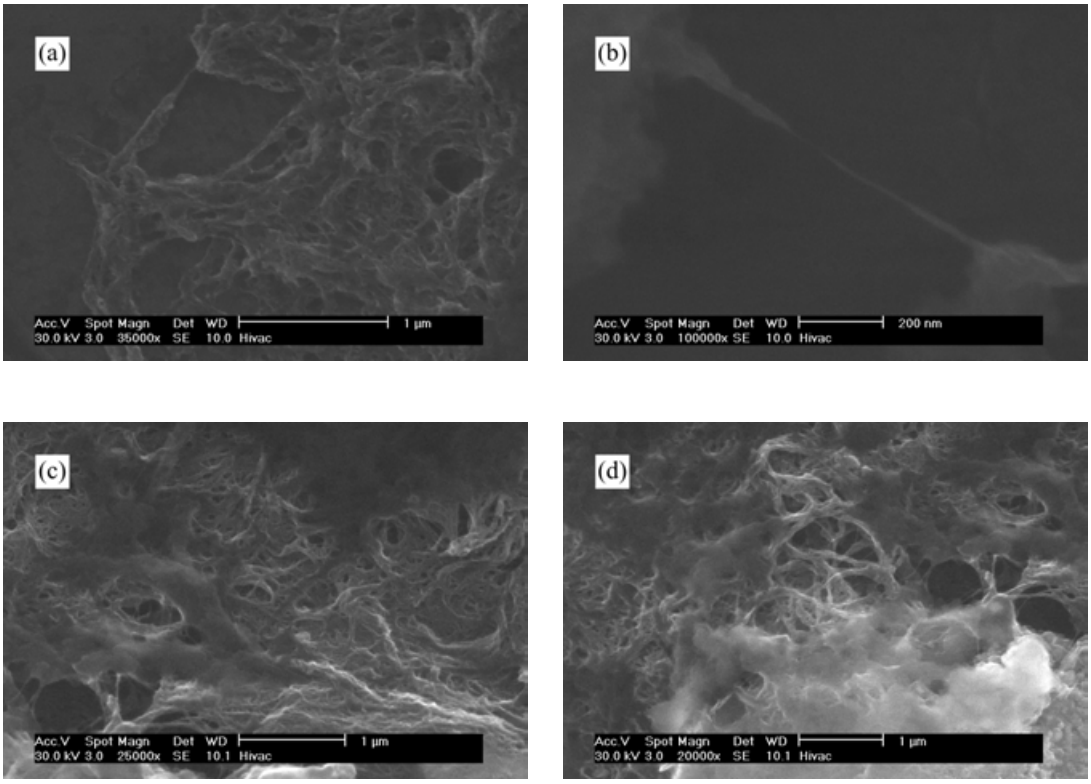

Fig. S5. SEM images of SWNTs aliquots taken at 5 min (a and b), 10 min (c), and overnight (d) for the CdSe coating of SWNTs in ODE solution: [SWNT] = 0.1 mg.mL^{-1} and Cd:SWNT ratio = 107.

