

Supplementary Material

1 Supplementary Figures

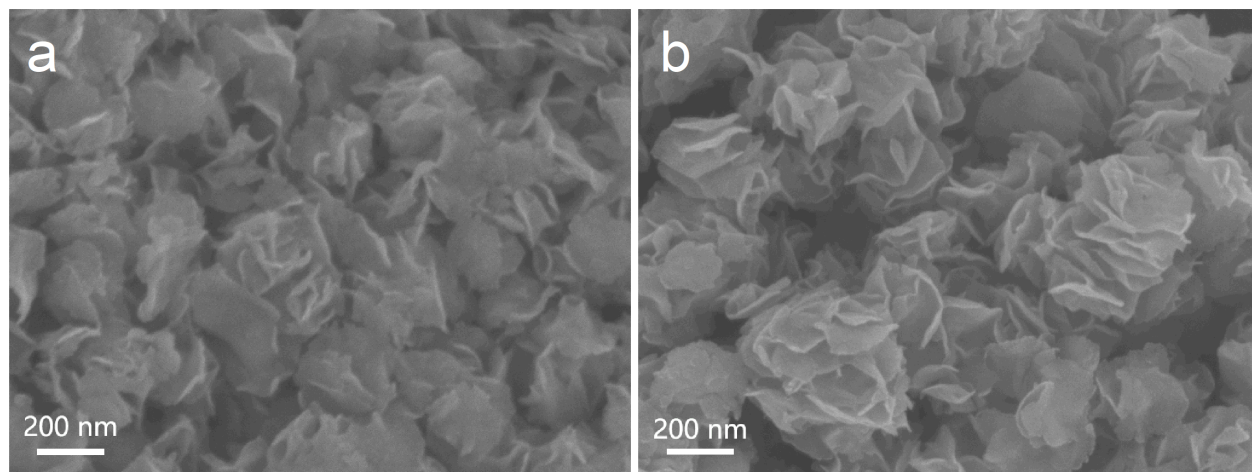


Figure S1. SEM image of MoS₂ (a) and MoS_{2-x} (b).

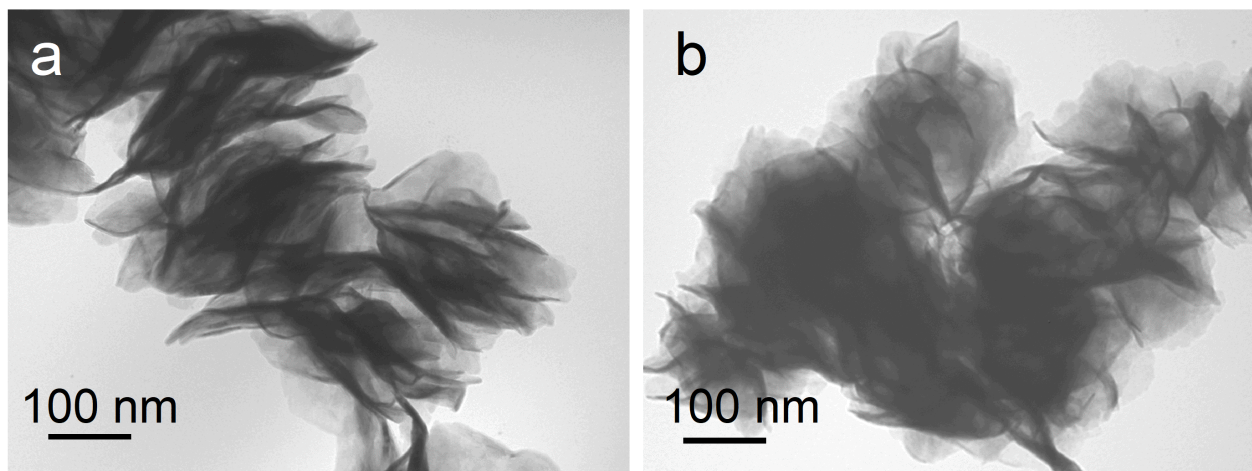


Figure S2. TEM image of MoS₂ (a) and MoS_{2-x} (b).

