

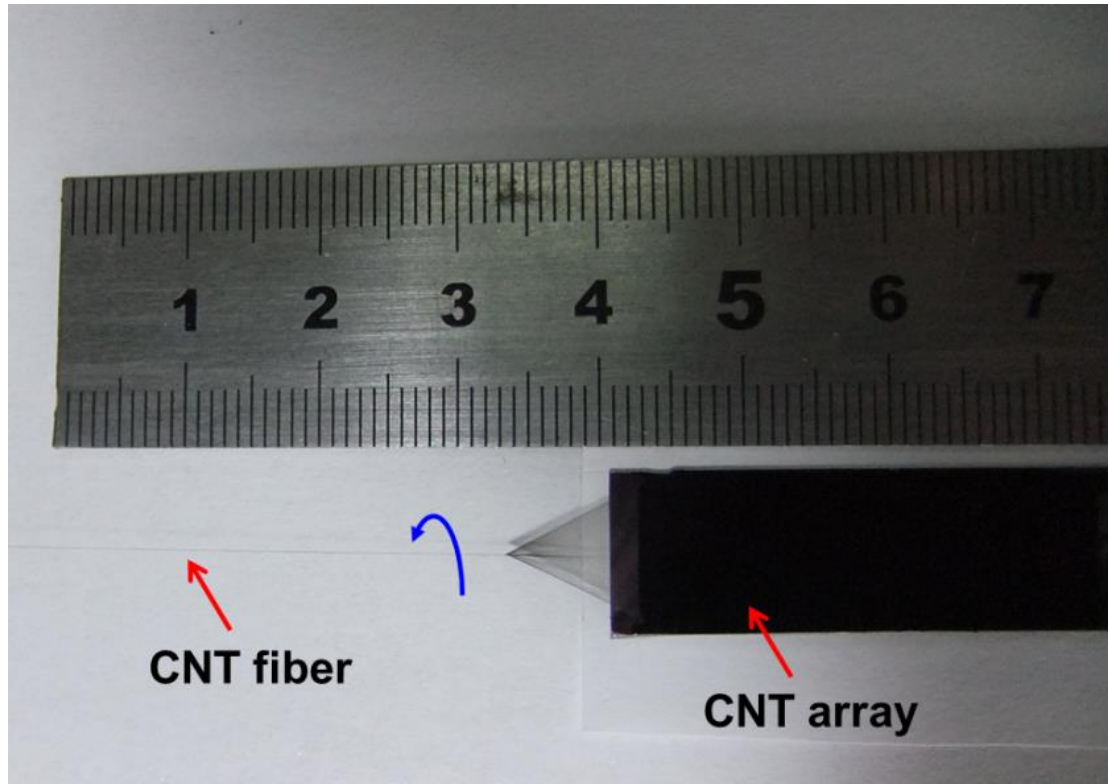
# **Carbon nanostructured fibers as counter electrodes in wire-shaped dye-sensitized solar cells**

