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Facile construction of flower-like MoO_2/MoS_2 heterostructures encapsulated in nitrogen-doped carbon for high-performance sodium-ion storage

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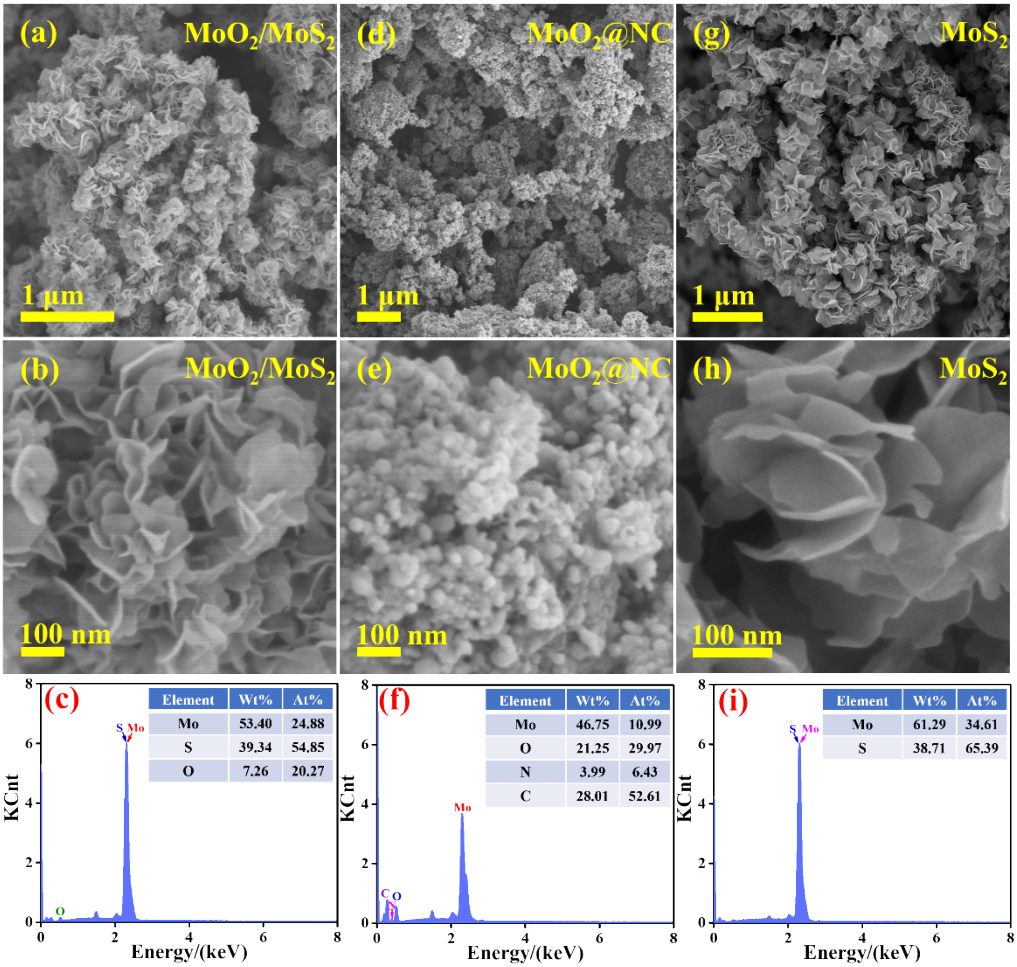
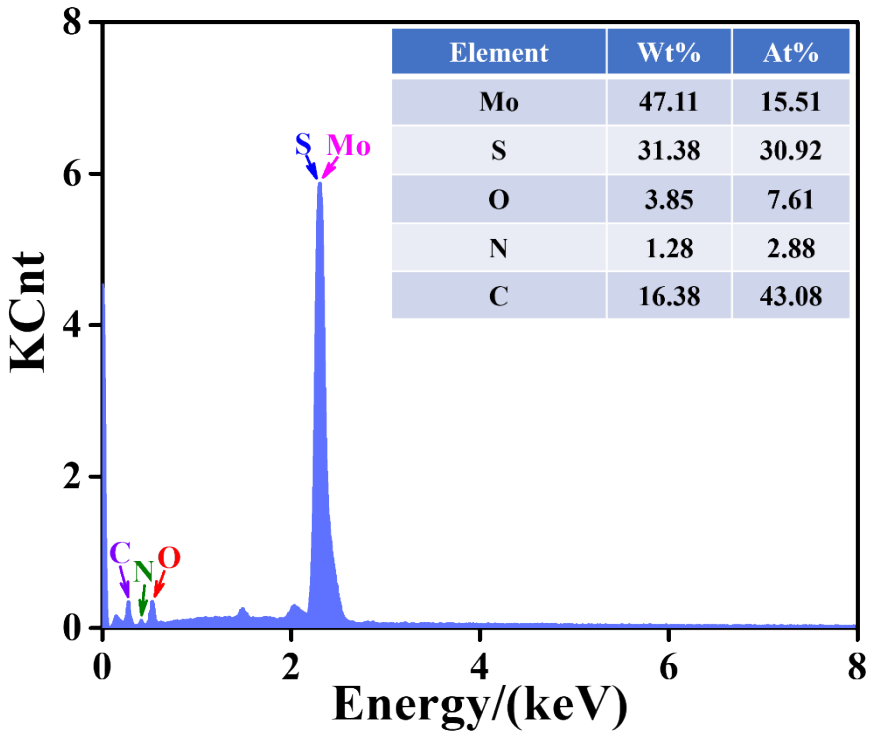


