Stretchable All-Solid-State Supercapacitor with Wavy Shaped Polyaniline/Graphene Electrode

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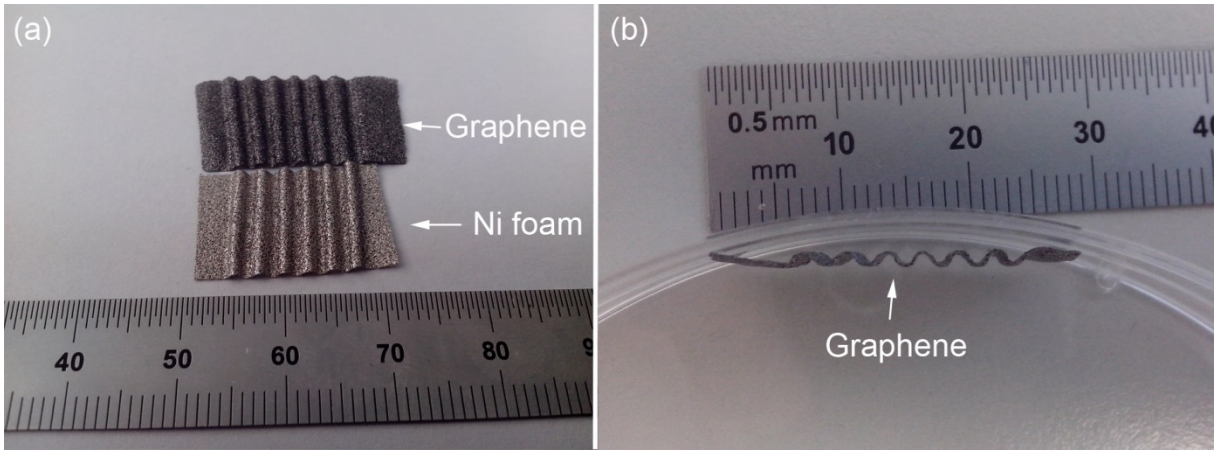

Figure S1. (a) Wavy shaped Ni foam and Graphene; (b) Cross-sectional optical image of wavy shaped graphene. After removing Ni from Graphene/Ni, the graphene remained wavy shape. The wavelength and amplitude of graphene electrode are ~2.6 mm and ~0.5 mm, respectively.

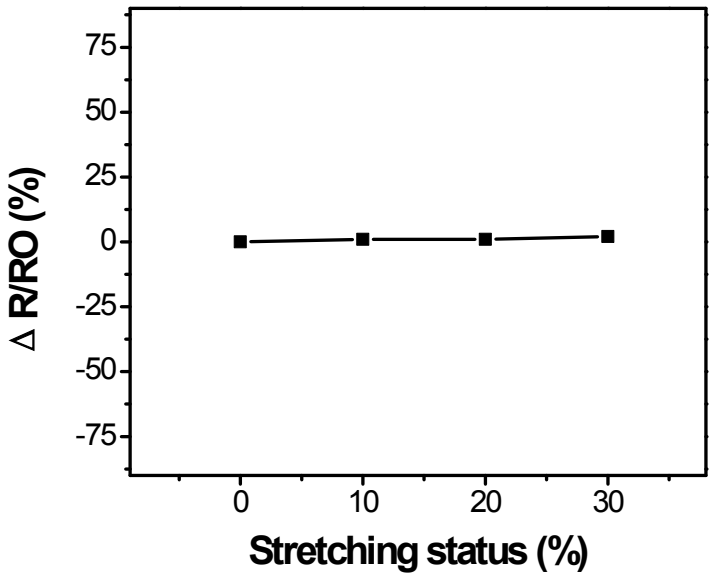

Figure S2. Electrical resistance variation of the wavy shaped porous graphene as a function of the different stretching statues. The resistance change is less than 3% under 30% strain because the strain is accommodated by the wavy shape instead of the graphene sheet fracture.