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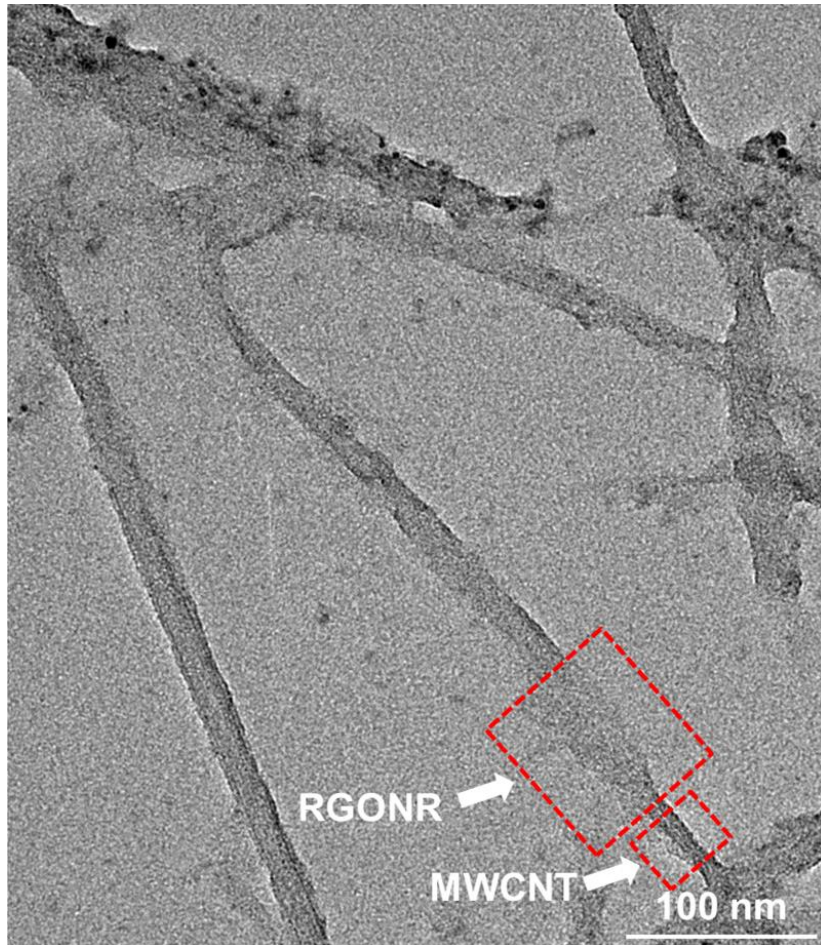
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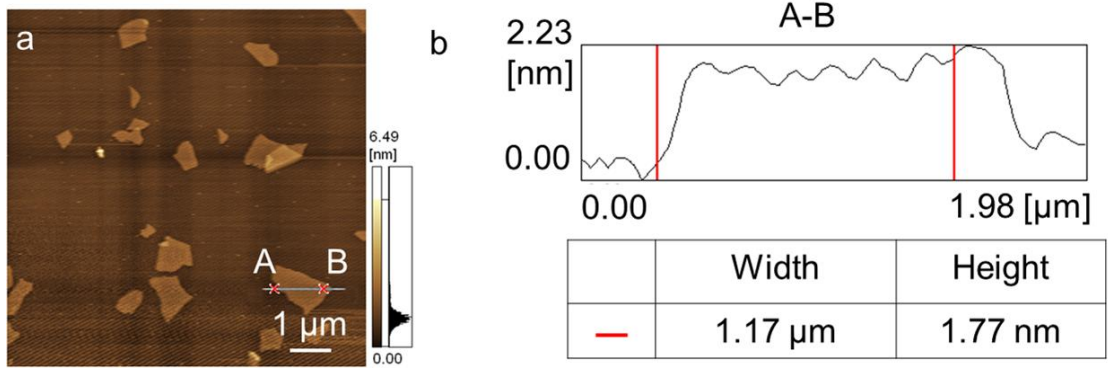
## Supporting Information



