Electronic Supplementary Material (ESI) for Inorganic Chemistry Frontiers.

Synthesis of Dense MoS_2 Nanosheets Layer onto Hollow Carbon Sphere and Applications for Supercapacitor and Electrochemical Hydrogen Evolution Reaction

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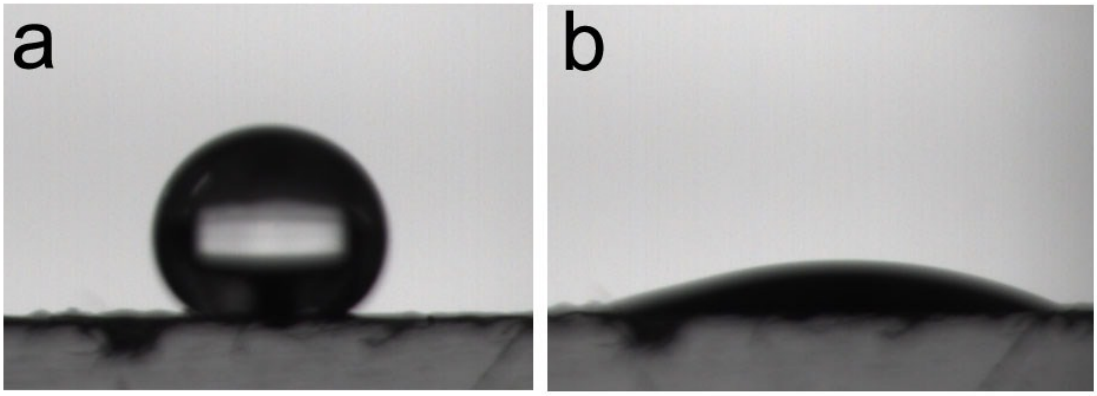

Figure S1. Contact angle test of HCS for (a) water and (b) DMF

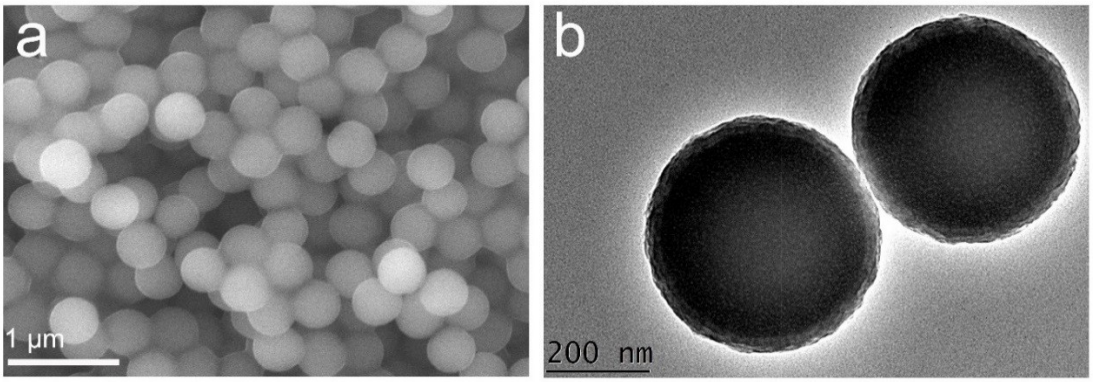

Figure S2. (a) FESEM and (b) TEM images of Polymer-SiO_2.