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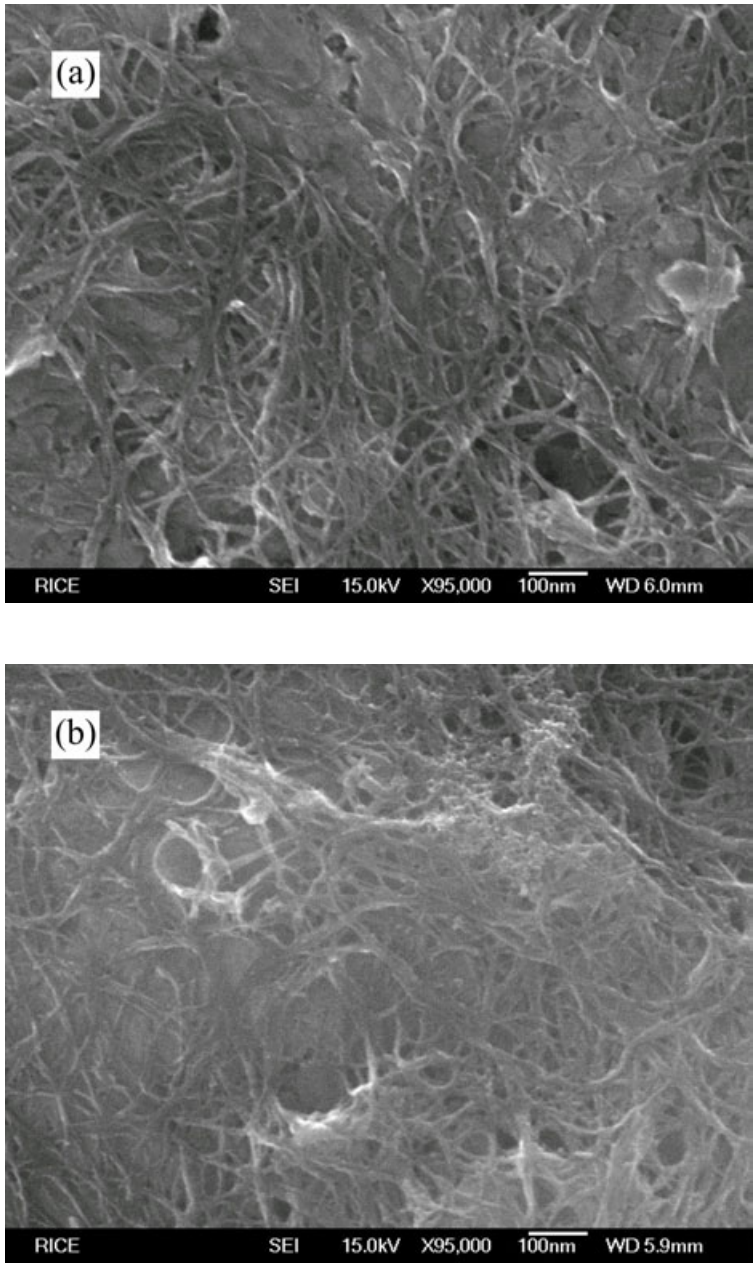

Fig. S6. SEM images of SWNTs coated with CdSe at 75 μM (a) and 50 μM (b) conditions.

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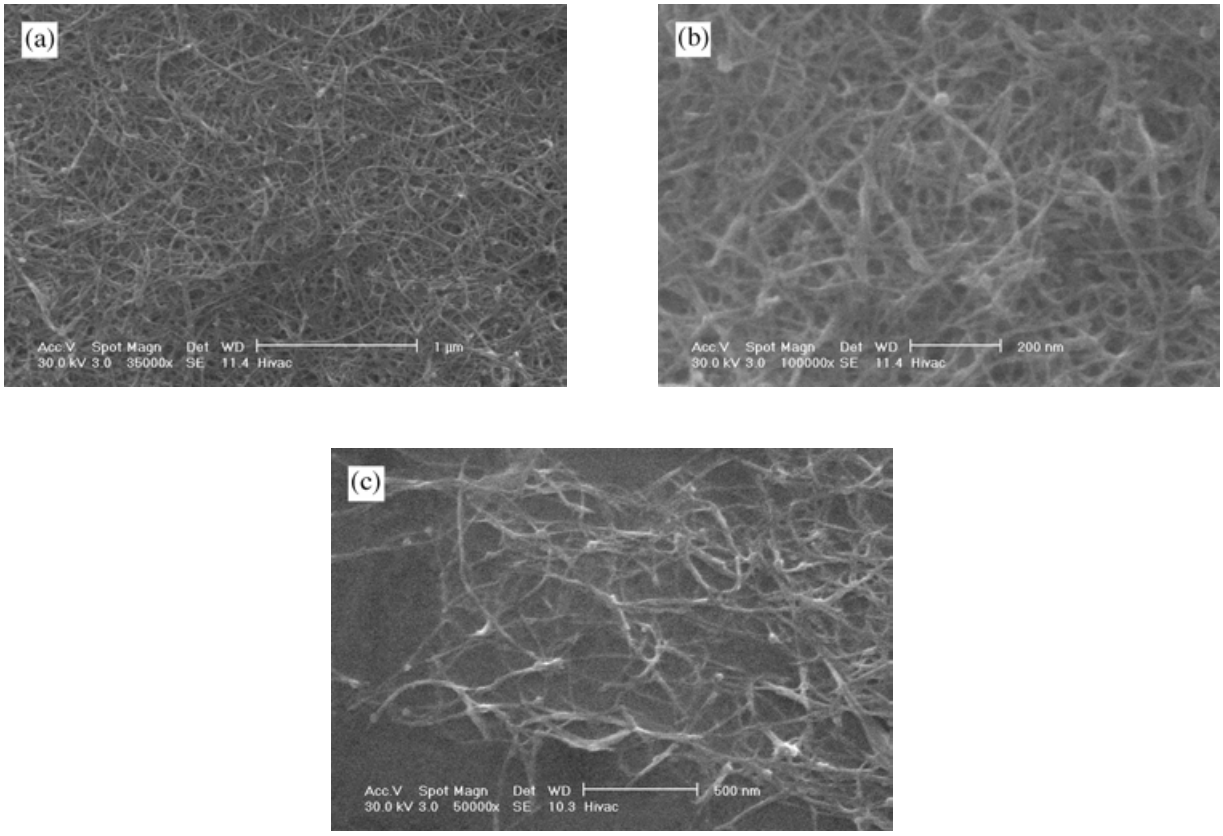

