

Supplementary Information

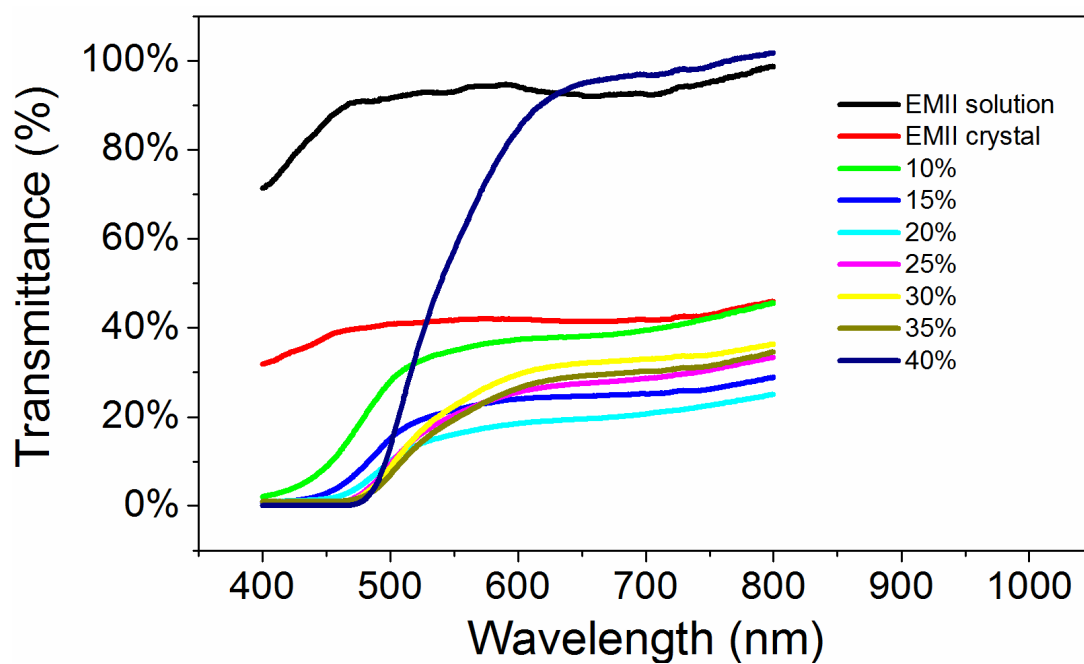


Figure S1. Transmittances of EMII solution, crystal, and eutectic melts with increasing PMII/iodine weight percentages from 10% to 40%.

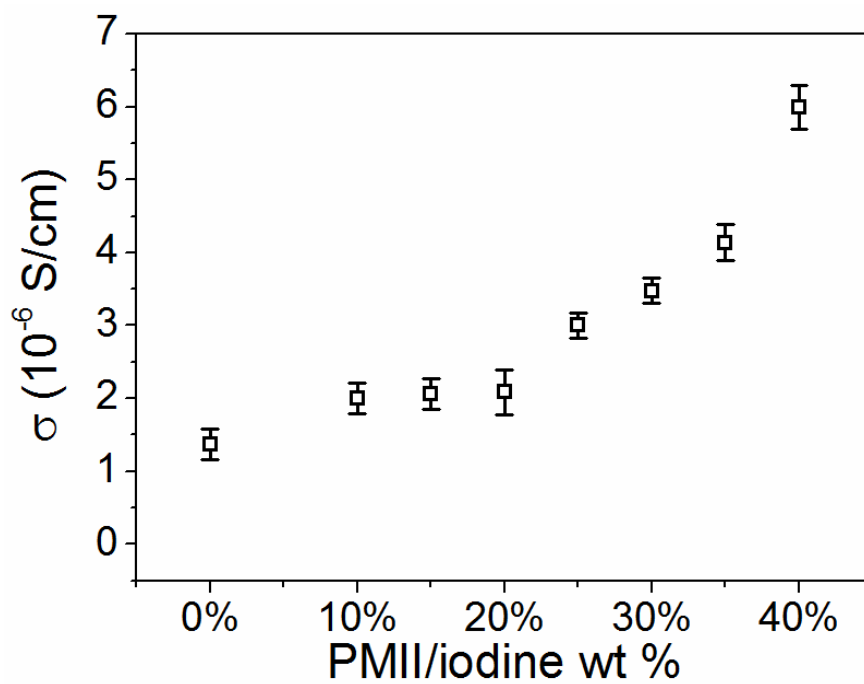


Figure S2. Electrical conductivities (σ) of EMII before and after addition of PMII/iodine with the increasing weight percentages from 10% to 40%.

