Electronic Supplementary Information for

Three-dimensionally ordered porous $TiNb_2O_7$ nanotubes: superior anode material for next generation hybrid supercapacitors

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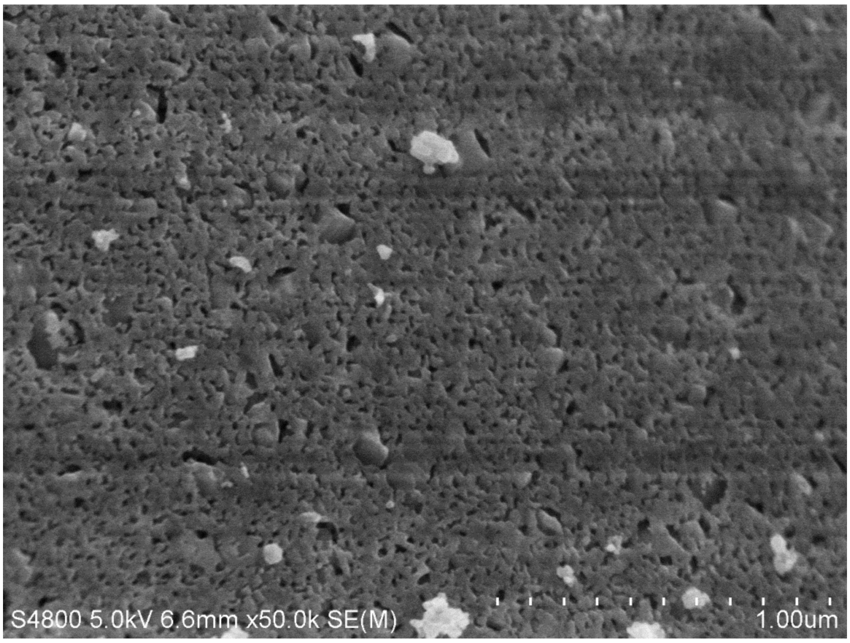

Fig. S1. SEM image of bulk TNO.

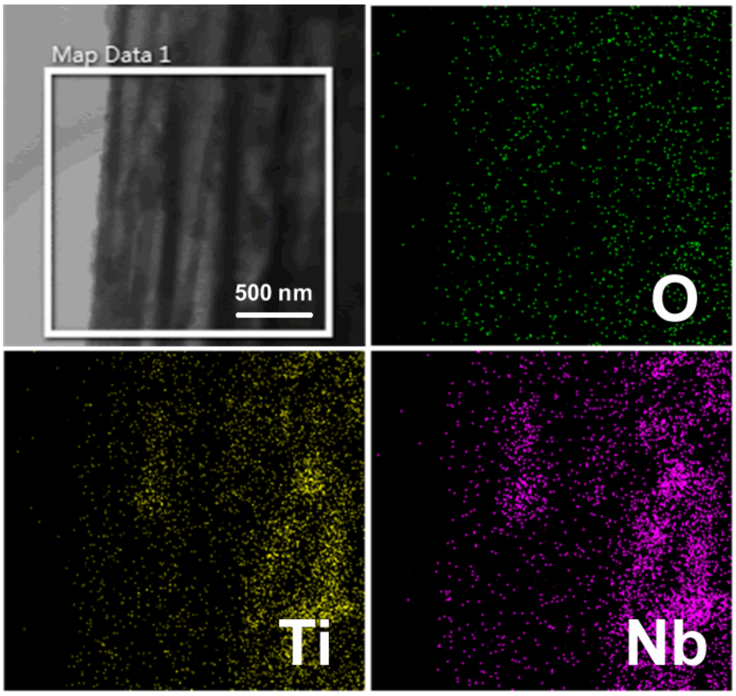

Fig. S2. EDX elemental mapping images of the 3D-O-P-TNO.