Fig. S7. SEM images of aqueous decants of SWNTs surfacted with 1% SDS, coated with CdS at 1 mM bath concentrations.

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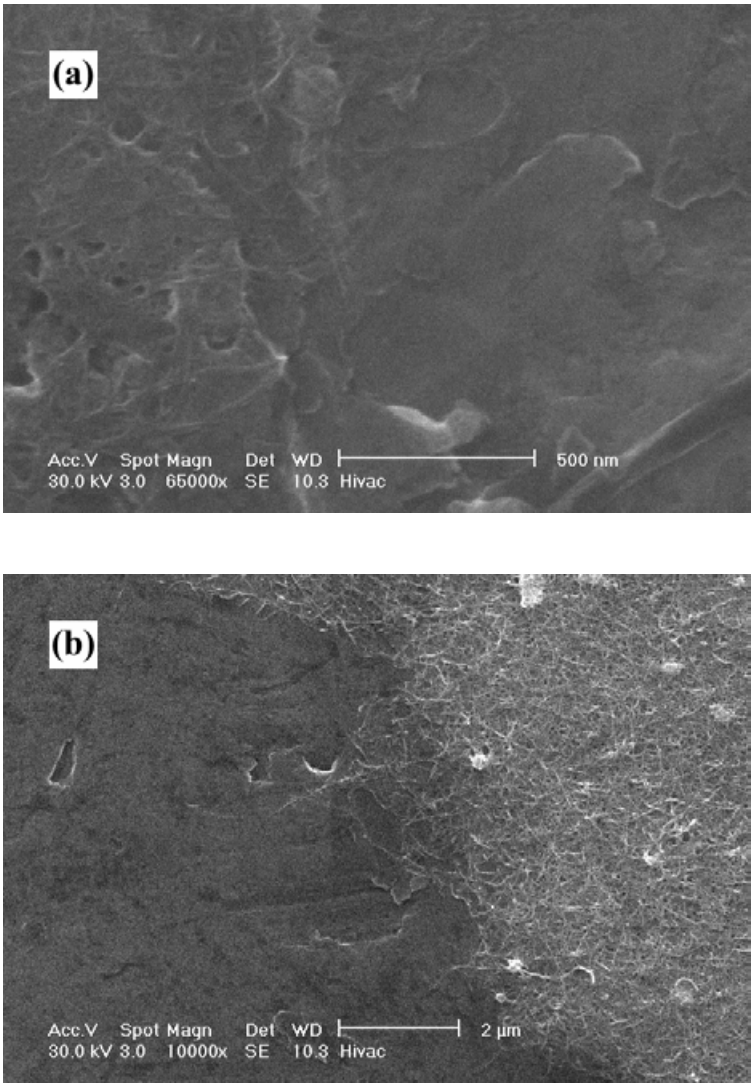

Fig. S8. Comparison of SEM images (not sputter coated with any contrast-enhancing conductor) showing the difference of contrast between (a) an uncoated SWNT mat and (b) CdS SWNTs coated at 1 mM bath conditions. Note that one-half of each image frame contains no SWNTs, to standardize the comparison.

