

Supporting Information

730000 Lanzhou, P.R. China

Universal Dispersion of Single-Walled Carbon Nanotubes in Liquid Phase Inspired by Maya Blue

Junping Zhang, and Bucheng Li*

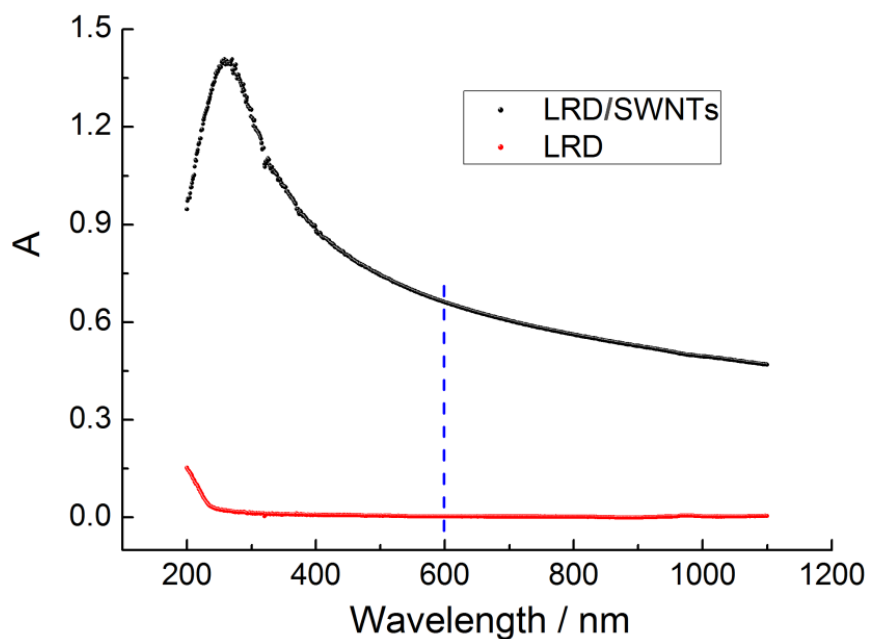


Fig. S1. UV-Vis spectra of LRD/SWNTs (0.0183 mg/mL SWNTs in 0.2 mg/mL LRD) aqueous dispersion and LRD (0.2 mg/mL) aqueous solution.

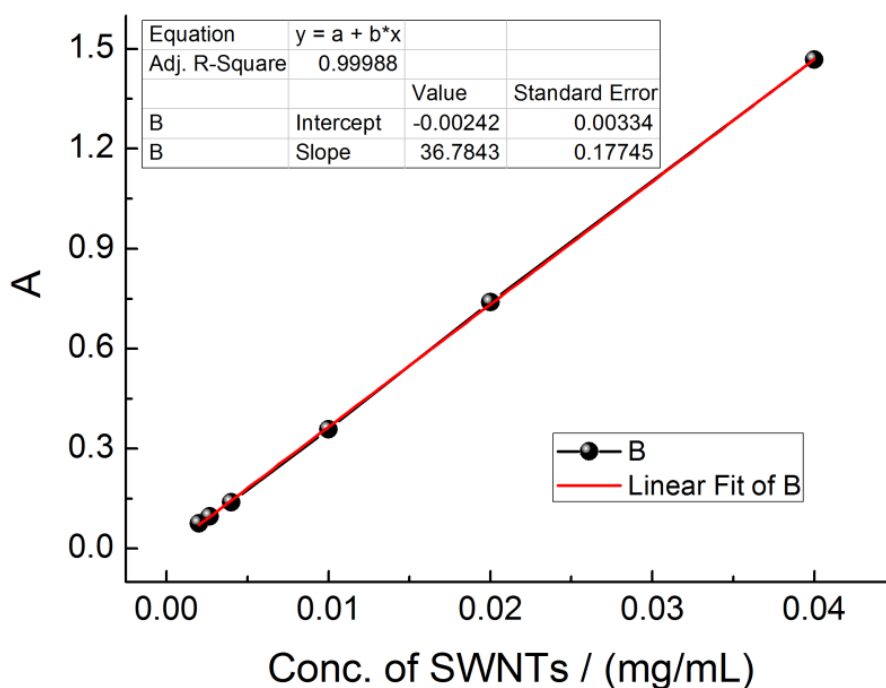


Fig. S2. The relationship between concentration of SWNTs in the aqueous solution and the absorbance at 600 nm.