**Figure S1.** Schematic illustration to the preparation of a CNT fiber.

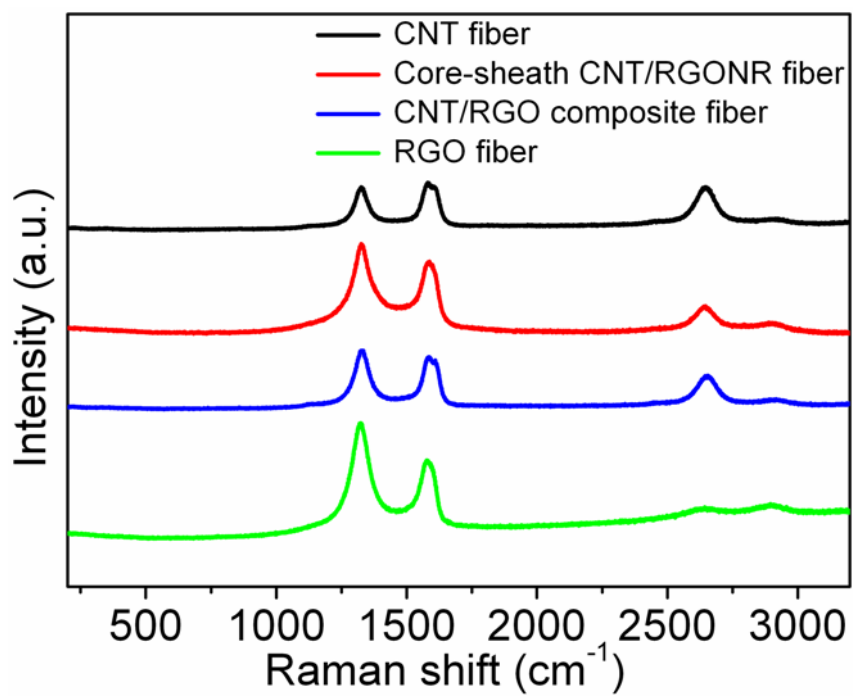


**Figure S2.** TEM image of RGONR produced by unzipping CNTs in core-sheath CNT/RGONR fiber.

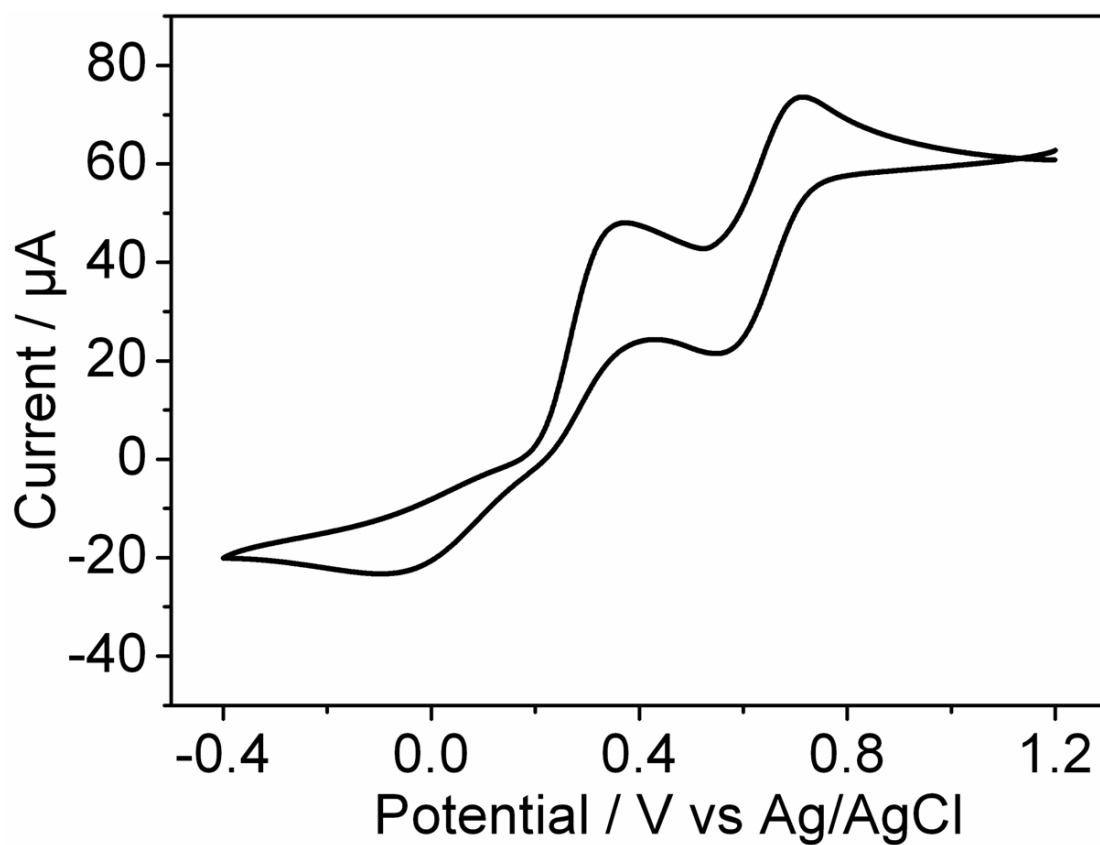