Fig. S1 Low- and high-resolution SEM images for (a-b) MoO_2/MoS_2, (d-e) MoO_2@NC, and (g-h) MoS_2, respectively; EDS spectra for (c) MoO_2/MoS_2, (f) MoO_2@NC, and (i) MoS_2, respectively.



Element	Wt%	At%
Mo	47.11	15.51
S	31.38	30.92
O	3.85	7.61
N	1.28	2.88
C	16.38	43.08

Fig. S2 EDS spectrum for the MoO_2/MoS_2@NC.

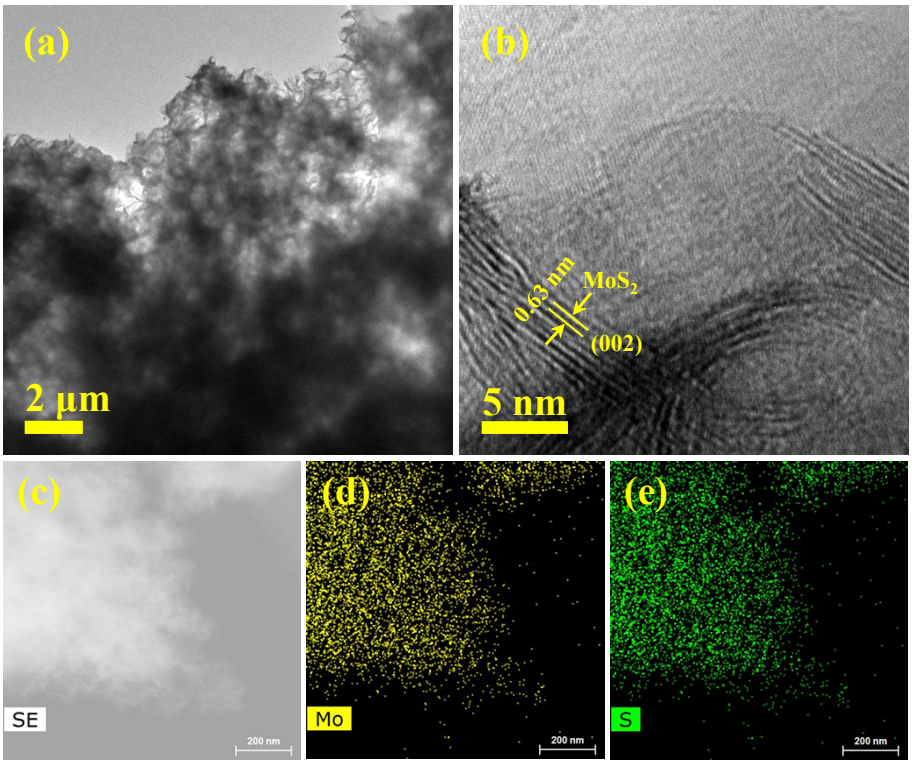


Fig. S3 (a) TEM and (b) HRTEM images for the MoS_2; (c-e) Elemental color mapping for MoS_2.