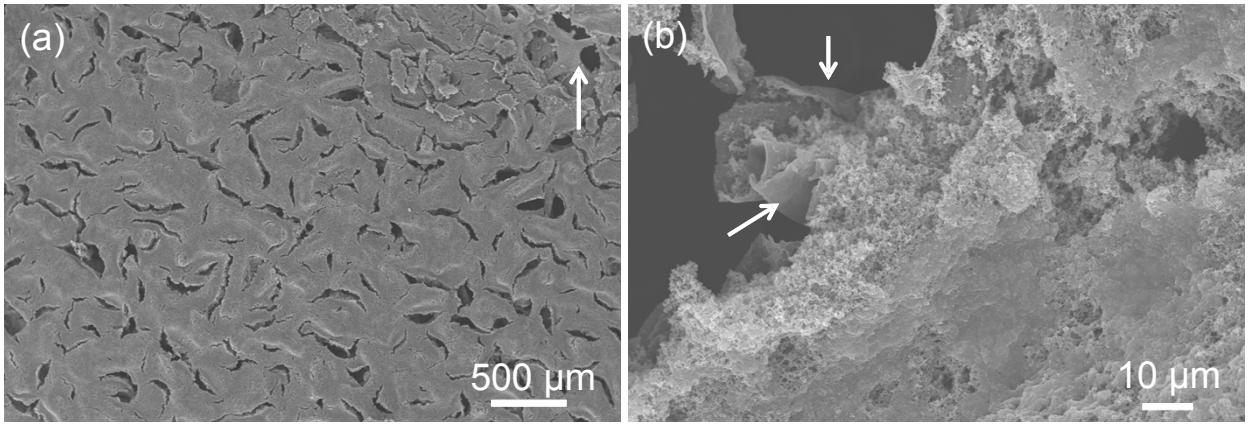

Figure S3. Top-view SEM images of PANI/graphene prepared by DC electrochemical deposition in an aqueous solution (the mixture of 0.1 M Aniline monomer and 0.5 M H_2SO_4). The scan rate was 50 mV/s. This sample was prepared by 150 cycles pulse. Most of PANI was deposited on the surface of graphene instead of the inside part of the porous graphene, as indicated by the arrows in the images.

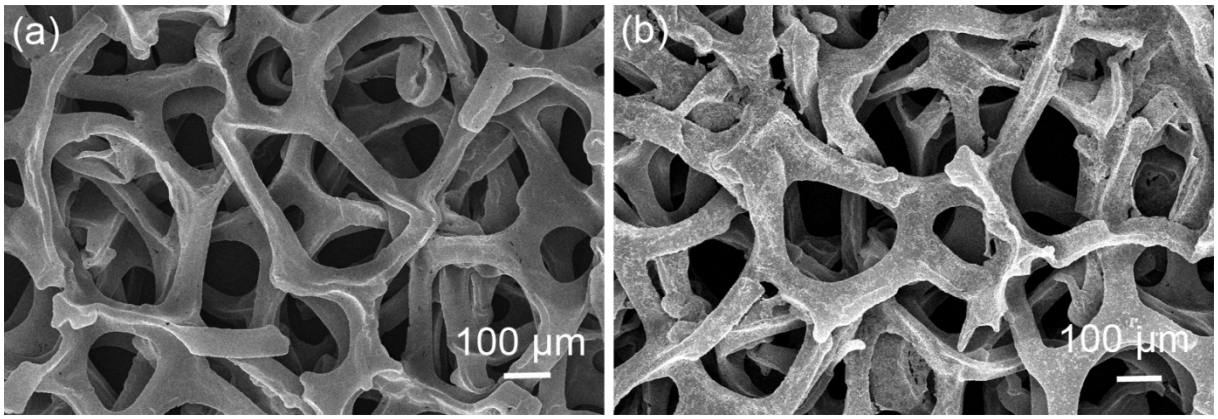

Figure S4. SEM images of (a) porous graphene and (b) PANI/graphene. The PANI was prepared by pulsed electrochemical deposition. PANI thin film conformally coated on the surface of graphene, maintaining porous characteristics.

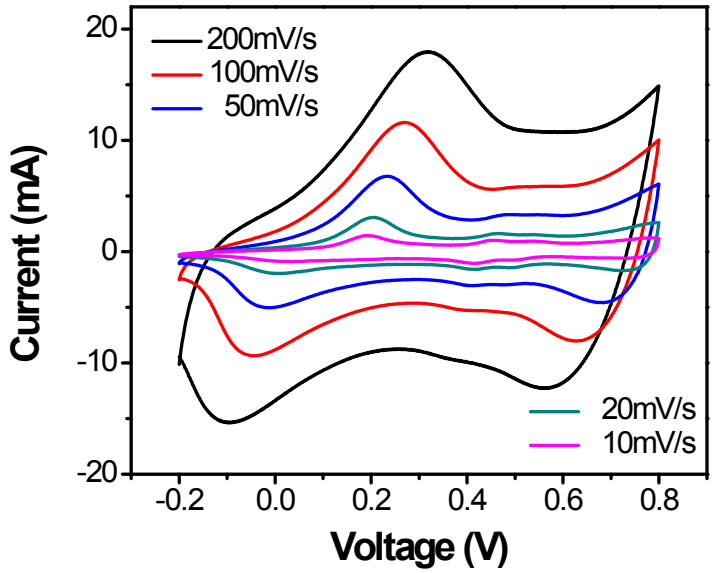

Figure S5. The CV curves of the PANI/graphene electrode at different scan rates in 1 M H_2SO_4 aqueous electrolyte.