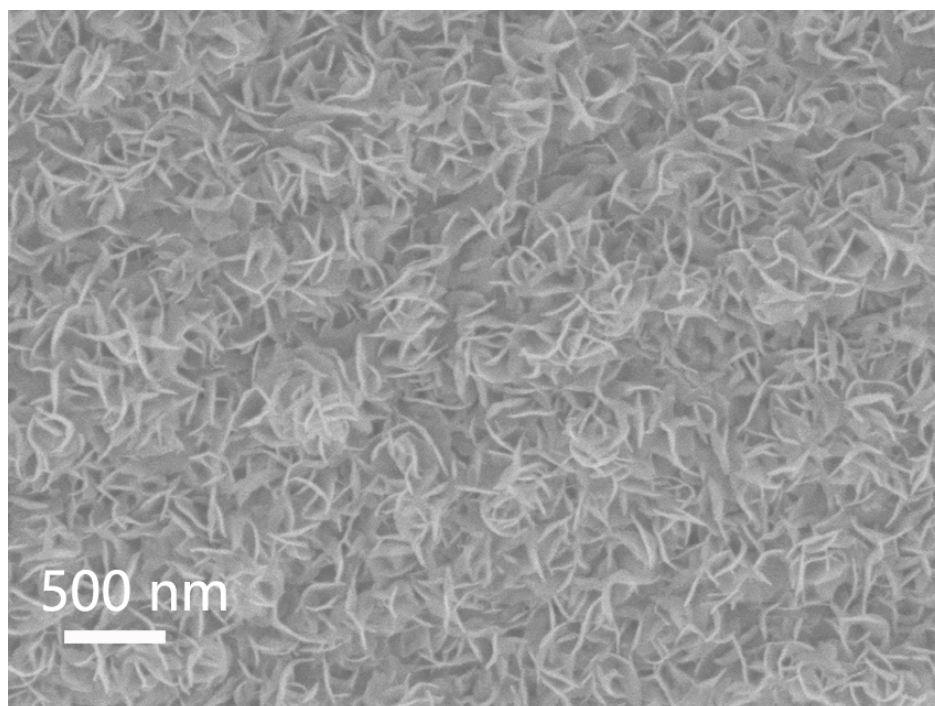


Figure S3. Enlarged SEM image of MoS_{2-x}.

