

Supporting information

Molybdenum Disulfide Nanosheets Aligned Vertically on Carbonized Silk Fabric as Smart Textile for Wearable Pressure Sensing and Energy Devices

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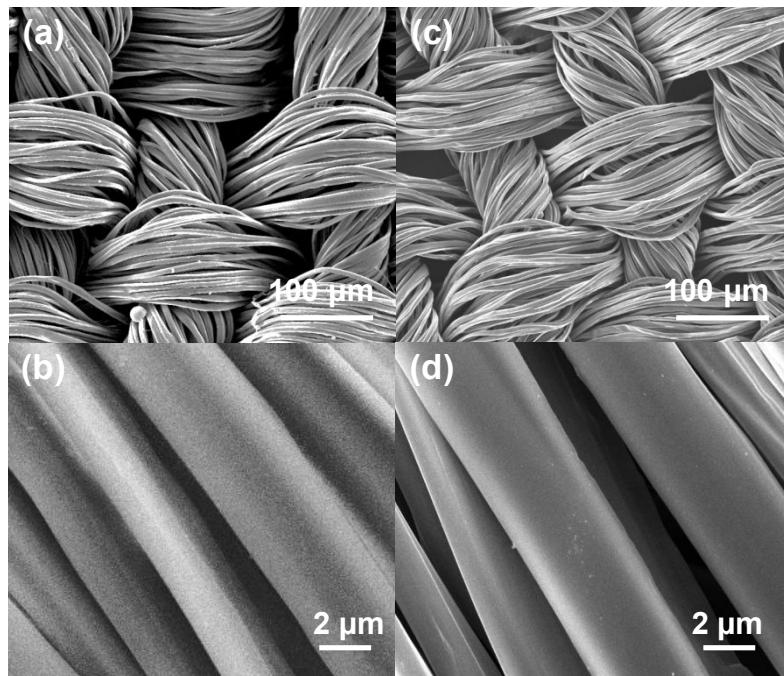


Figure S1. Morphology of commercial silk fabric and as-prepared MoS_2 /CSilk at different magnifications. (a, c) SEM images of commercial silk fabric, (b, d) SEM images of as-prepared CSilk.

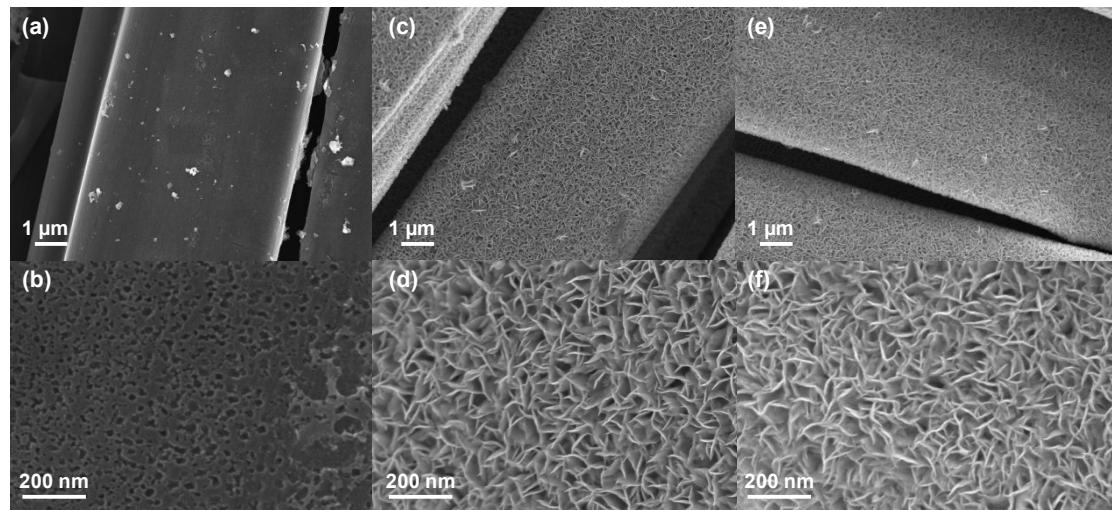


Figure S2. Morphology of as-prepared MoS_2 /CSilk for different treatment time at different magnifications. (a, b) 1h, (c, d) 24h, (e, f) 48h.