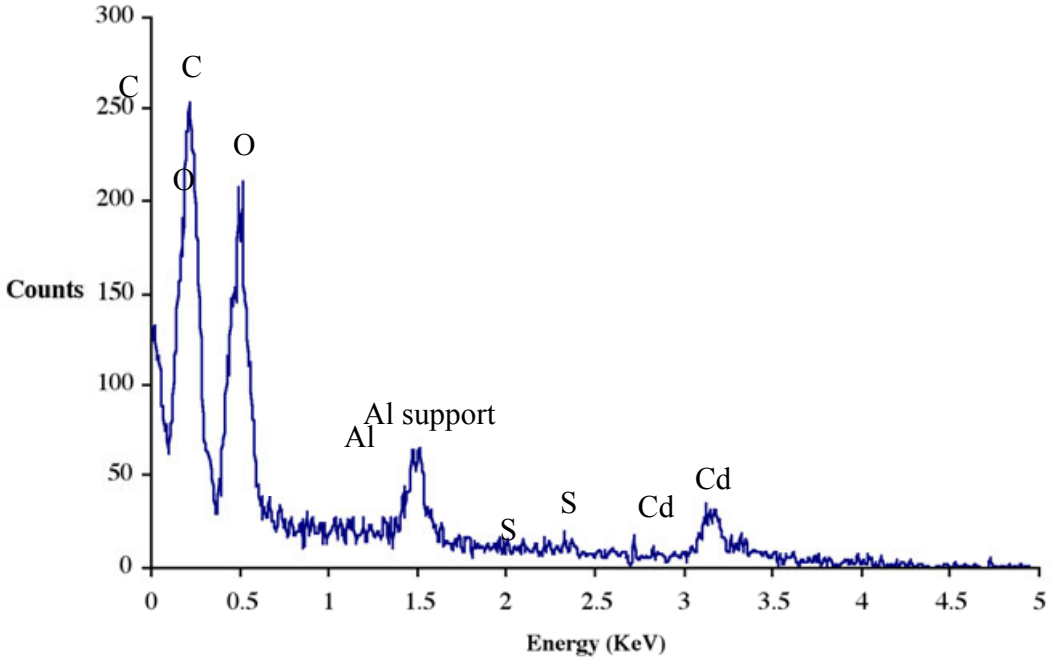

Fig. S9. EDX spectra of CdS coated SWNTs coated at 1 mM bath conditions (sample **14**). Collected at an accelerating voltage of 5 KV.

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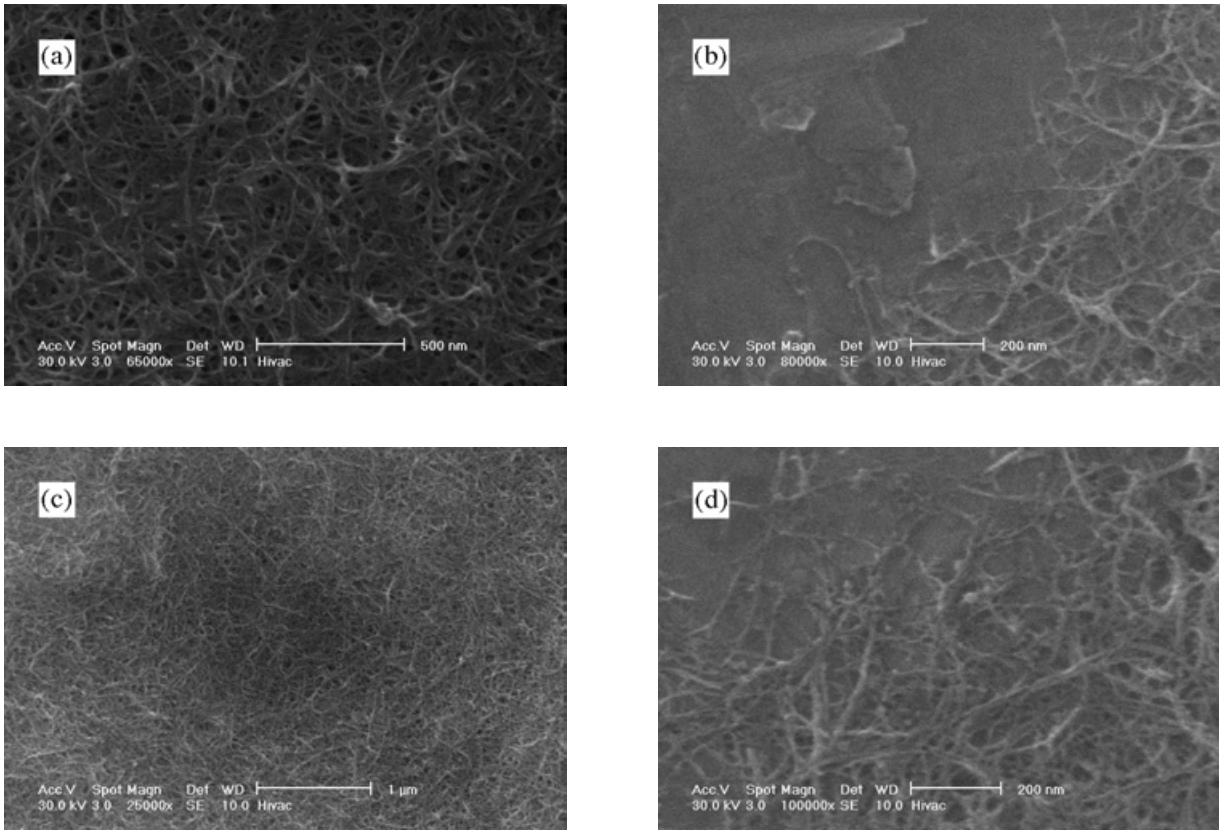