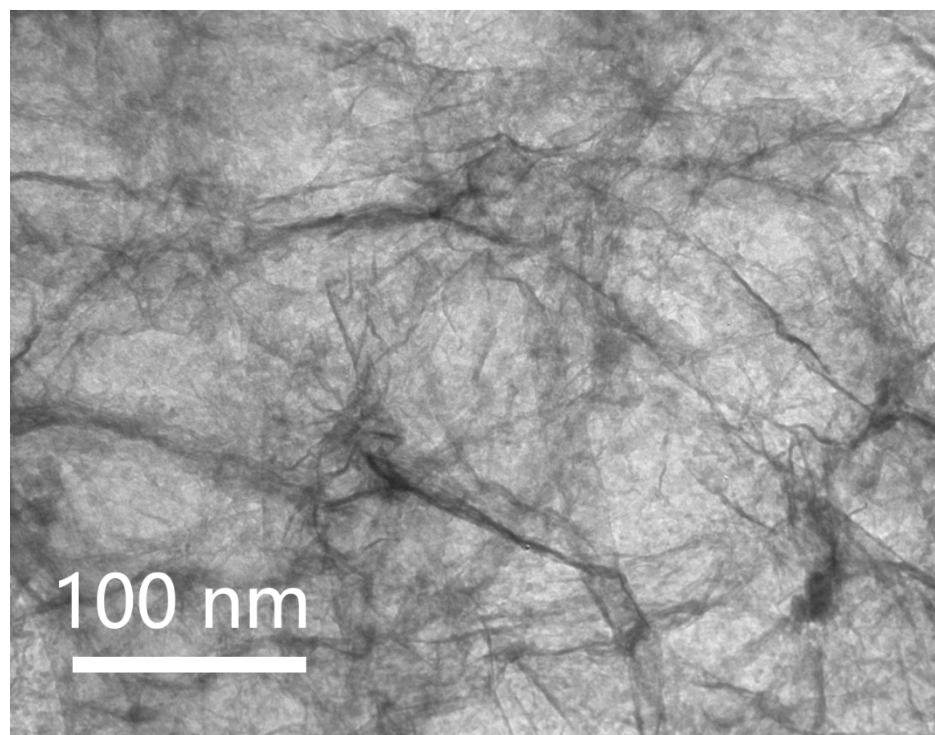


Figure S4. Enlarged TEM image of MoS_{2-x}.

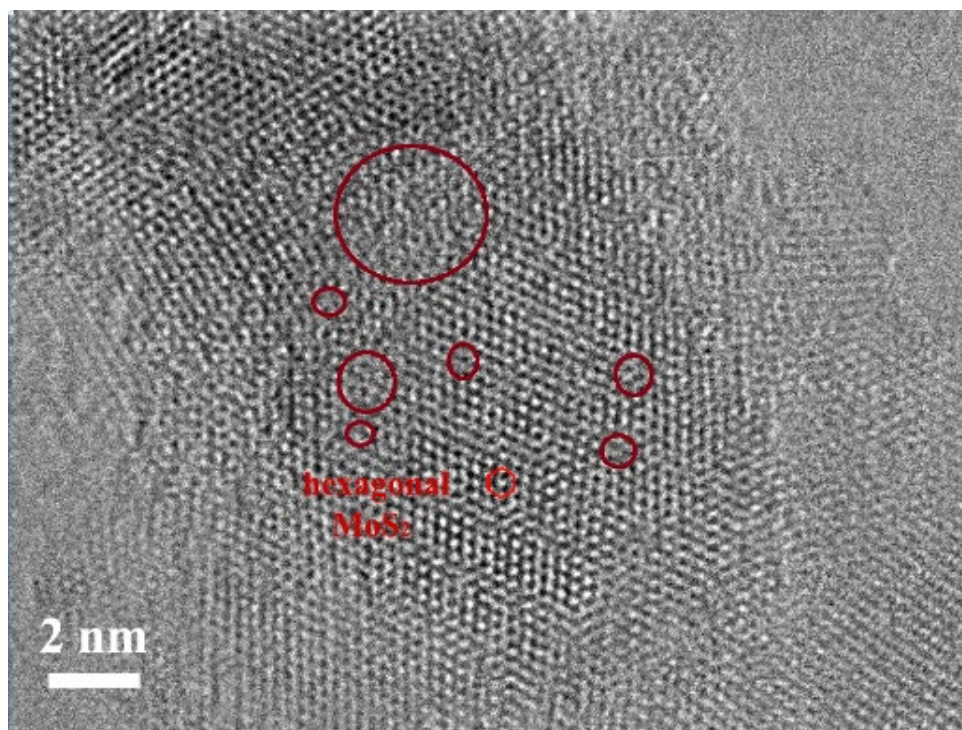


Figure S5. HRTEM image of hexagonal MoS_{2-x} basal plane.