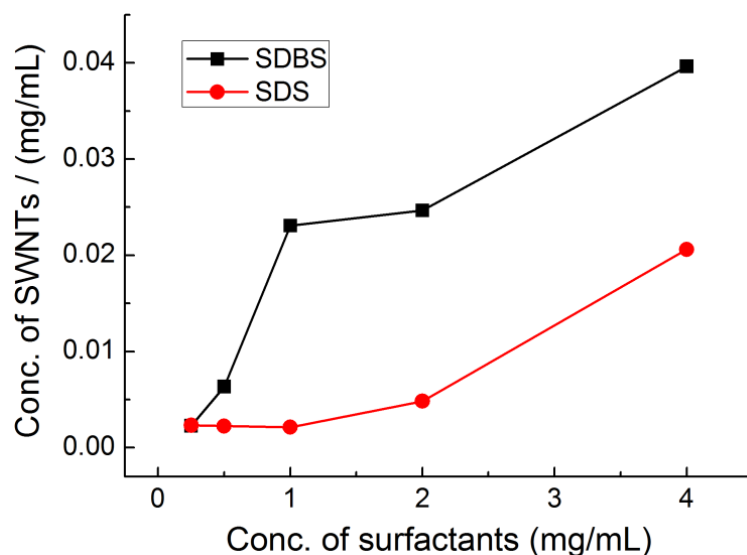


Fig. S3. Variation of concentration of dispersed SWNTs in aqueous solution with concentration of SDBS and SDS. The mixture of 20 mg of SWNTs and appropriate amount of SDBS (or SDS) was ground for 5min and ultrasonicated for 30 min, and then centrifugated at 5000 rpm for 30 min.



Fig. S4. Photographic images of original (a) LRD (1.83 mg/mL SWNTs in 20 mg/mL LRD), (b) SDBS (0.04 mg/mL in 4 mg/mL SDBS) and SDS (0.02 mg/mL in 4 mg/mL SDS) dispersed SWNTs (marked with red rectangles). The dispersions were further diluted to 0.5, 0.4, 0.2 and 0.1 of their original concentrations (right to left).

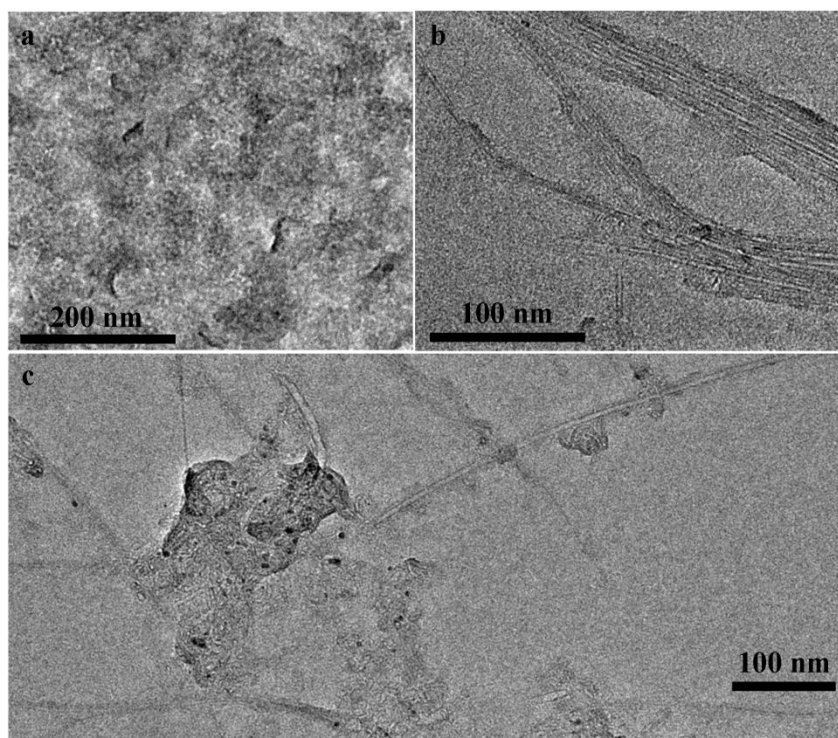


Fig. S5. TEM images of (a) LRD, (b) pristine SWNTs and LRD/SWNTs aqueous dispersion.