**Figure S3.** (a) Typical AFM image of GO sheets. (b) Height analysis of a GO sheet in

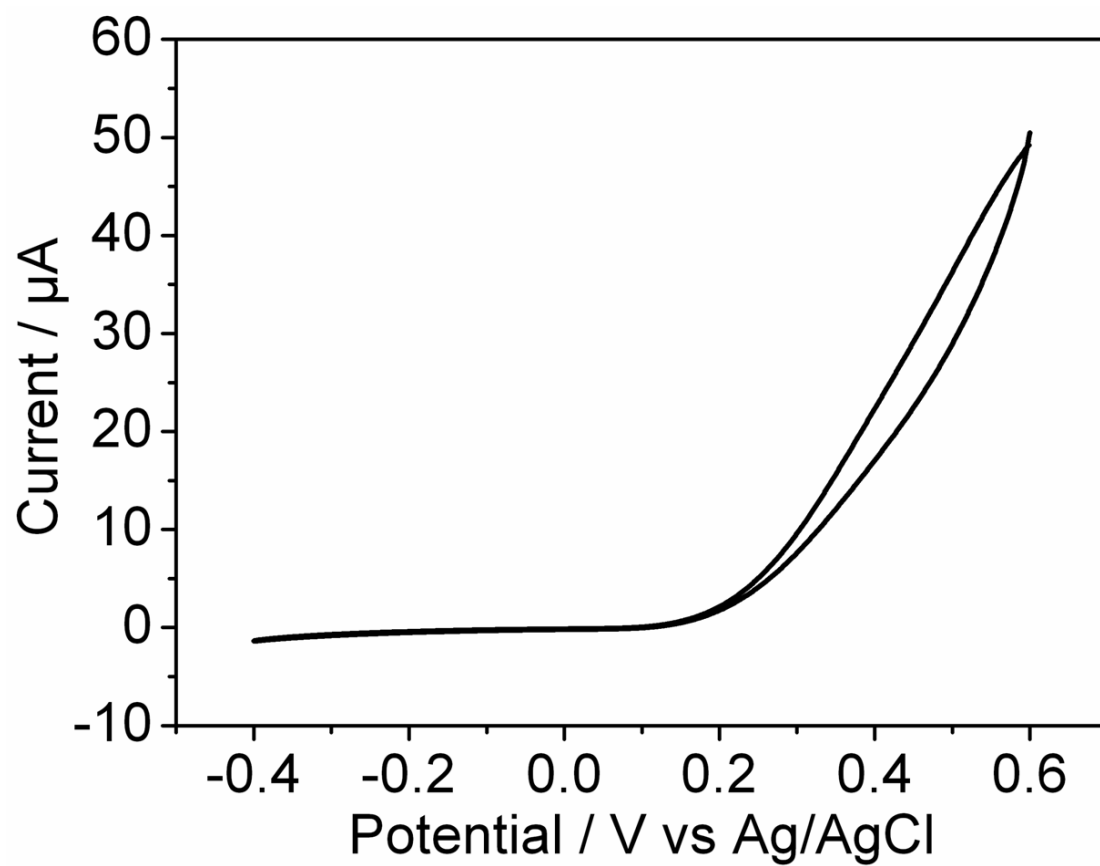
**a.**



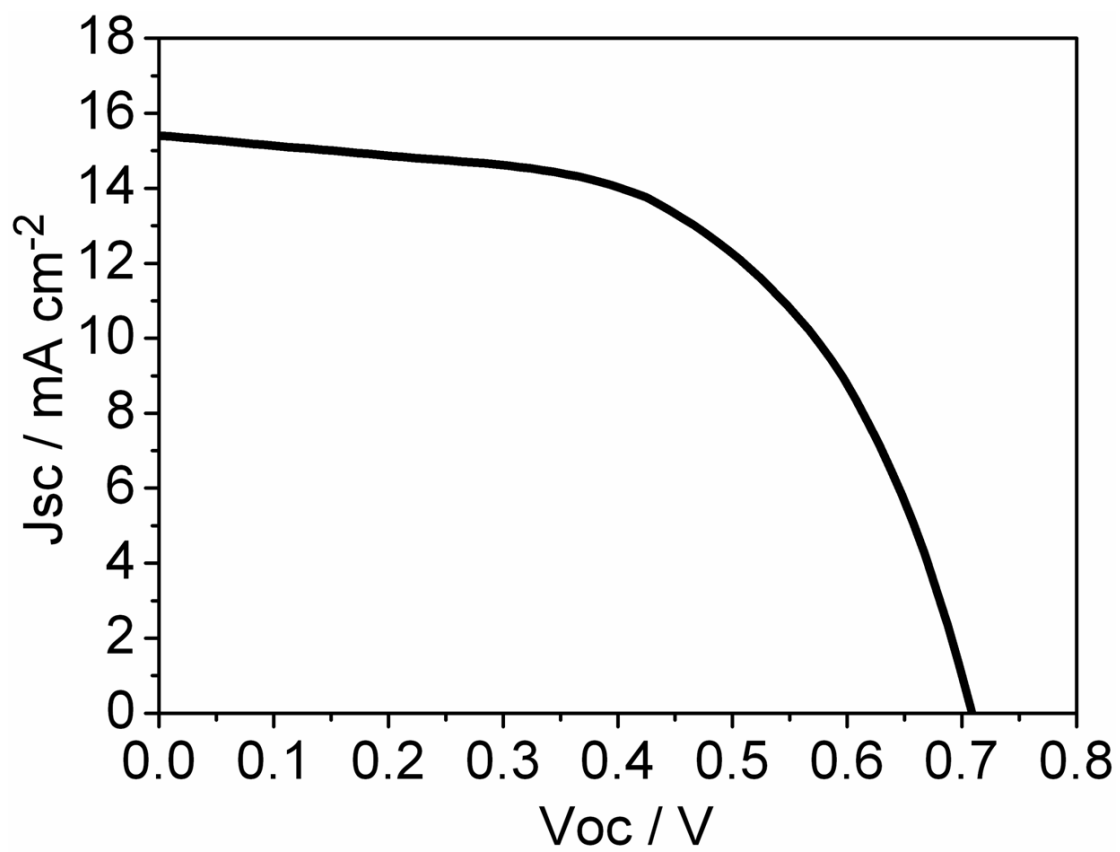
**Figure S4.** Raman spectra of CNT fiber, core-sheath CNT/RGONR fiber, CNT/RGO composite fiber, and RGO fiber.