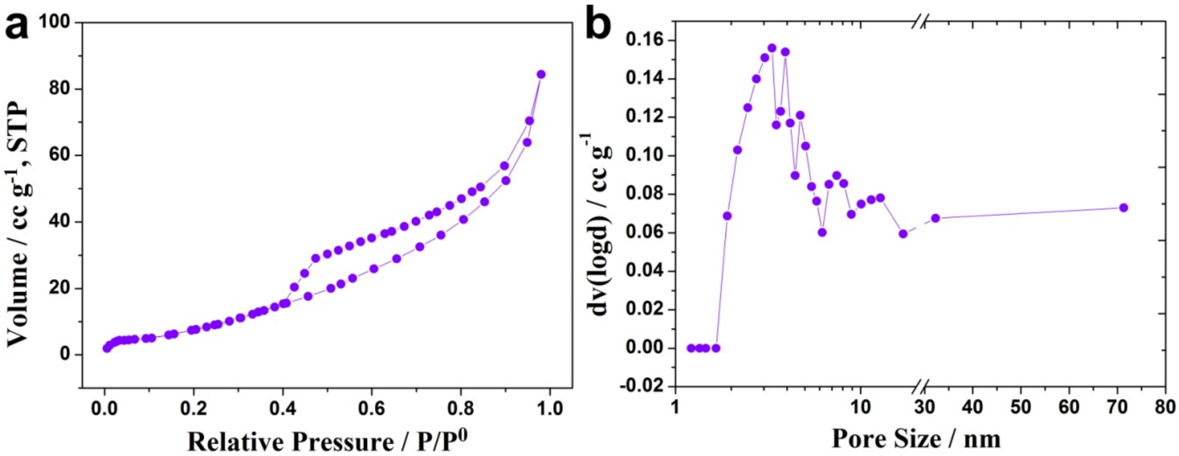

Fig. S3. (a) Nitrogen adsorption/desorption isotherm of 3D-O-P-TNO; (b) the corresponding pore-size-distribution curve.

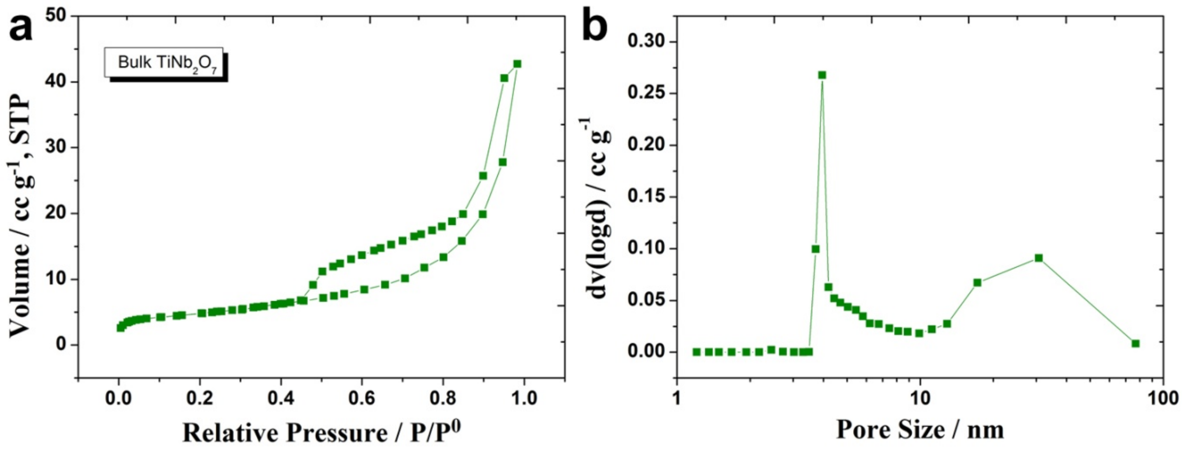

Fig. S4. a) Nitrogen adsorption/desorption isotherm of bulk TNO and b) its pore-size distribution curve.