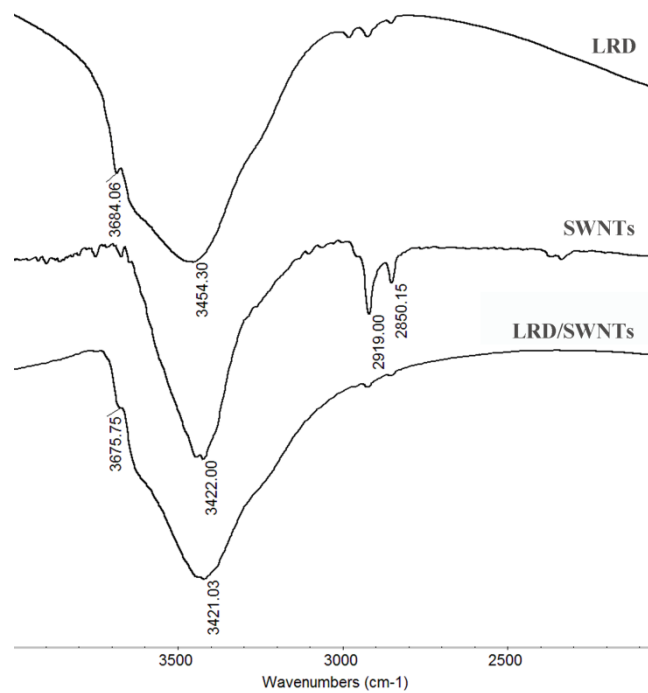


Fig. S6. FTIR spectra of LRD, SWNTs and LRD/SWNTs hybrid.

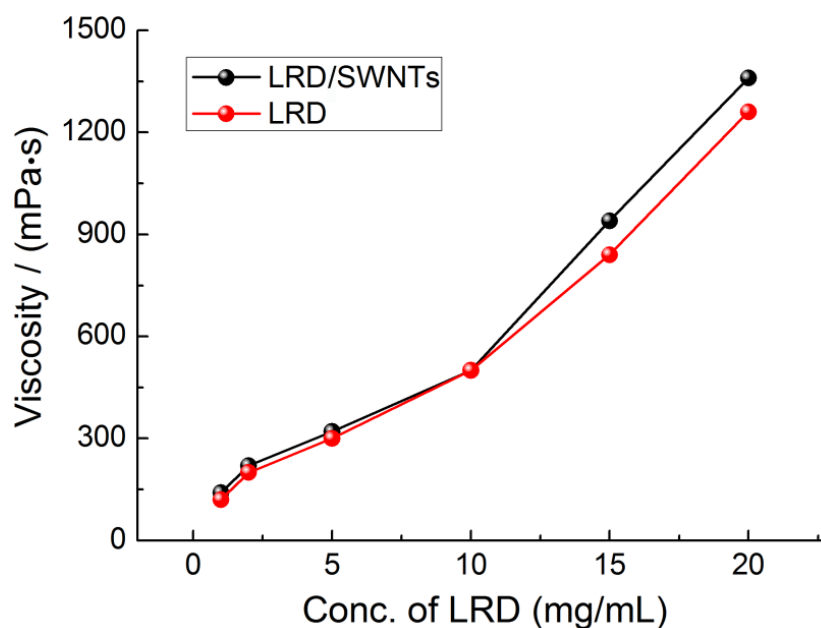


Fig. S7. Variation of viscosity of LRD/SWNTs aqueous dispersion and LRD aqueous solution with concentration of LRD. The mixture of 20 mg of SWNTs and LRD was ground for 5 min and ultrasonicated for 30 min, and then centrifugated at 5000 rpm for 30 min. The LRD aqueous solution was prepared according to the same procedure except for the addition of SWNTs.