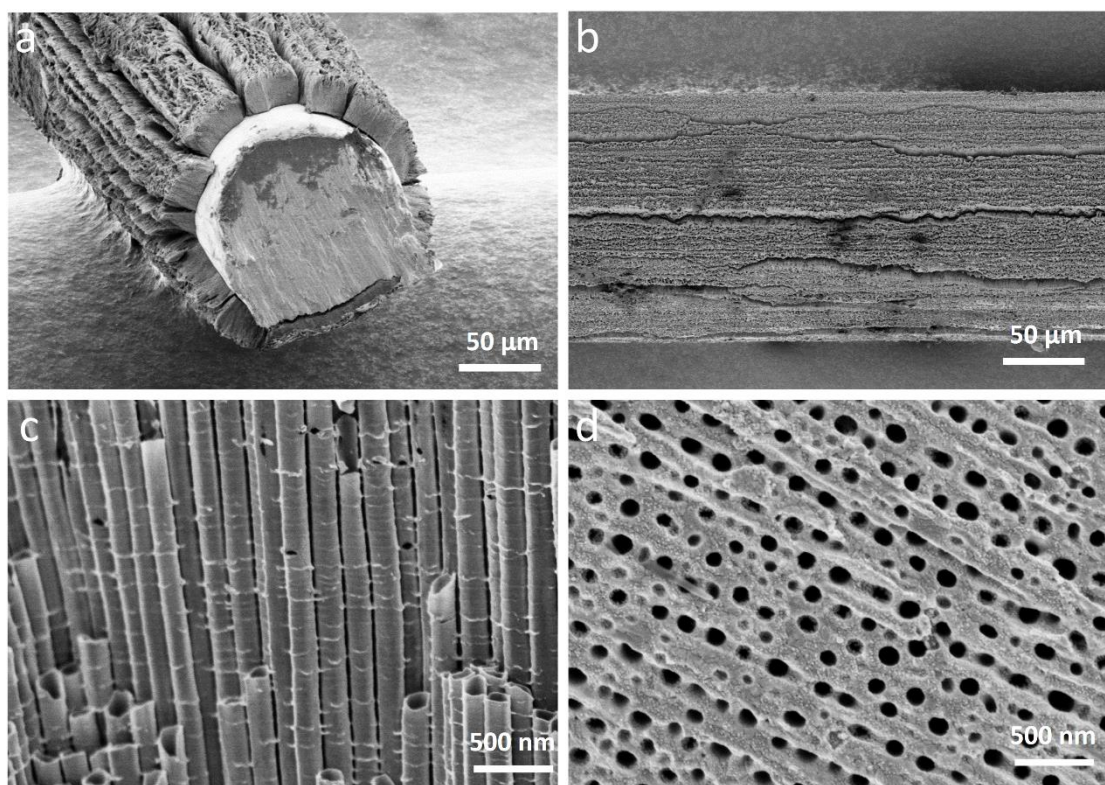


Figure S3. SEM images of the modified titanium wire. **a** and **b**. Top and side views of aligned titania nanotubes on a titanium wire, respectively. **c** and **d**. Side and top views of the aligned titania nanotubes, respectively.

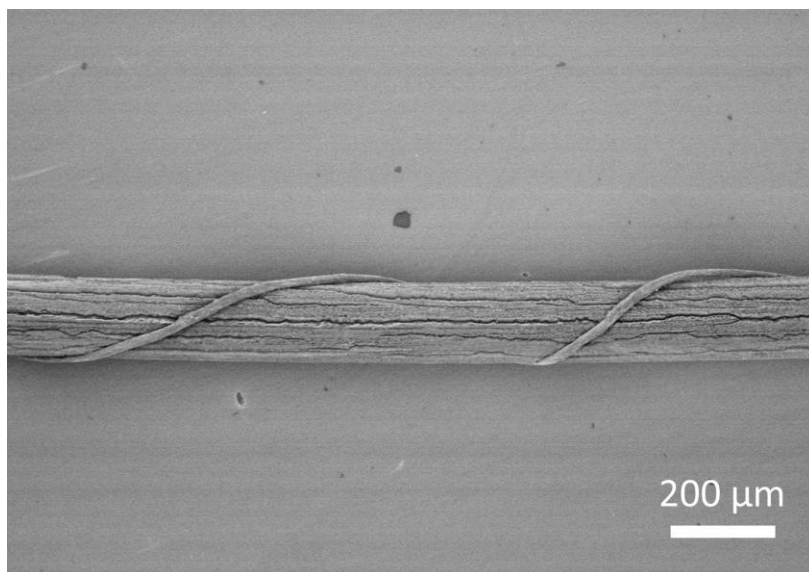


Figure S4. SEM image of electrodes of a wire-shaped DSC, where a CNT fiber was employed as the counter electrode.