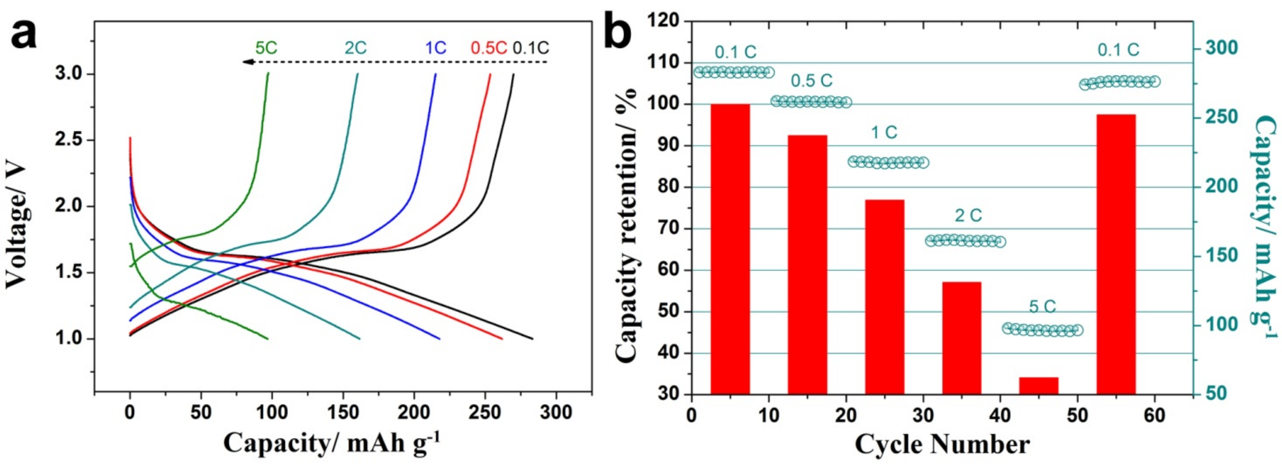

Fig. S5. Electrochemical characteristics of bulk TNO: (a) The charge/discharge curves at different current rates; (b) The capacity retention and cycling performances at different rates.

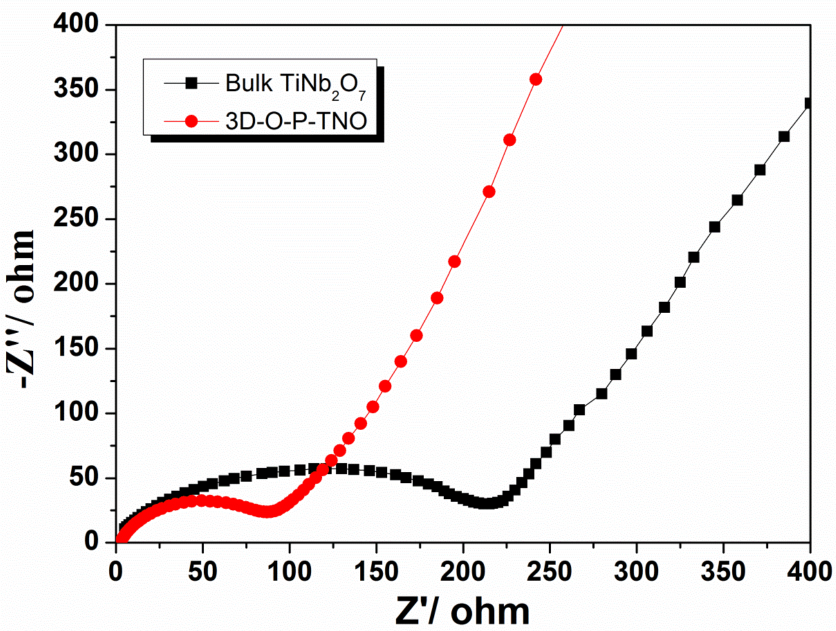

Fig. S6. Nyquist plots obtained via EIS measurement of 3D-O-P-TNO and bulk TNO electrode.

