

Supporting Information

An Alternative Hydrothermal Route to Amorphous Carbon Nanotubes for Treatment of Organic Pollutants in Water

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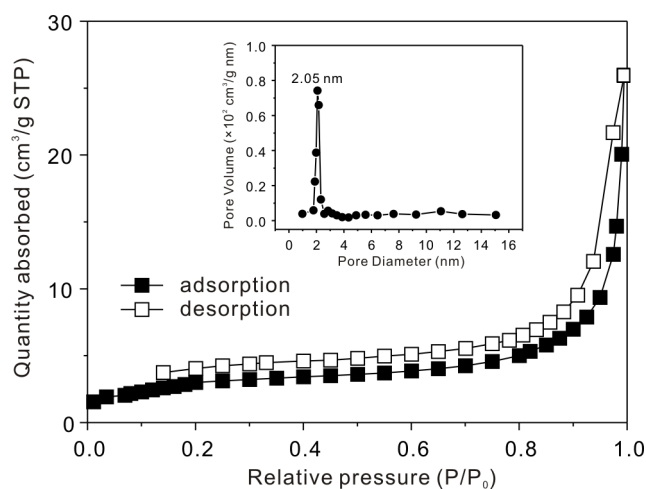


Figure S1: Nitrogen adsorption/desorption isotherms of the ACNTs. The inset is the BJH pore-size distribution curve.

Figure S1 and its inset are the nitrogen adsorption/desorption isotherms and corresponding Barrett-Joyner-Halenda (BJH) pore-size distribution curve of the as-prepared ACNTs, respectively. The adsorption/desorption isotherms exhibit a clear hysteresis loop at higher relative pressure P/P_0 , which is coincident with the H4 type¹. According to the results of nitrogen adsorption, the total BET surface area of the ACNTs is $10.5 \text{ m}^2/\text{g}$, which is higher than that of carbon-rich composite sub-microtubes ($7.51 \text{ m}^2/\text{g}$)².

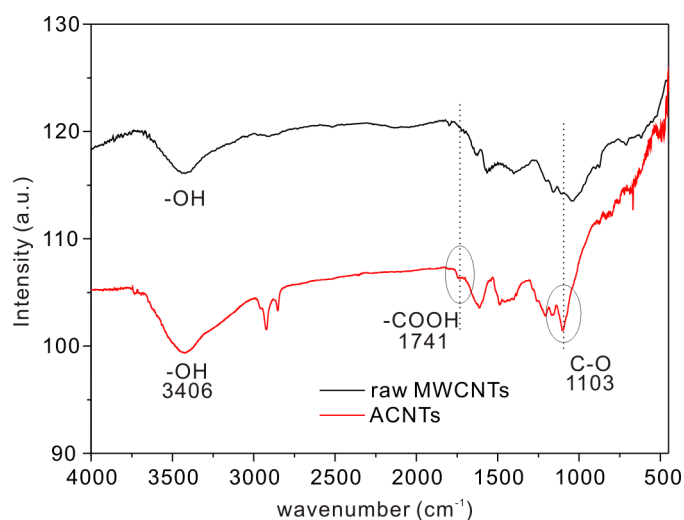


Figure S2: FTIR spectra of raw MWCNTs and ACNTs.

Table S1 Effect of the concentration of the reagents on the ACNTs (200 °C, 24 h).

Samp les NO.	salicylic acid concentrat ion mol/L	AgNO ₃ concentrat ion mol /L	K ₂ CO ₃ concentrat ion mol/L	NH ₂ SO ₃ H concentrati on mol/L	Products of the topside in the Teflon liner
1	0.100	0.050	0.025	0.100	No amorphous CNTs
2	0.133	0.067	0.033	0.133	A small quantity of amorphous CNTs
3	0.200	0.100	0.050	0.200	Plentiful amorphous CNTs
4	0.400	0.200	0.100	0.400	Plentiful amorphous CNTs