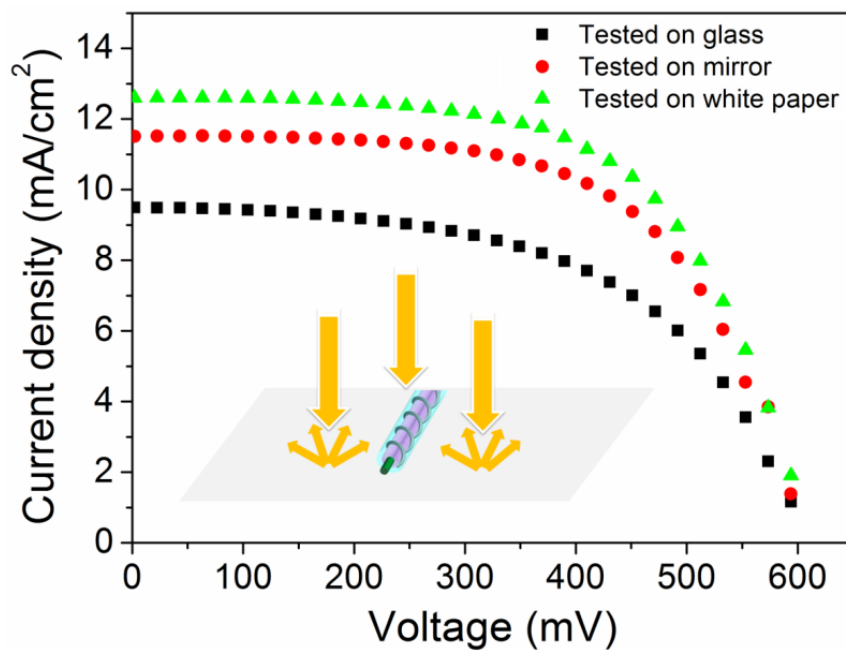


Figure S5. J-V curves of wire-shaped DSCs on different substrates of black background, mirror, and white paper. The DSC was fabricated with Pt wire as counter electrode and eutectic melts with 20 wt% PMII/iodine (molar ratio of PMII and iodine, 24/1) as electrolyte.

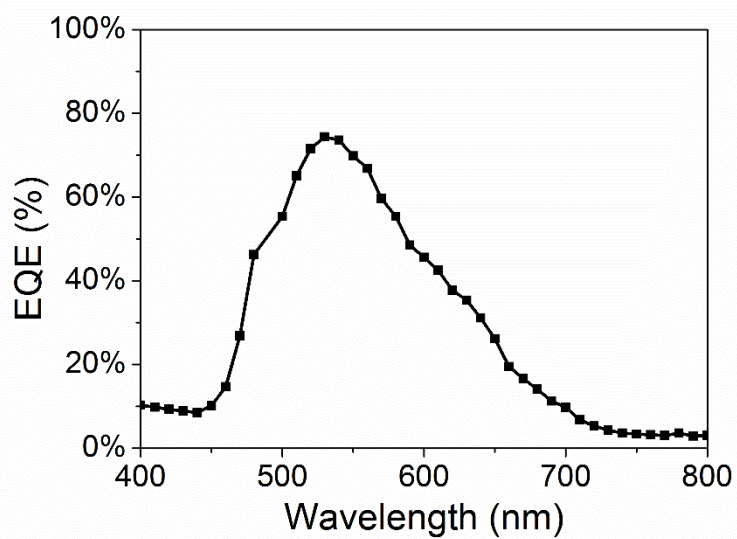


Figure S6. Incident photon-to-current conversion efficiency curve of a wire-shaped DSC based on the eutectic melts with 20 wt% PMII/iodine. The peak appeared at 530 nm.