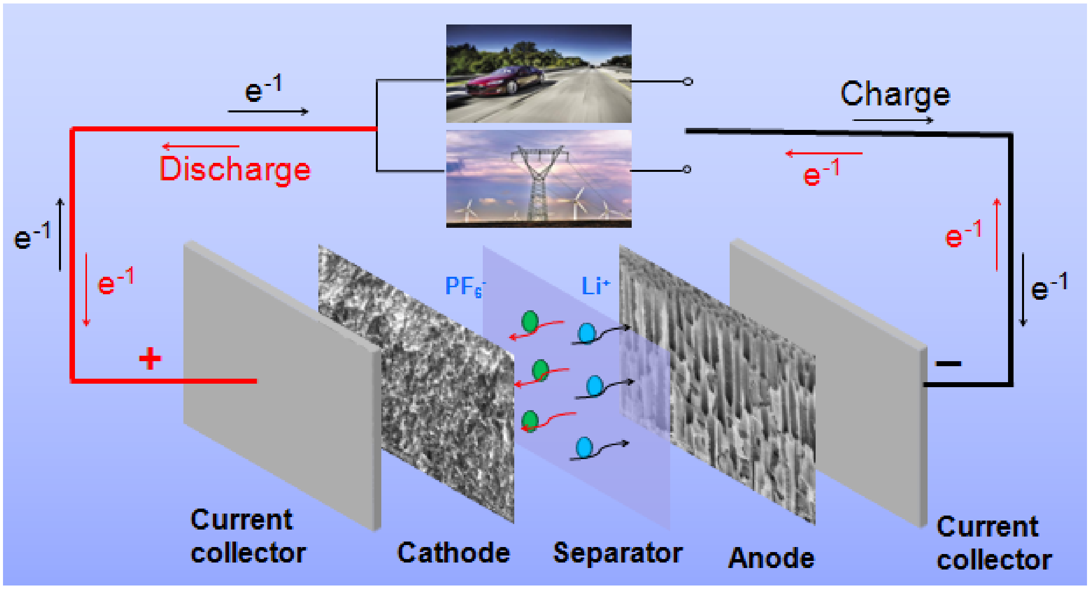

Fig. S7. Schematic illustration of the fabricated hybrid supercapacitor based on an anode electrode of 3D-O-P-TNO and a cathode electrode of graphene grass in a non-aqueous electrolyte.

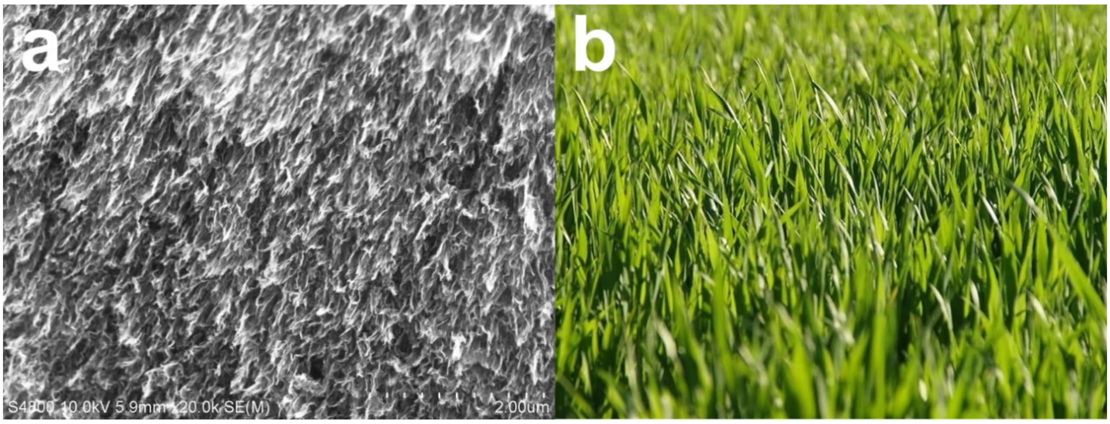

Fig. S8. The comparison images of the prepared graphene and natural grass.

Fig. S8a and 8b show the SEM image of our prepared graphene and the digital photo of the natural grass, respectively. For vividly describing our prepared graphene, we defined it as graphene grass.