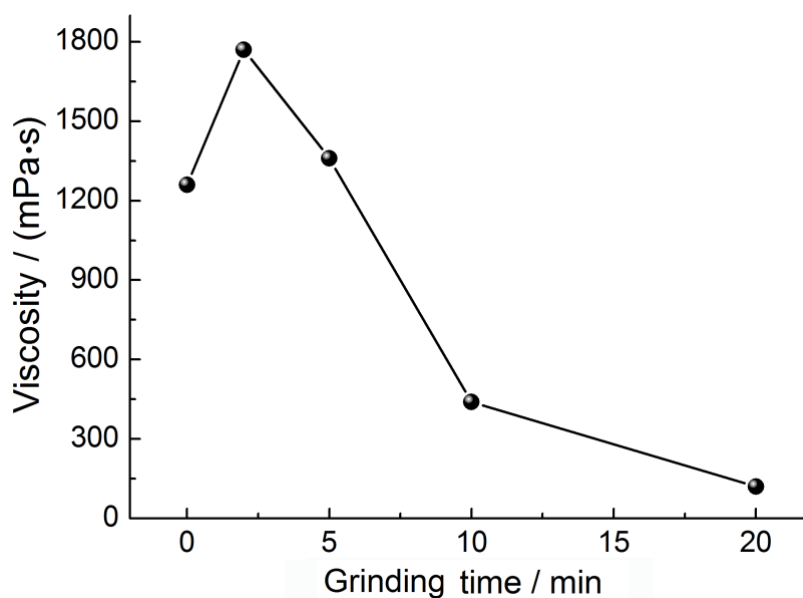


Fig. S8. Variation of viscosity of the LRD/SWNTs aqueous dispersion with grinding time. The mixture of 20 mg of SWNTs and 200 mg of LRD was ground and ultrasonicated for 30 min, and then centrifugated at 5000 rpm for 30 min.

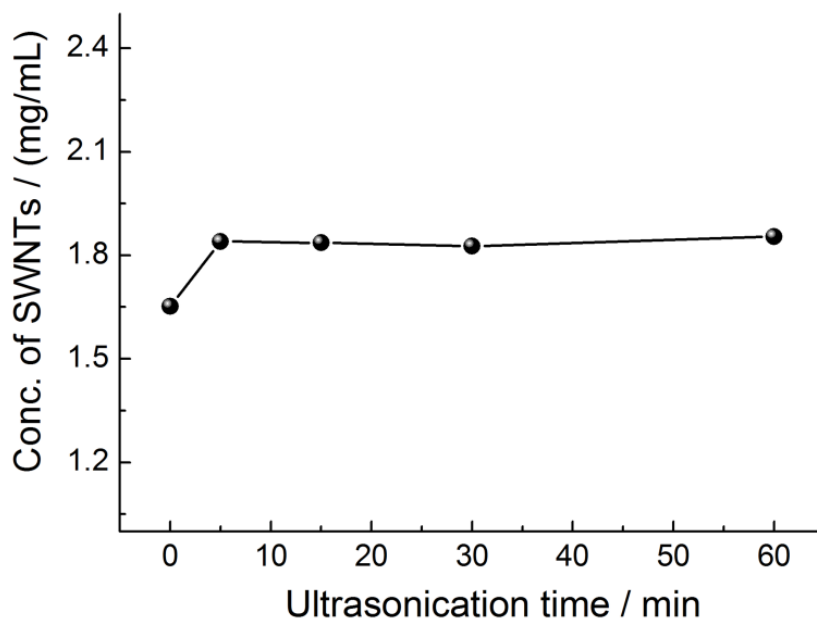


Fig. S9. Variation of concentration of dispersed SWNTs in aqueous solution with ultrasonication time. The mixture of 20 mg of SWNTs and 200 mg of LRD was ground for 5 min and ultrasonicated, and then centrifugated at 5000 rpm for 30 min.