Fig. S10. SEM images of SWNTs coated with CdS at (a) 1.5 mM, (b) 0.8 mM, and (c and d) 0.5 mM bath concentrations.

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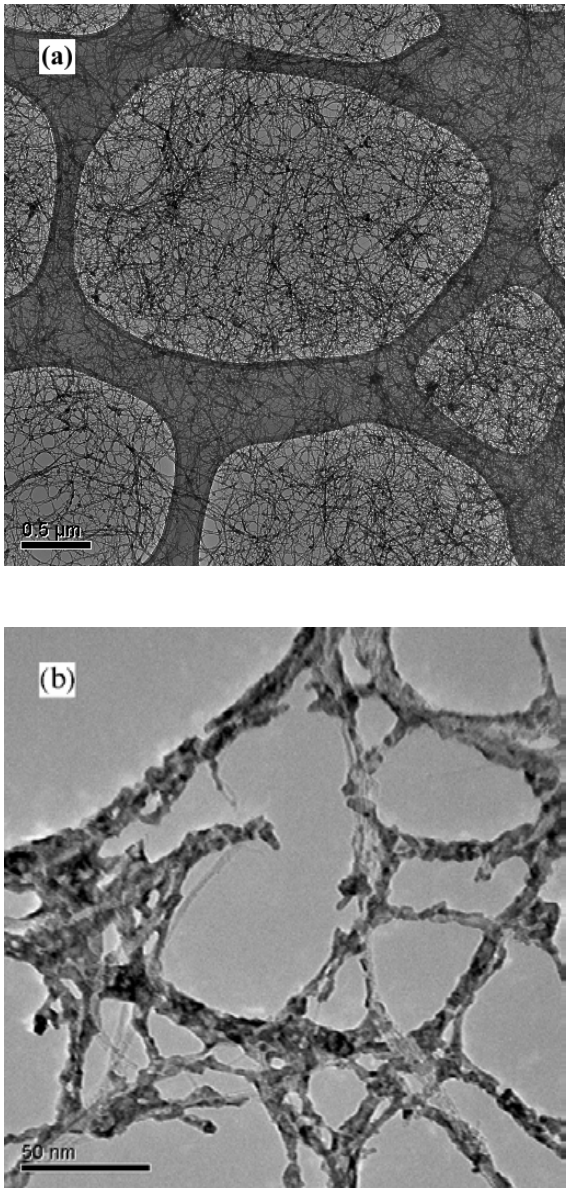

Fig. S11. TEM images of CdS coated SWNTs at 1 mM bath conditions.

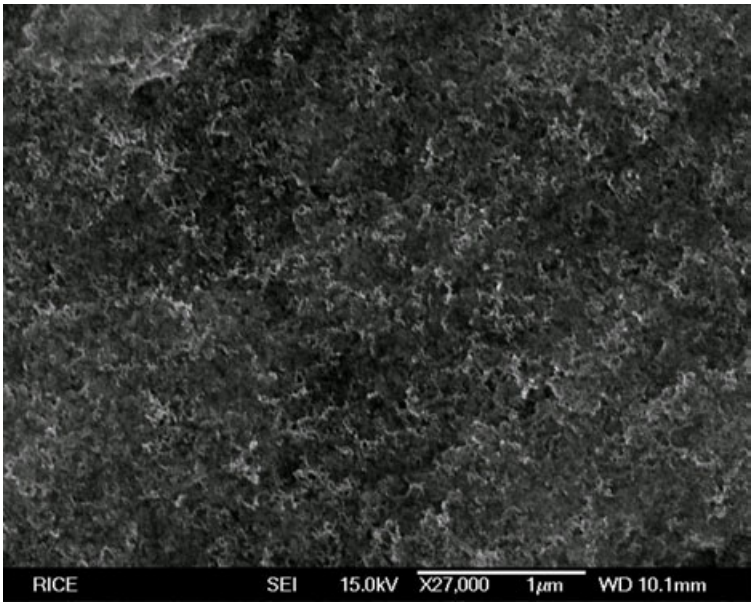

Fig. S12. SEM image of unsurfacted CdS precipitate, as deposited from the 1 mM CdS deposition baths. When 1% SDS surfactant is present, no CdS precipitate is detected.