**Figure S5.** Cyclic voltammograms of the Pt wire in the  $\text{I}^-/\text{I}_3^-$  electrolyte. The cyclic voltammetry was performed in an acetonitrile solution containing 0.1 M  $\text{LiClO}_4$ , 5 mM  $\text{LiI}$ , and 0.5 mM  $\text{I}_2$  with a scan rate of  $50 \text{ mV s}^{-1}$  through a three-electrode setup.

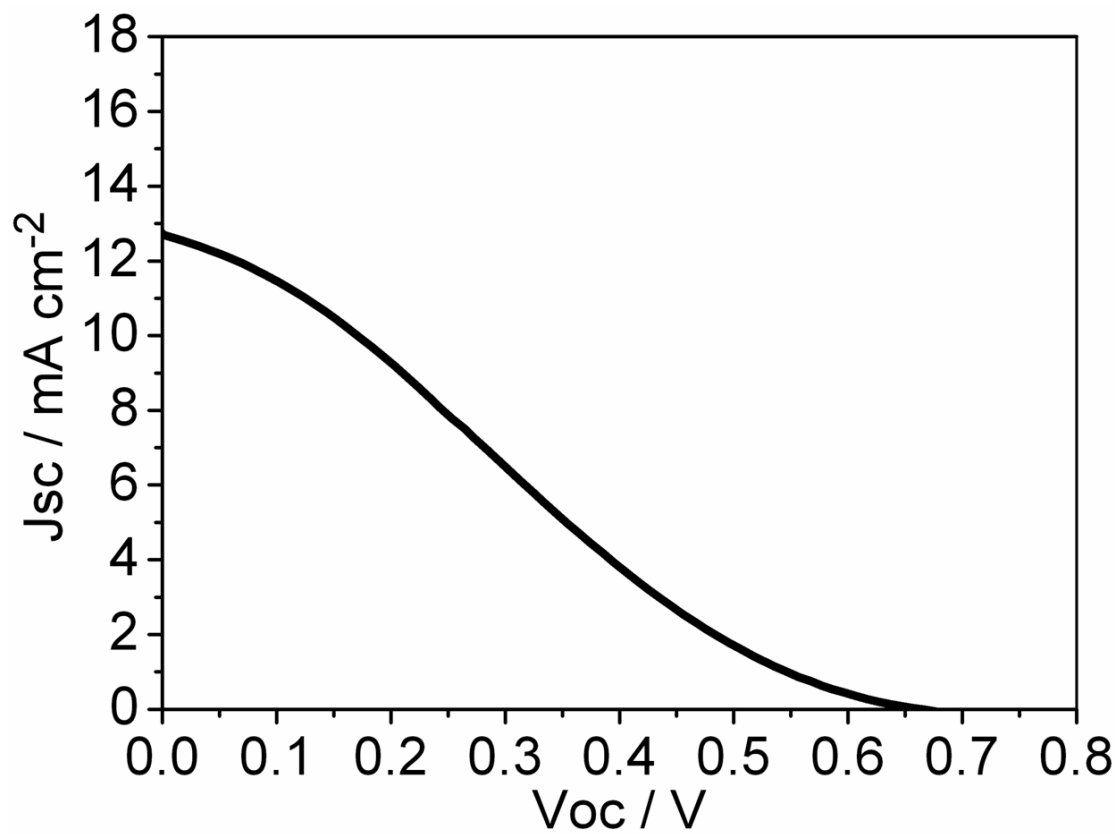


**Figure S6.** Cyclic voltammograms of the Pt wire in the  $\text{T}^+/\text{T}_2$  electrolyte. The cyclic voltammetry was performed in an acetonitrile solution containing 5 mM  $\text{T}^+$ , 0.5 mM  $\text{T}_2$  and 0.1 M  $\text{LiClO}_4$  with a scan rate of  $50 \text{ mV s}^{-1}$  through a three-electrode setup.