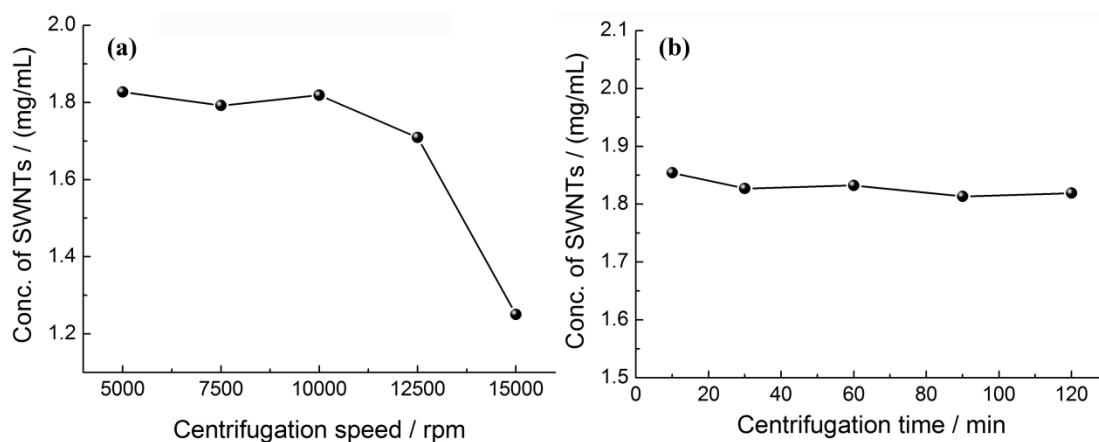


Fig. S10. Variation of concentration of dispersed SWNTs in aqueous solution with centrifugation (a) speed (30 min of centrifugation) and (b) time (centrifugation at 5000 rpm). The mixture of 20 mg of SWNTs and 200 mg of LRD was ground for 5min and ultrasonicated for 30min, and then centrifugated.

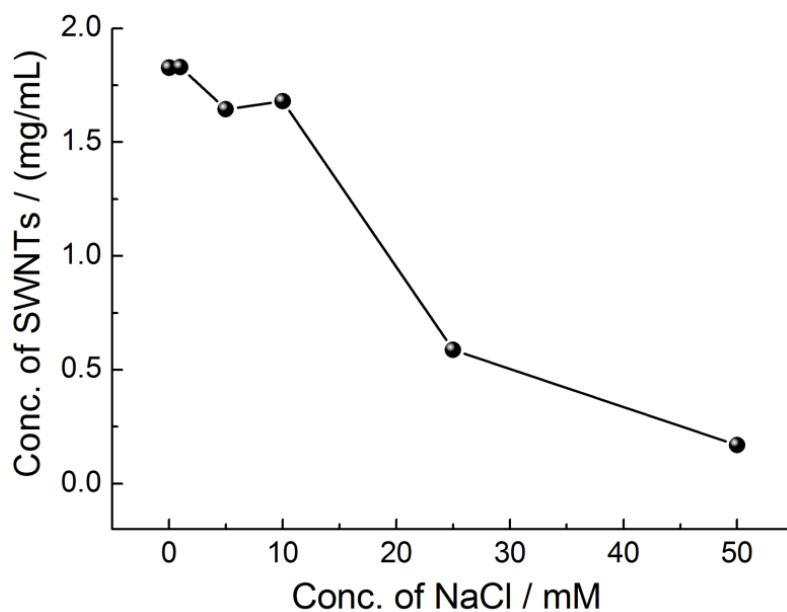


Fig. S11. Variation of concentration of dispersed SWNTs in aqueous solution with concentration of NaCl. The LRD/SWNTs aqueous dispersion was prepared using the mixture of 20 mg of SWNTs and 200 mg of LRD, ground for 5min and ultrasonicated for 30 min, and then centrifugated at 5000 rpm for 30 min.

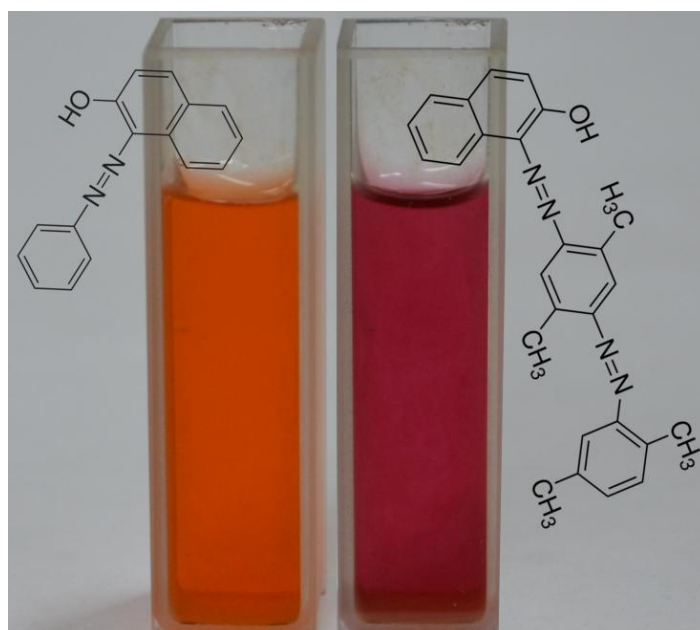


Fig. S12. LRD modified Sudan I (left) and Oil Red O (right) dispersed in aqueous solution.