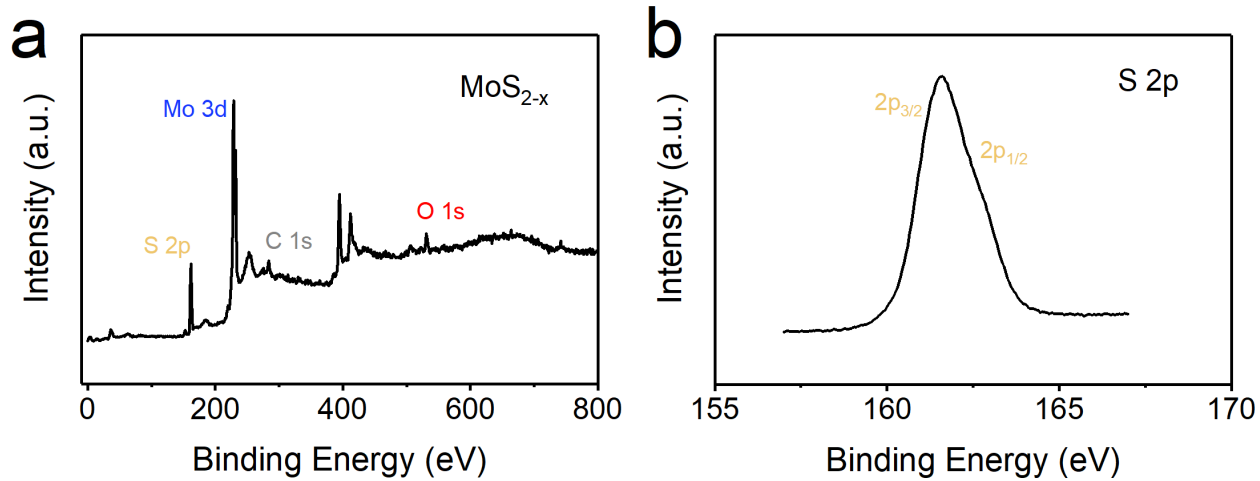


Figure S6. XPS survey scan (a) and S 2p spectra (b) of MoS_{2-x} .

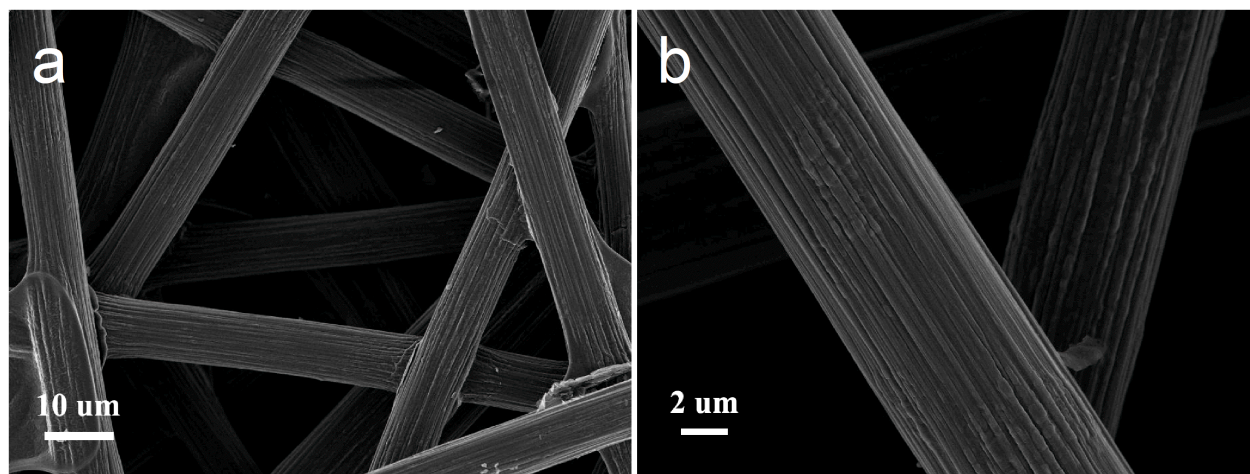


Figure S7. SEM image of carbon paper (a) and enlarged view (b).