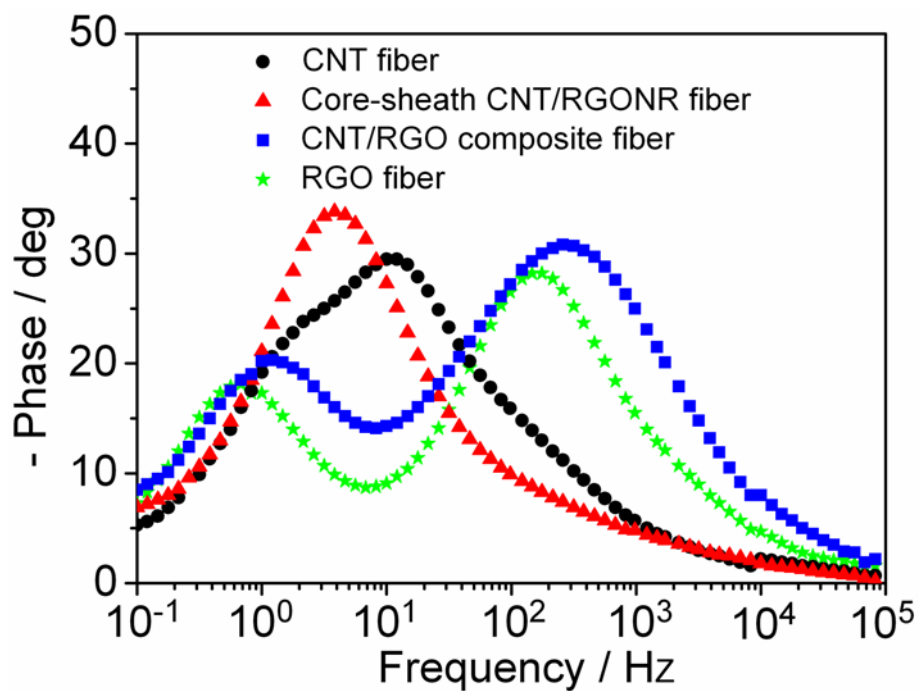


**Figure S7.** J-V curve of wire-shaped DSCs with the Pt wire as counter electrodes in the  $\text{I}/\text{I}_3^-$  electrolyte.