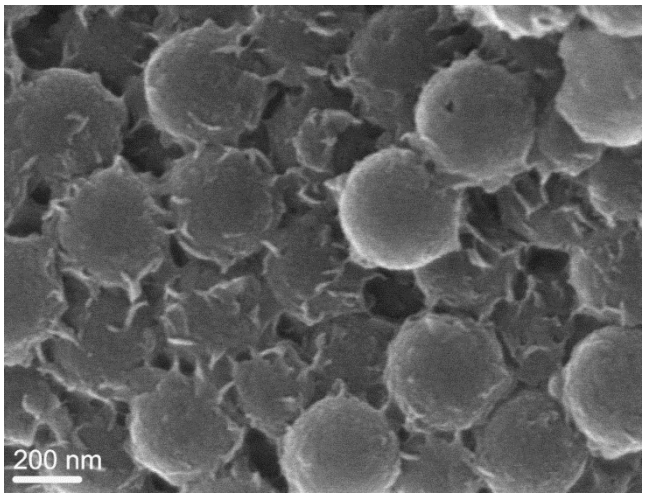

Figure S3. MoS_2-HCS synthesized through hydrothermal process

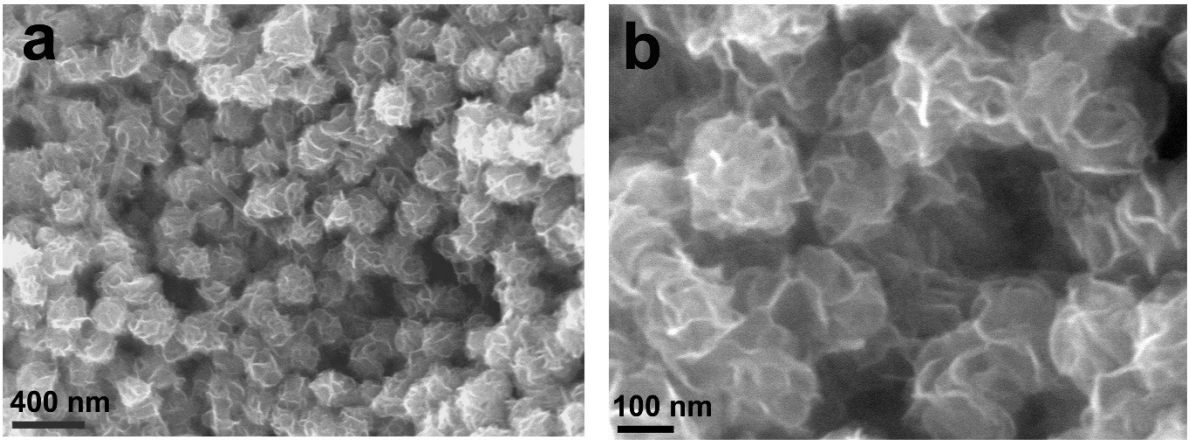

Figure S4. FESEM images of the MoS_2 nanosheets.