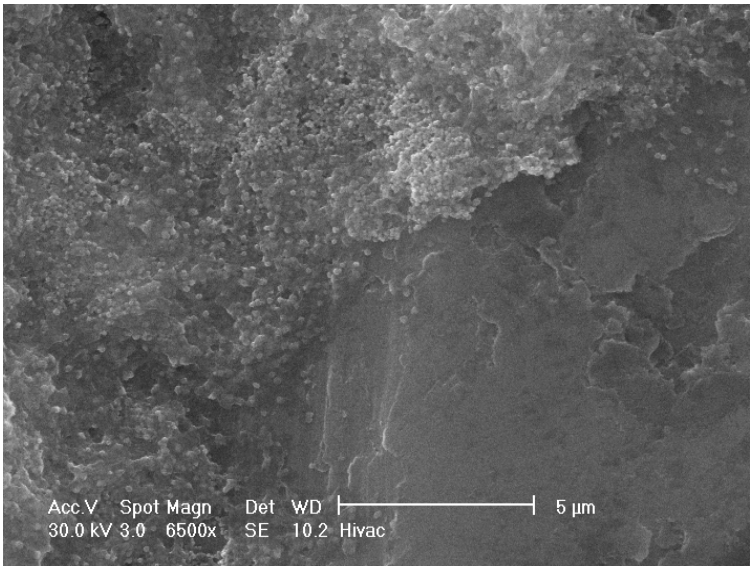

Fig. S13. SEM images showing 10 mM CdS bath concentrations. Note the presence of colloidal deposit on the CdS-SWNTs.

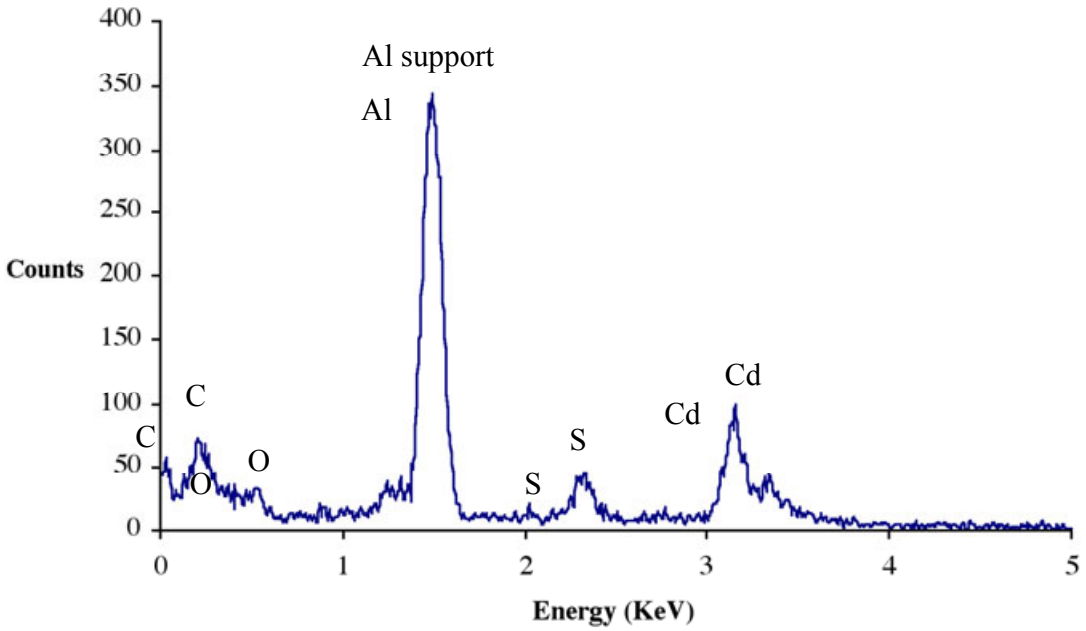

Fig. S14. EDX spectra of CdS coated SWNTs coated at 10 mM bath conditions. Collected at an accelerating voltage of 10 KV.