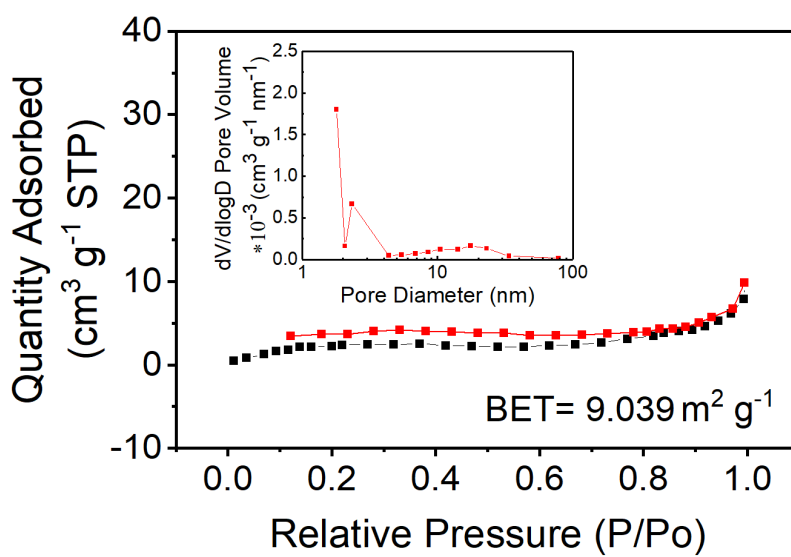


Figure S8. Nitrogen adsorption and desorption isotherms and pore-size distribution (insert) of carbon paper.

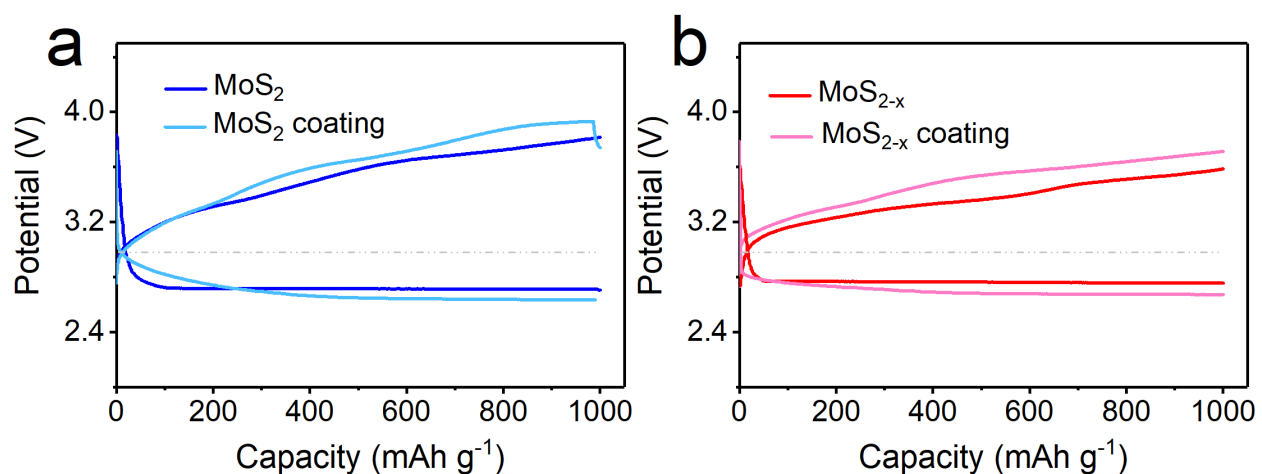


Figure S9. Galvanostatic discharge and charge profiles of MoS₂ and MoS₂ coating (a) and MoS_{2-x} coating (b) at the current of 500 mA g⁻¹ with the capacity cutoff of 1000 mA h g⁻¹.

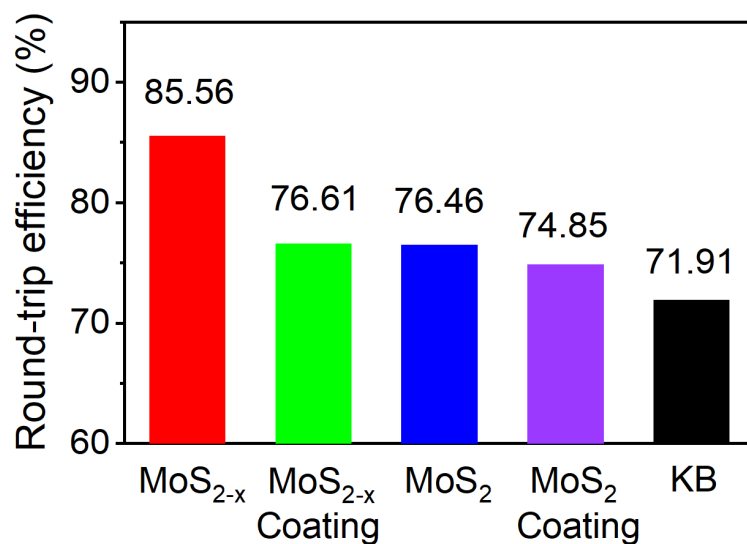


Figure S10. Round-trip efficiency of MoS_{2-x} (growing), MoS_{2-x} (coating), MoS₂ (growing), MoS₂ (coating) and Kejen Black (coating) on carbon paper.