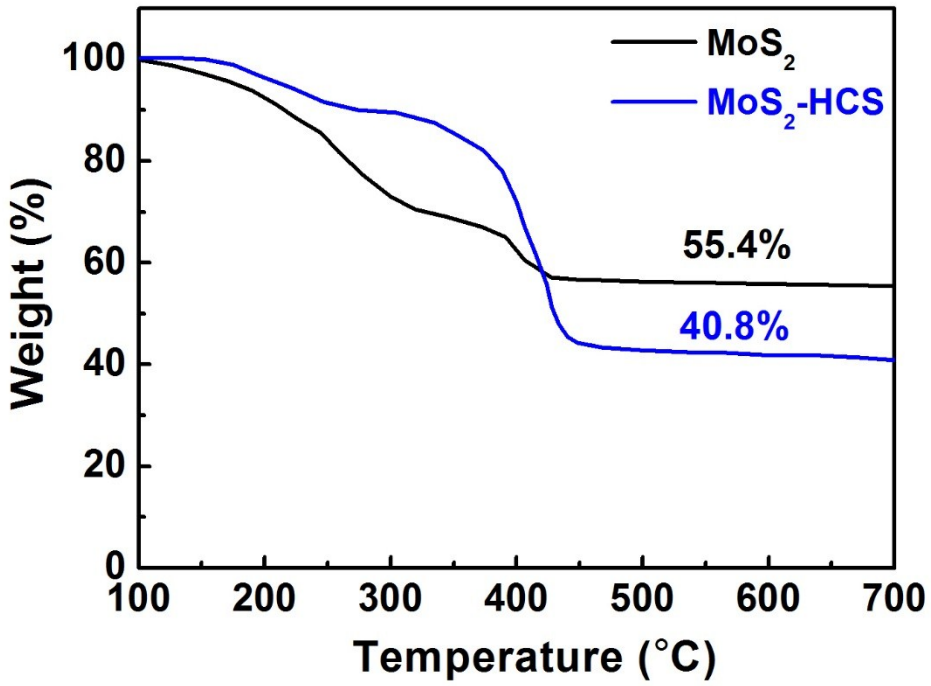

Figure S5. TGA curves of MoS_2-HCS nanospheres and bare MoS_2 nanoparticles at heating rate of 10 ℃ min^{-1} in air condition. The weight percentage of MoS_2 on the MoS_2-HCS can be assumed to be *X*. Assuming the carbon content is completely removed after combustion, according to the equation: 0.554 *X* = 0.408. So the *X* = 0.736. The weight loss of MoS_2-HCS is caused by combustion of carbon and MoS_2.

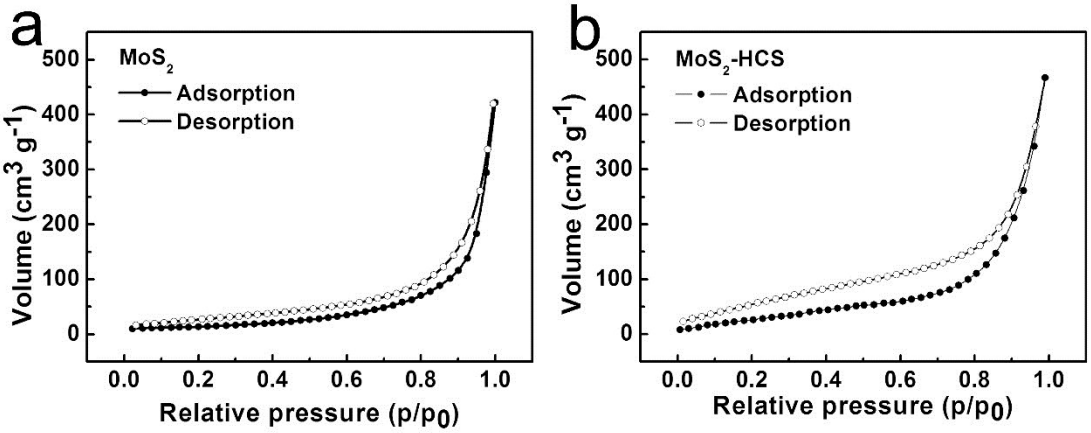

Figure S6. Nitrogen adsorption-desorption isotherms of (a) MoS_2 and (b) MoS_2-HCS