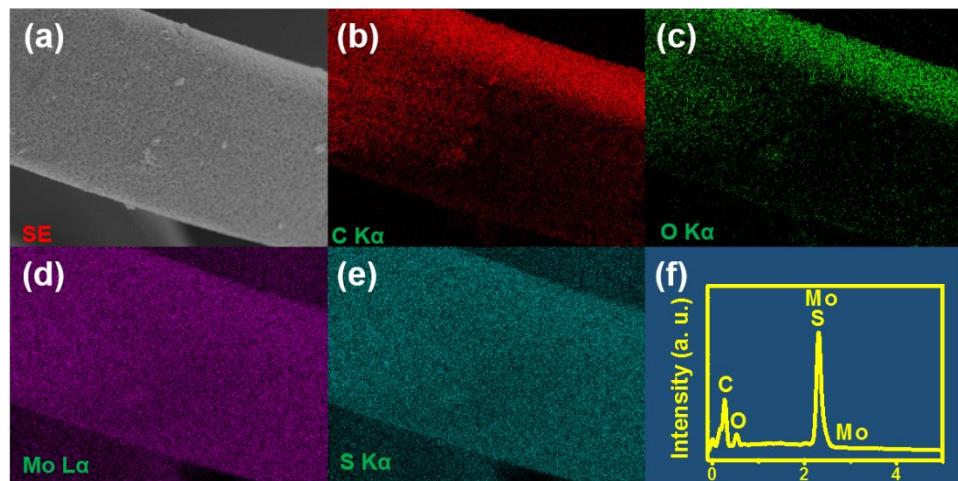


Figure S3. SEM image and chemical composition maps of MoS₂/CSilk. (a) SEM image of MoS₂/CSilk. (b-e) Relative composition map of C, O, Mo and S Elements, (b) C (red), (c) O (green), (d) Mo (purple) maps, (e) S (blue) maps. (f) corresponding EDS elements.

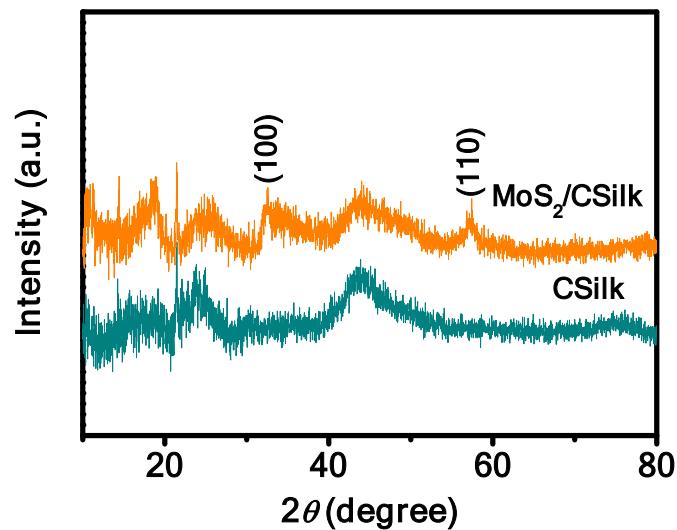


Figure S4. XRD patterns of CSilk and 3D hierarchical MoS₂/CSilk.

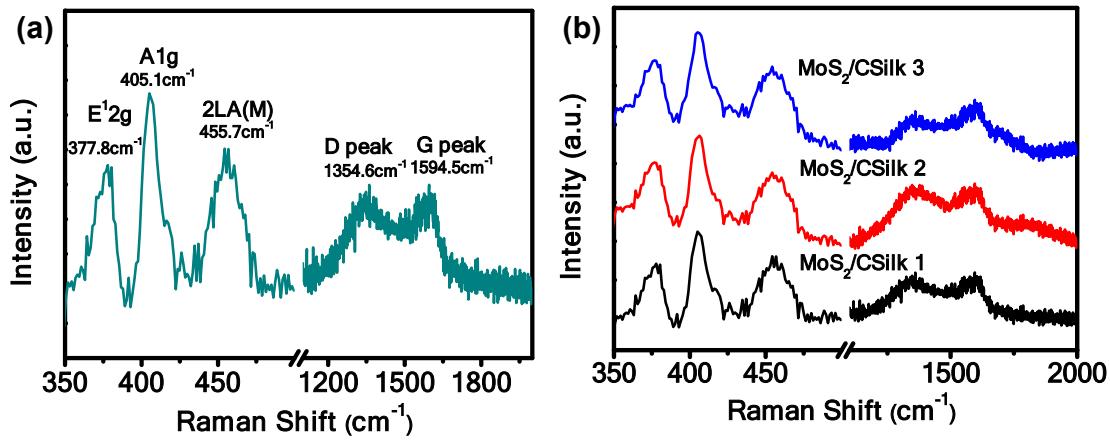


Figure S5. (a) Raman spectrum of $\text{MoS}_2/\text{CSilk}$, showing a set of MoS_2 Raman peaks together with D band and G band of RGO. The similarity in the relative intensity and position of the E2g1 and A1g peaks suggest that the structure was largely undistorted MoS_2 . (b) Raman spectra of $\text{MoS}_2/\text{CSilk}$ prepared by different batches ($\text{MoS}_2/\text{CSilk}$ 1, $\text{MoS}_2/\text{CSilk}$ 2, $\text{MoS}_2/\text{CSilk}$ 3).