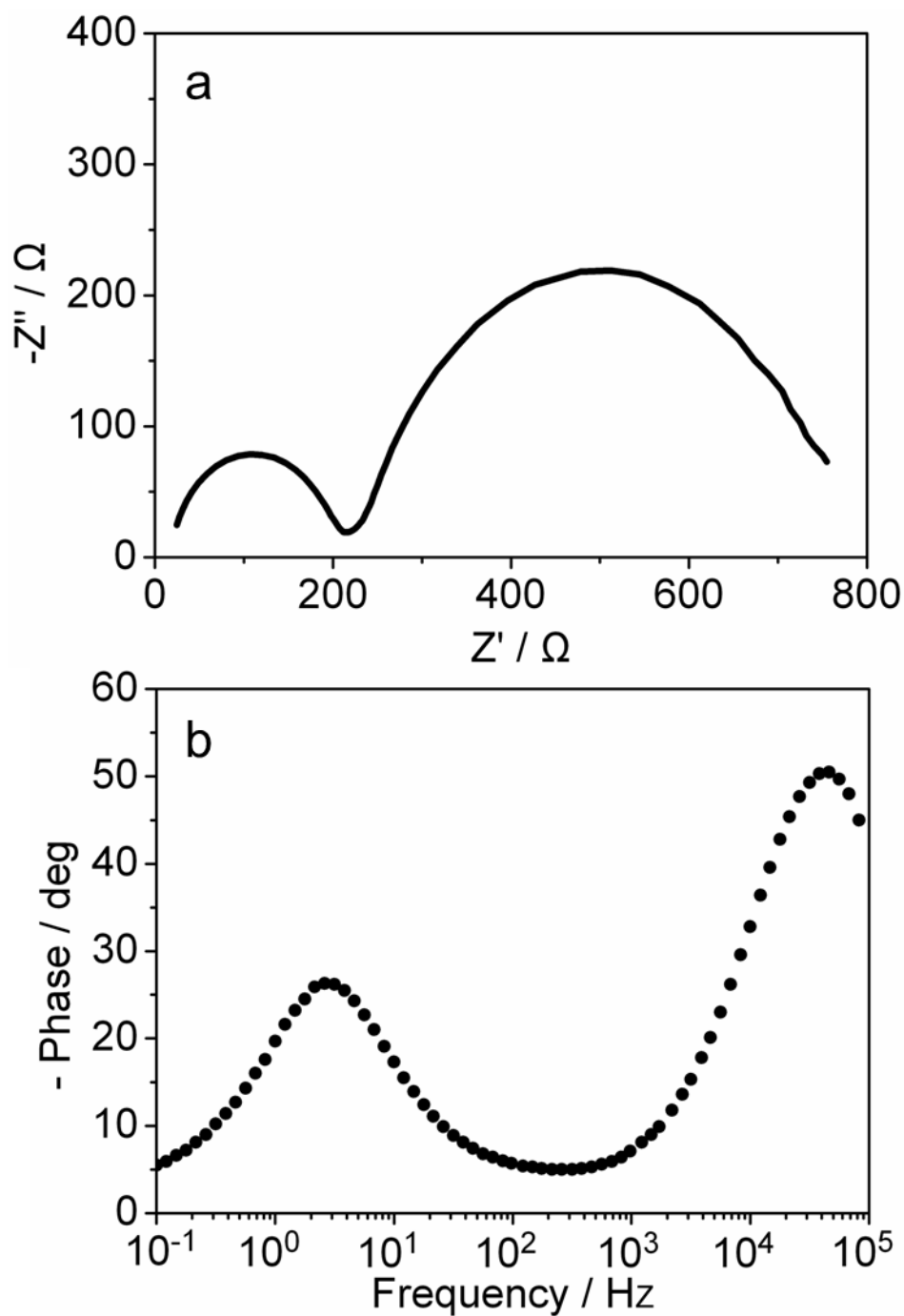




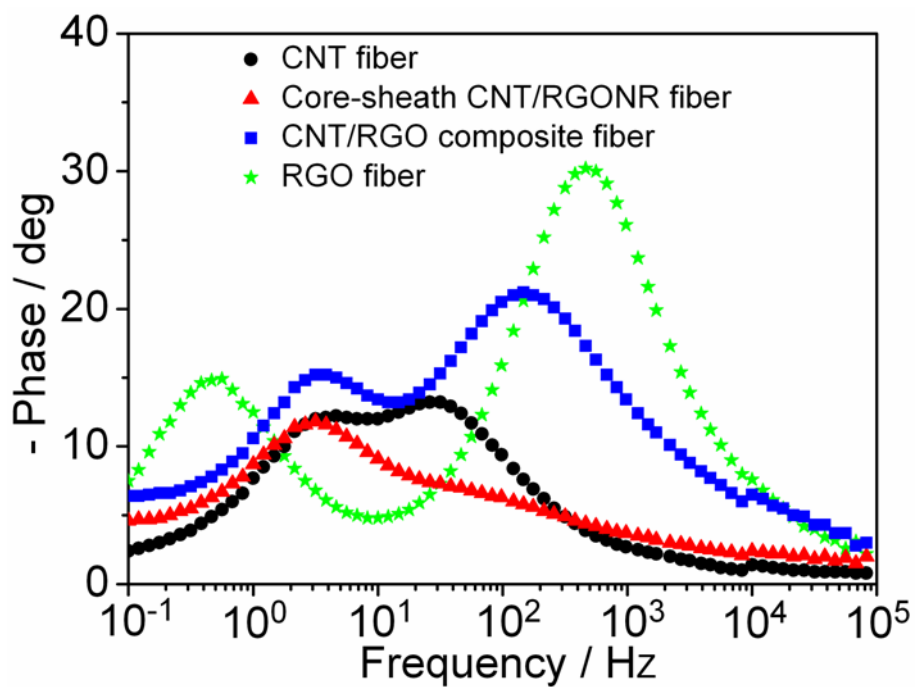
**Figure S8.** J-V curve of wire-shaped DSCs with the Pt wire as counter electrodes in the T/T<sub>2</sub> electrolyte.