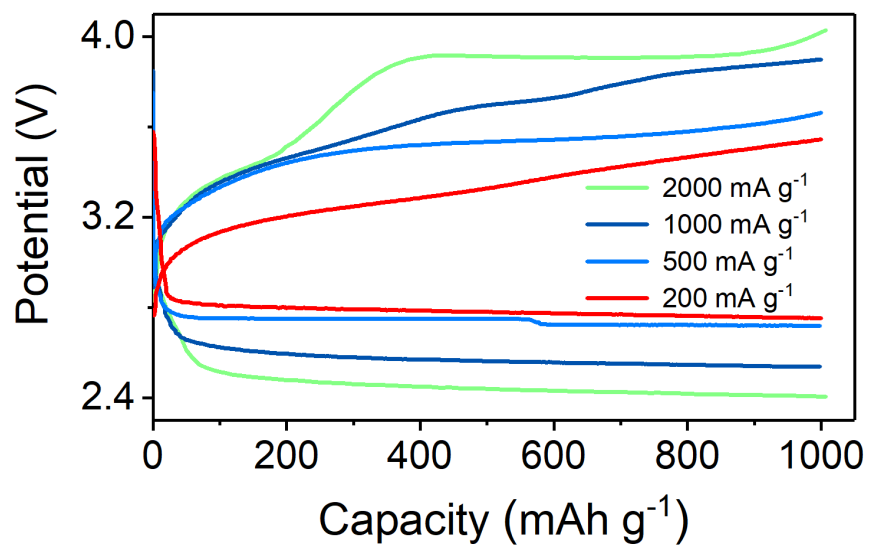


Figure S11. The rate performance of Li-O₂ battery with MoS_{2-x} cathode under current density varying from 200 mA g⁻¹ to 2000 mA g⁻¹.

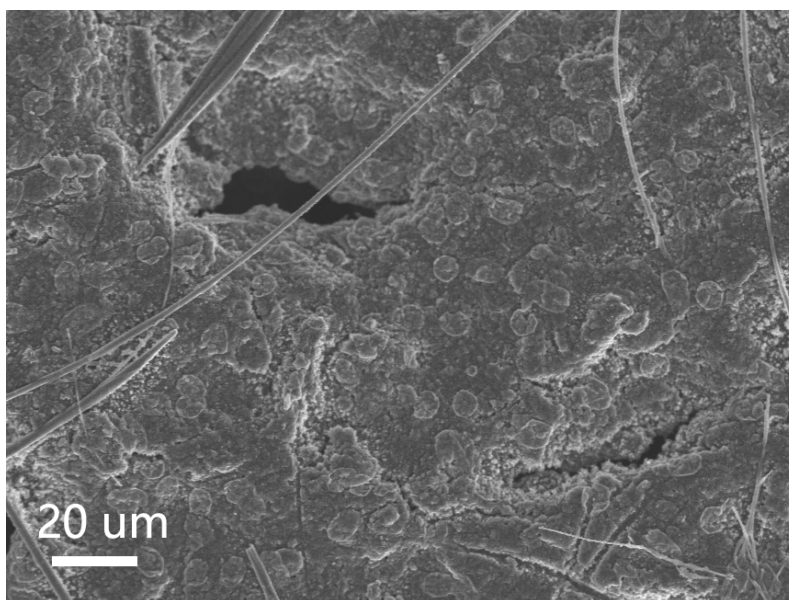


Figure S12. SEM image of MoS₂ cathode after discharge to 1000 mA h g⁻¹.