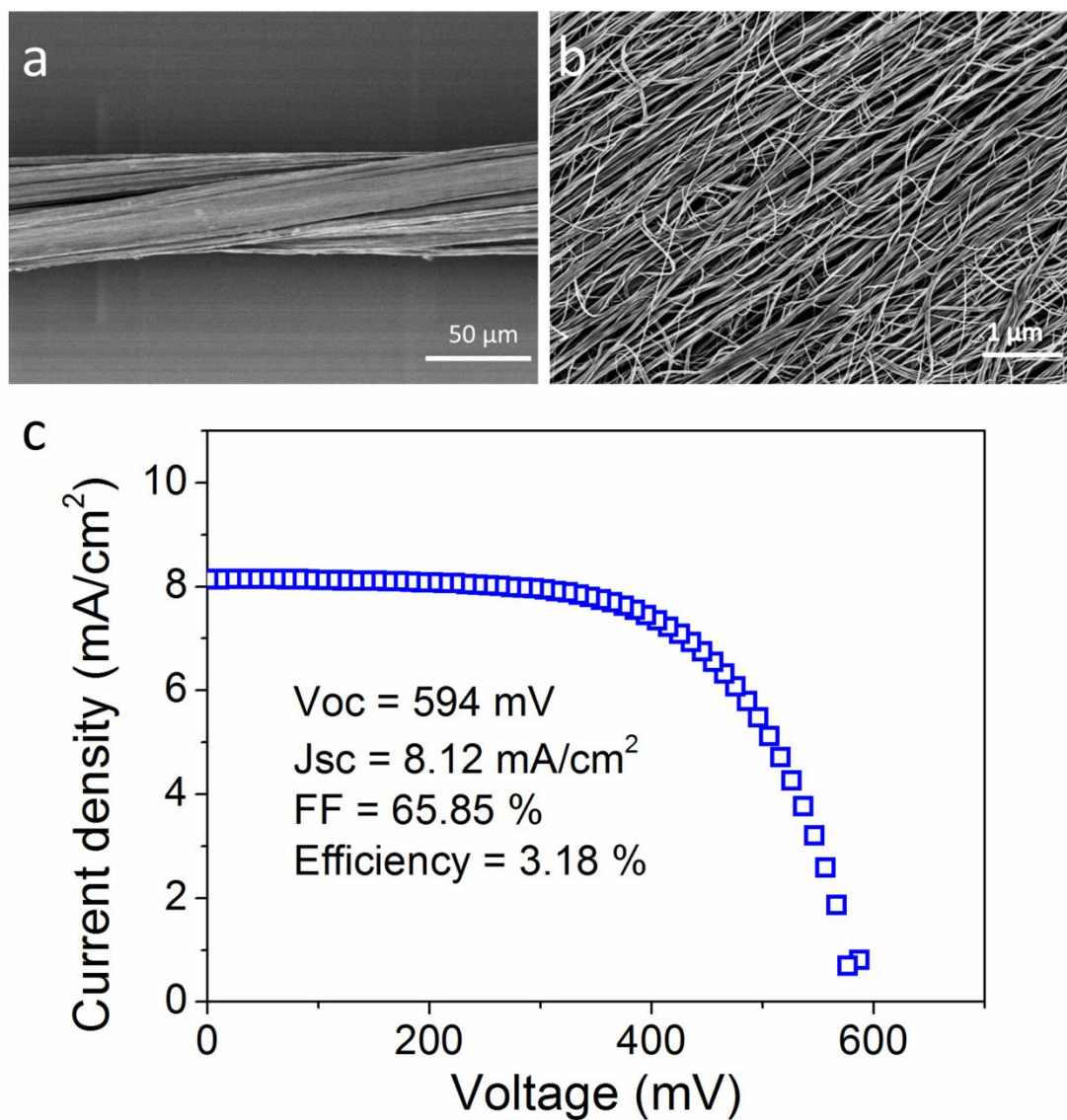


Figure S7. A wire-shaped DSC based on a large fiber that was prepared by twisting five carbon nanotube yarns as the counter electrode. **a** and **b**. SEM images of the twisted five carbon nanotube yarns at low and high magnifications, respectively. **c**. J-V curve. Here the eutectic melts with 20 wt% PMII/iodine (molar ratio of PMII and iodine, 24/1) was used.