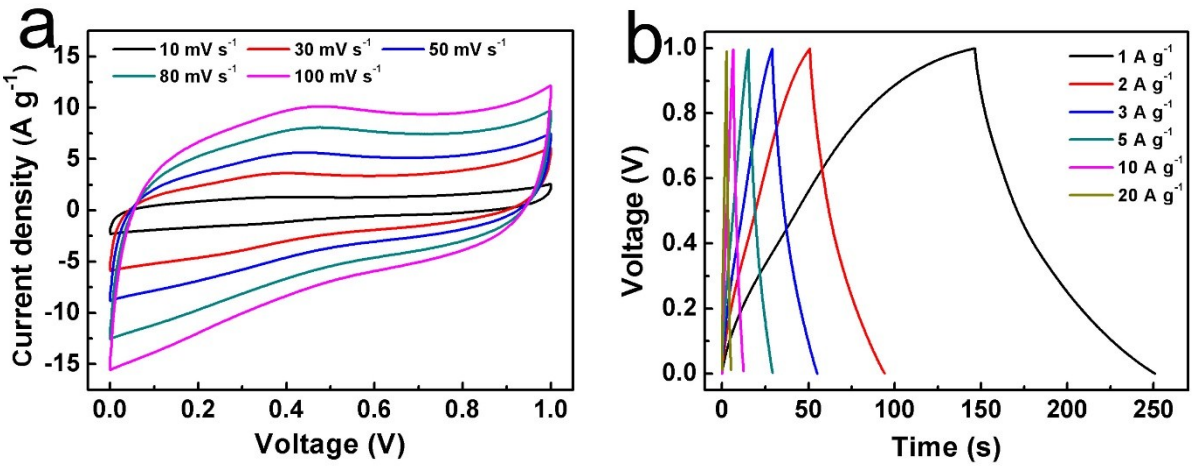

Figure S7. (a) CV and (b) GCD curves of the MoS_2 at different scan rates and current densities, respectively.

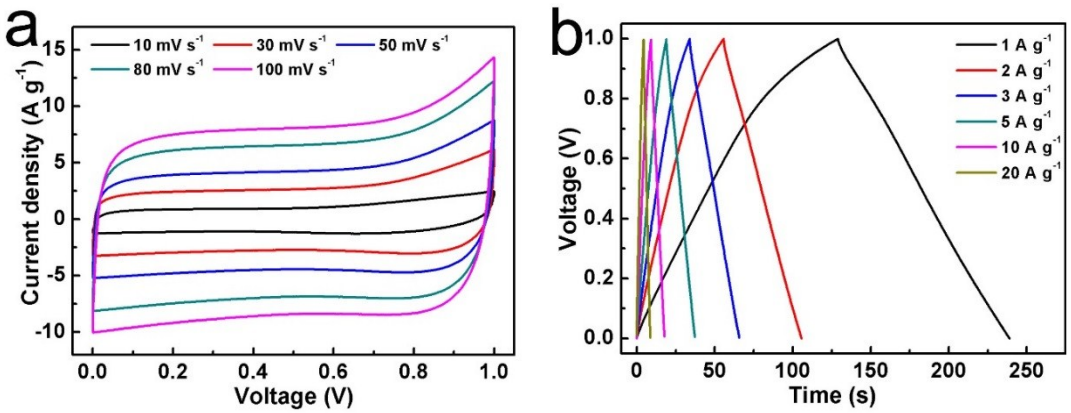

Figure S8. (a) CV and (b) GCD curves of HCS at different scan rates and current densities, respectively.

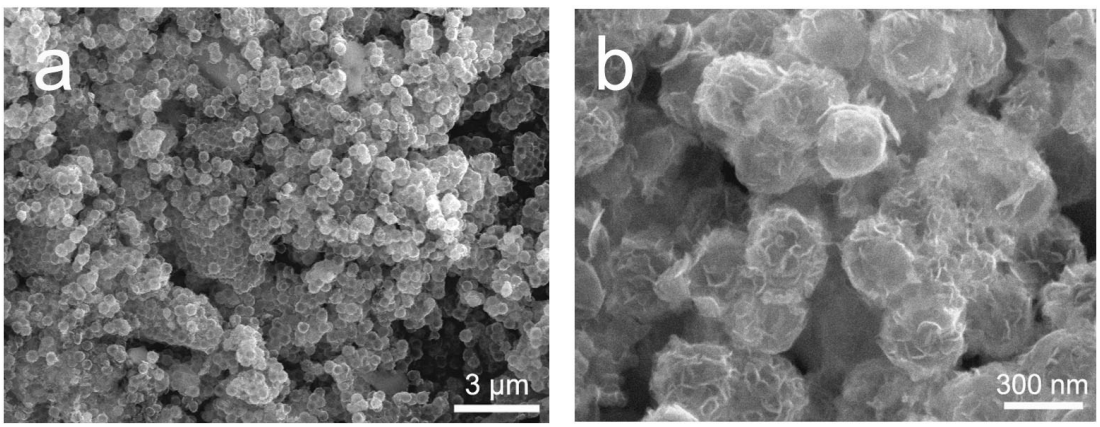

Figure S9. (a) SEM images of MoS_2-HCS at low magnification and (b) high manification after 1000 cycles of stability tests.