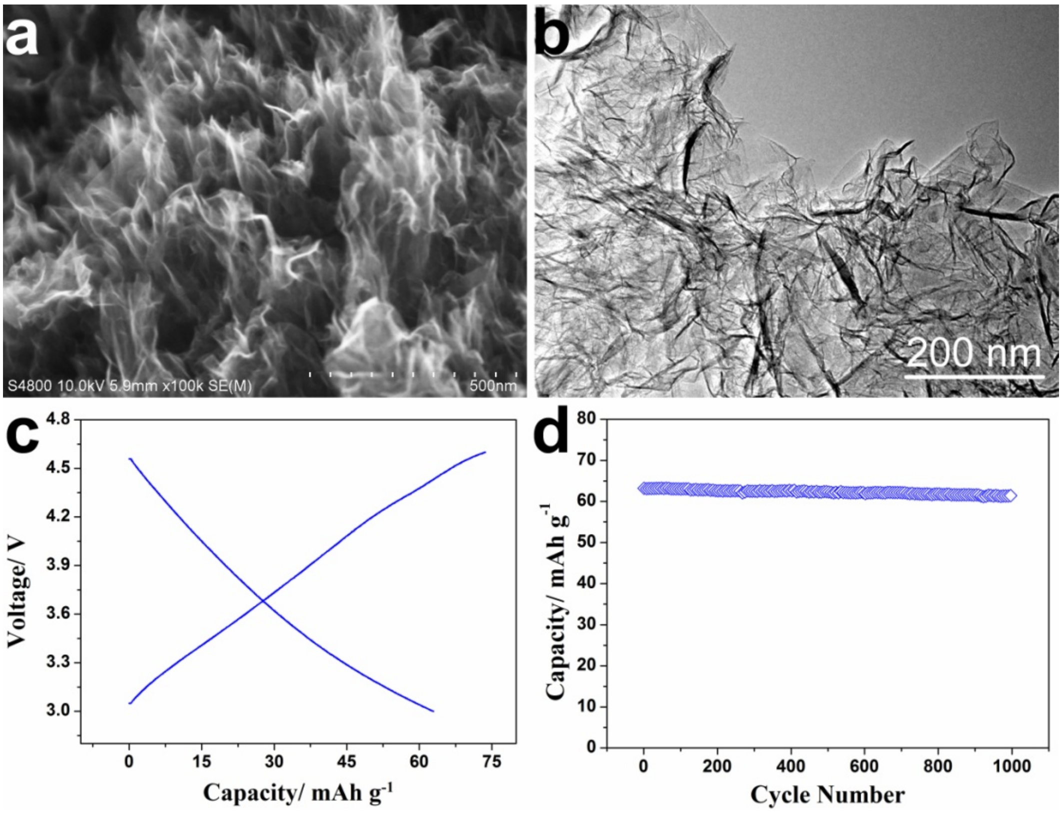

Fig. S9. (a) The SEM image and (b) TEM image of our prepared graphene grass; (c) Electrochemical profiles of graphene grass electrode in single electrode configuration (Li/graphene) between 3 and 4.6 V *vs.* Li at current density of 150 mA g^{-1}, and (d) plot of reversible specific capacitance *vs.* cycle number.

The surface microstructure of the as-prepared graphene grass is imaged by SEM and TEM. As illustrated in Fig. S9a, the ultrathin and flexible nature of graphene sheets can be clearly observed in the macroporous structured graphene grass. Fig. S9b shows that the layers in graphene grass are almost transparent with some wrinkles visible under TEM. The Electrochemical profiles of graphene grass electrode in single electrode configuration (Li/graphene) between 3 and 4.6 V *vs.* Li is shown in Fig. S9c. The graphene grass delivered the reversible capacity of ~63.2 mAh g^{-1} with linear charge/discharge curves which are coupled with the PF_6^- adsorption/desorption over graphene electrodes. Fig. S9d shows the cycling performance of the graphene grass at a current density of 150 mA g^{-1}. The graphene grass shows excellent cyclic capacity retention with a high reversible capacity of about 61.3 mA h g^{-1}, retained after 1000 cycles.