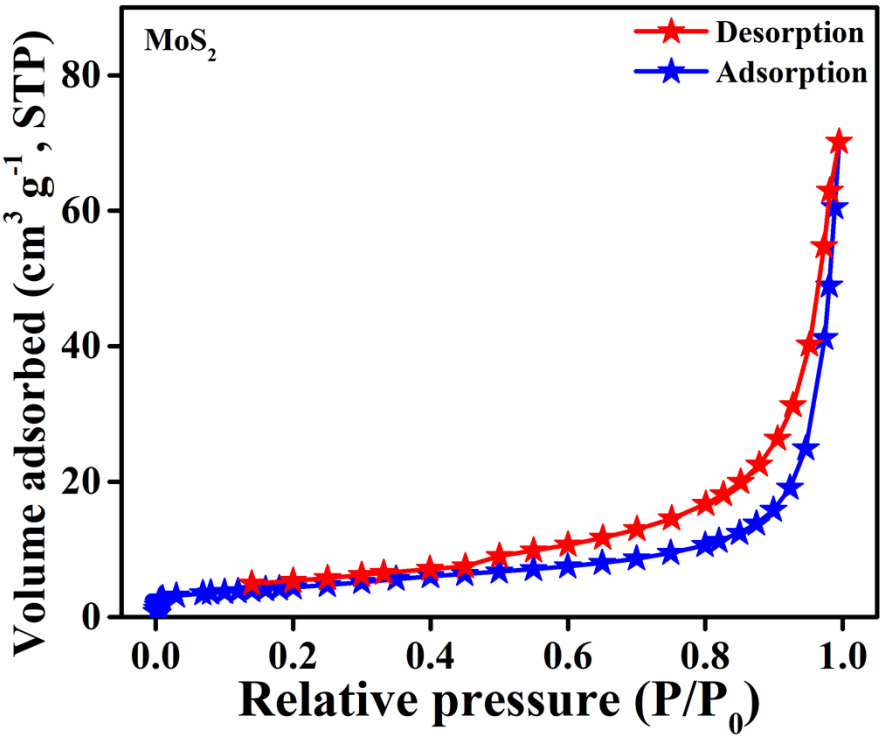


Fig. S4 N_2 adsorption-desorption isotherms for MoS_2.

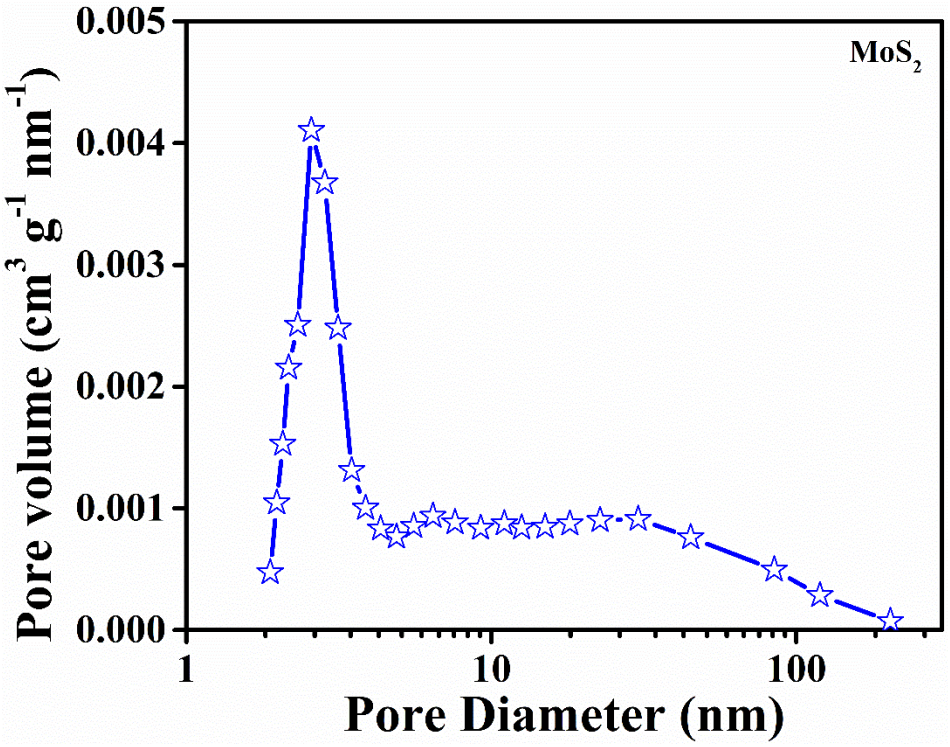


Fig. S5 Pore size distribution for the MoS_2.

Table S1 Rate performance comparisons for the MoO_2/MoS_2@NC, MoO_2/MoS_2, MoO_2@NC, and MoS_2 anodes.

Anodes	Current density (A g^{-1}) and Specific capacity (mAh g^{-1})					
	0.1 A g^{-1}	**0.5**	**2.0**	**5.0**	**10.0**	**0.1**
MoO_2/MoS_2@NC	593.1 mAh g^{-1}	524.2	456.1	395.8	337.5	630.6
MoO_2/MoS_2	487.3 mAh g^{-1}	420.9	372.9	312.5	258.4	468.6
MoO_2@NC	346.9 mAh g^{-1}	296.5	266.1	228.7	199.4	311.7
MoS_2	388.7 mAh g^{-1}	352.4	308.2	258.1	203.7	392.4

Table S2 EIS spectra fitting results for the MoO_2/MoS_2@NC, MoO_2/MoS_2, MoO_2@NC, and MoS_2 anodes in Na half-cells.

Anodes	R_e (Ω)	R_{ct} (Ω)
MoO_2/MoS_2@NC	4.3	330
MoO_2/MoS_2	5.2	362
MoO_2@NC	4.6	343
MoS_2	9.9	378