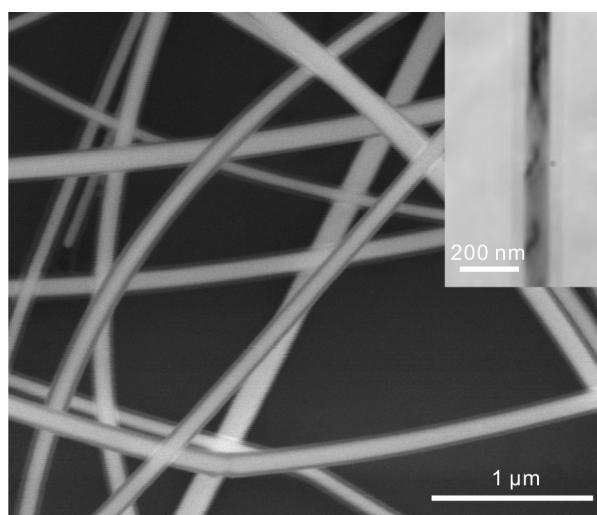


Figure S3: SEM and TEM image of the Ag@C nanocables obtained from the lower concentration of the reagents

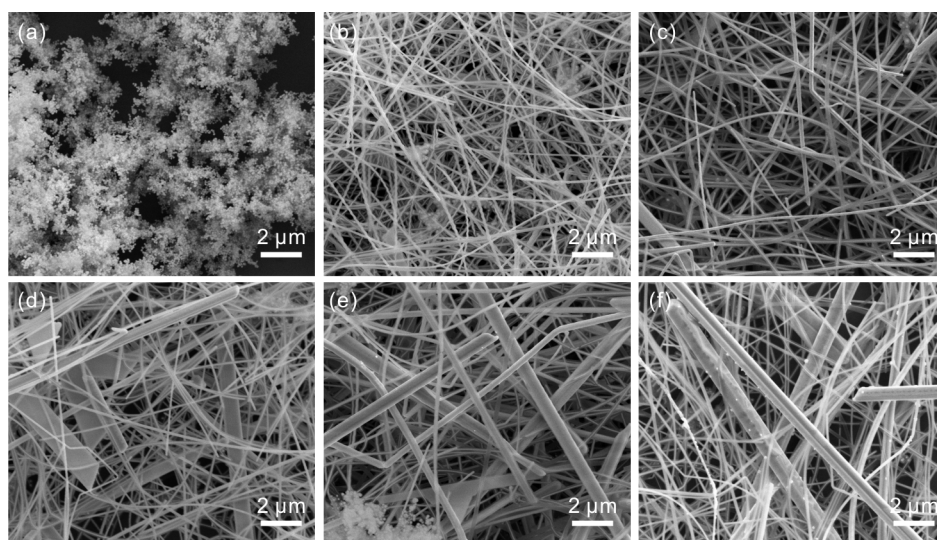


Figure S4: SEM images of the sediment of the bottom in the teflon-lined autoclave prepared at different hydrothermal synthetic stages: (a) 1 h, (b) 2 h, (c) 4 h, (d) 8 h, (e) 16 h and (f) 24h. (the experiment parameters are set as the NO.4 in table S1 at a determined synthetic temperature of 200 °C)

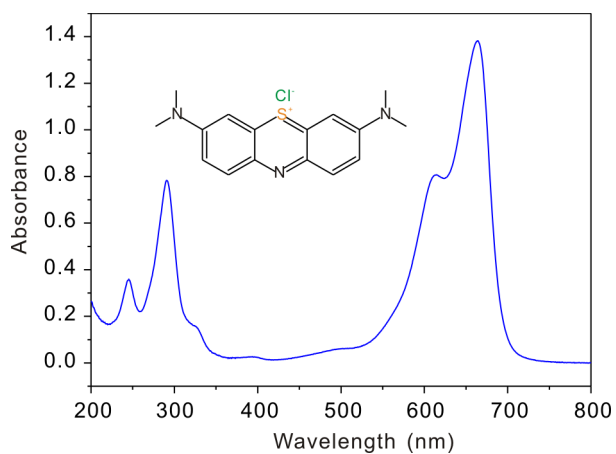


Figure S5: Absorption spectrum and chemical structure of MB

Reference

1. E. D. Sing KSW, Haul RAW, Moscou L, Pierotti RA, Rouquerol J, Siemieniowska T, *Pure & Appl Chem*, 1985, **57**, 603-619.
2. Y. J. Zhan and S. H. Yu, *J Phys Chem C*, 2008, **112**, 4024-4028.