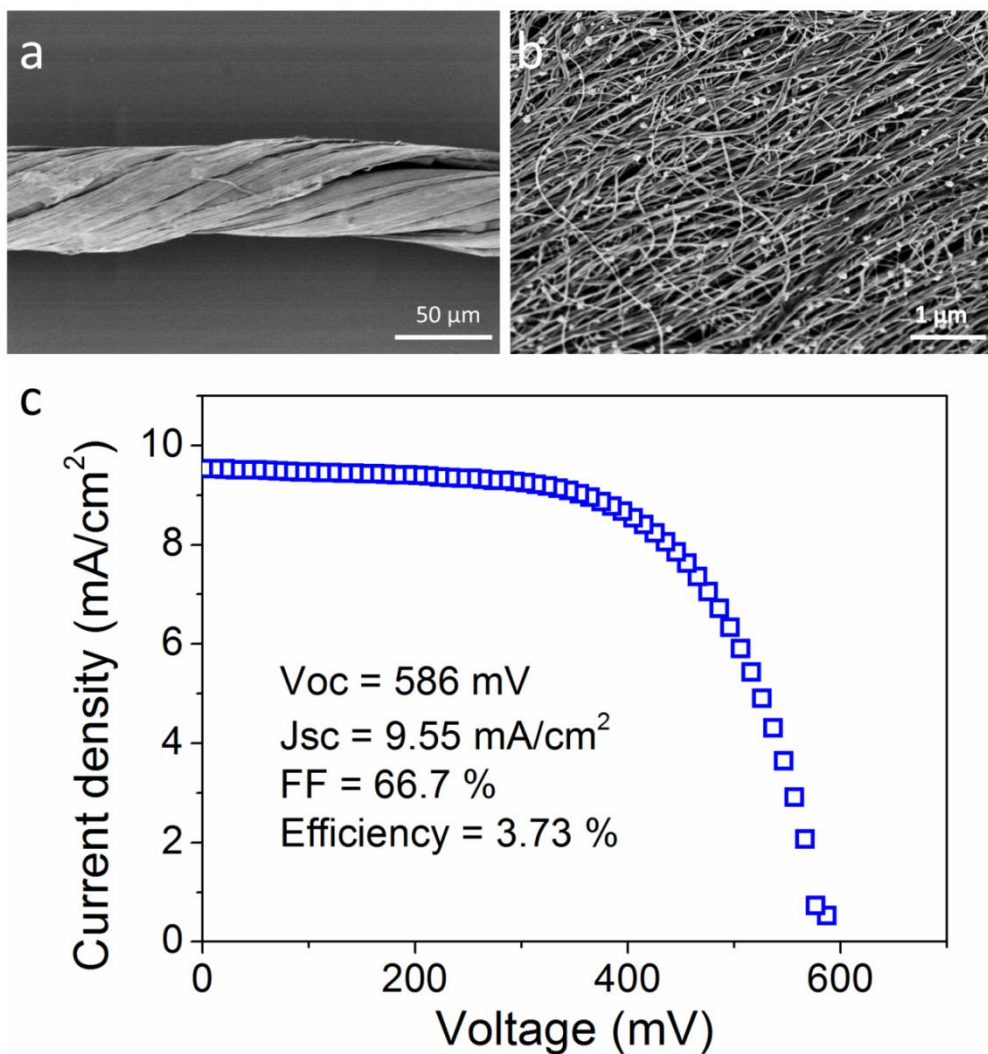


Figure S8. A wire-shaped DSC based on a large fiber that was prepared by twisting five carbon nanotube yarns and then depositing Pt nanoparticles as the counter electrode. **a** and **b.** SEM images of the large fiber from twisted five carbon nanotube yarns at low and high magnifications, respectively. **c.** J-V curve. Here the eutectic melts with 20 wt% PMII/iodine (molar ratio of PMII and iodine, 24/1) was used.

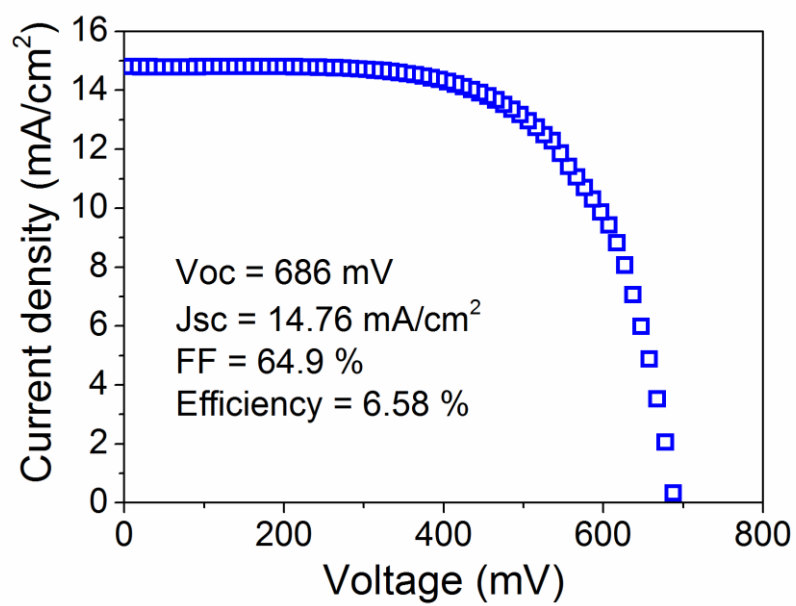


Figure S9. J-V curve of a wire-shaped DSC based on an acetonitrile electrolyte.