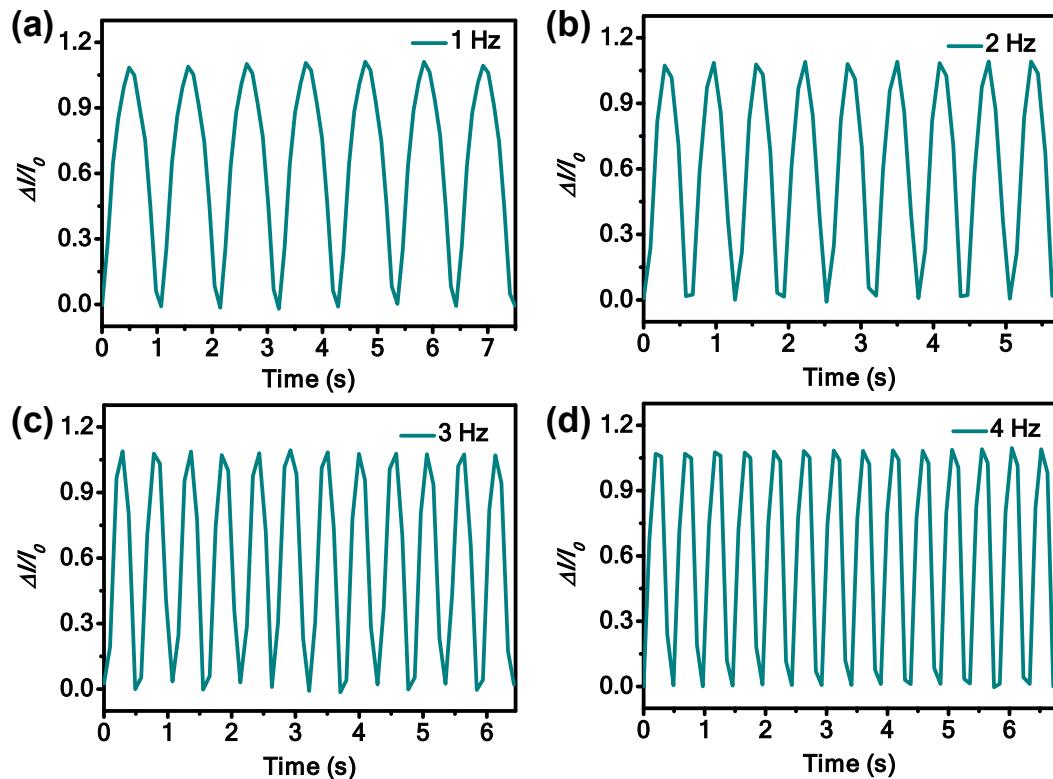


Figure S6. Response to cyclic pressure (130 Pa) applied at different frequencies. (a) 1 Hz. (b) 2 Hz. (c) 3 Hz. (d) 4 Hz.

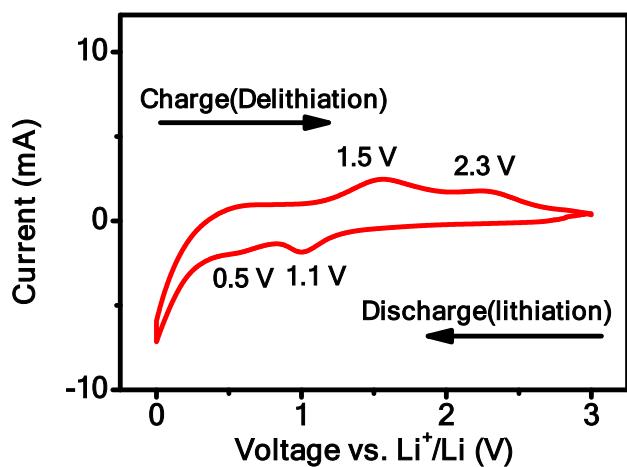


Figure S7. CV curve at a scanning rate of 0.1 mV s^{-1} of the first two cycles for the $\text{MoS}_2/\text{CSilk}$ electrode.

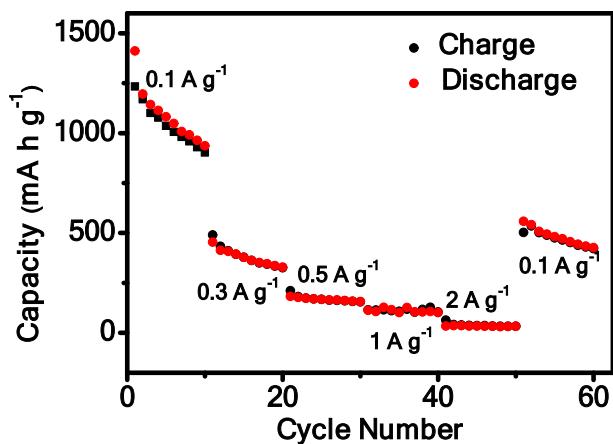


Figure S8. Rate performance of annealed bare MoS_2 powder at different current densities (0.1 A g^{-1} , 0.3 A g^{-1} , 0.5 A g^{-1} , 0.8 A g^{-1} , 1 A g^{-1} , 2 A g^{-1} , 0.1 A g^{-1}).