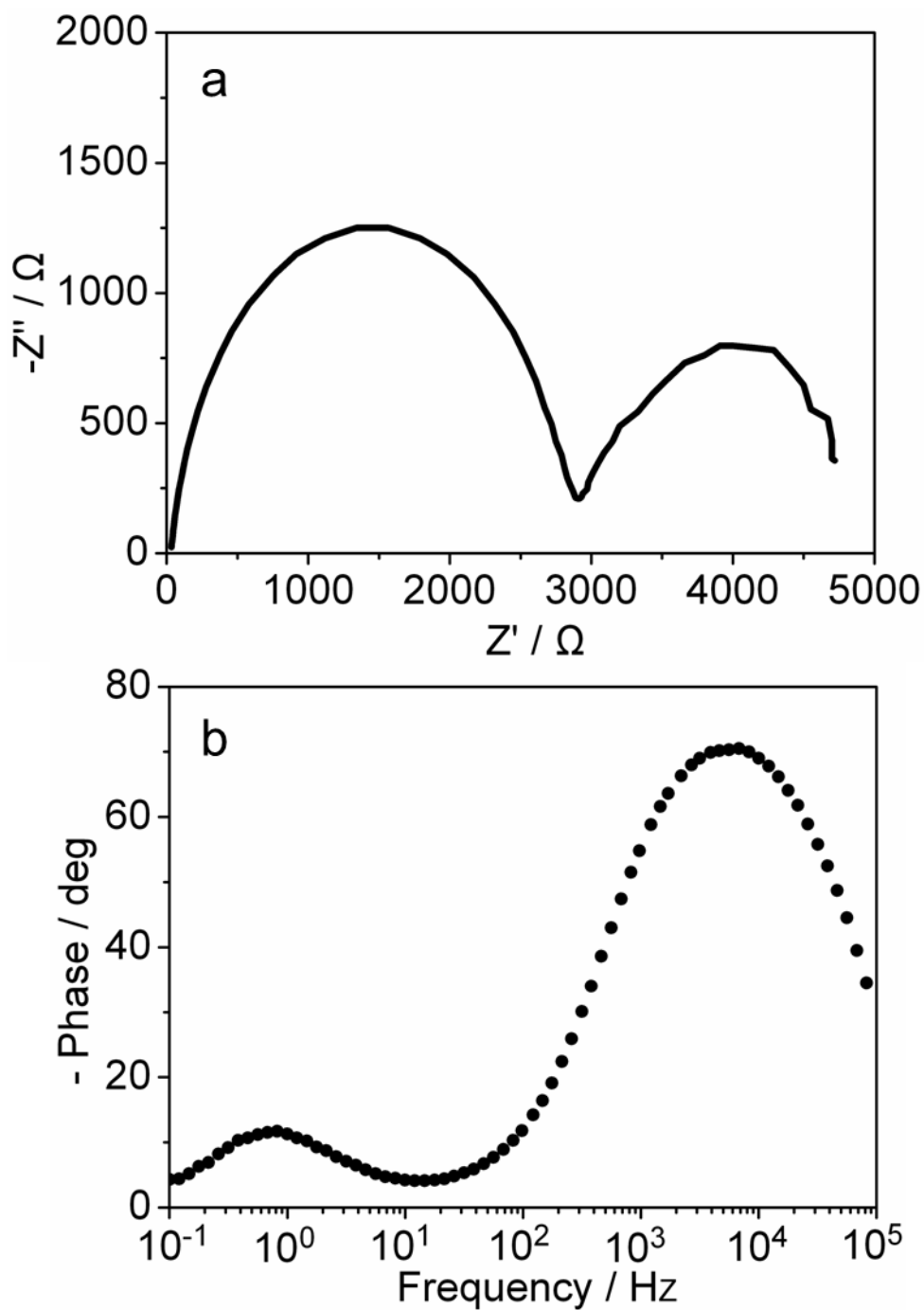
**Figure S9.** Bode plots of wire-shaped DSCs with CNT fiber, core-sheath CNT/RGONR fiber, CNT/RGO composite fiber and RGO fiber as counter electrodes in the  $I/I_3^-$  electrolyte. The frequencies were ranged from 0.1 to 100 kHz with an applied voltage of -0.75 V in dark.



**Figure S10.** (a) Nyquist spectra (b) Bode plots of wire-shaped DSCs with the Pt wire as counter electrodes in the  $I^-/I_3^-$  electrolyte. The frequencies were ranged from 0.1 to 100 kHz with an applied voltage of -0.75 V in dark



**Figure S11.** Bode plots of wire-shaped DSCs with CNT fiber, core-sheath CNT/RGONR fiber, CNT/RGO composite fiber and RGO fiber as counter electrodes in the T/T<sub>2</sub> electrolyte. The frequencies were ranged from 0.1 to 100 kHz with an applied voltage of -0.75 V in dark.



**Figure S12.** (a) Nyquist spectra (b) Bode plots of wire-shaped DSCs with the Pt wire as counter electrodes in the T/T<sub>2</sub> electrolyte. The frequencies were ranged from 0.1 to 100 kHz with an applied voltage of -0.75 V in dark.