Supporting information

Instant Gelation Synthesis of 3D Porous MoS_2@C Nanocomposites for Lithium Ion Batteries

Ling Fei[a], Yun Xu[a], Xiaofei Wu[a], Gen Chen[a], Yuling Li[a], Binsong Li[b], Shuguang Deng[a], Sergei Smirnov[c], Hongyou Fan[b], and Hongmei Luo[a]*

[a]Department of Chemical Engineering, New Mexico State University, Las Cruces, New Mexico 88003, United States

[b]Advanced Materials Laboratory, Sandia National Laboratories, Albuquerque, New Mexico 87106, United States.

[c]Department of Chemistry and Biochemistry, New Mexico State University, Las Cruces, New Mexico 88003, United States

Figure S1. Four examples of the "jelly" formed from different polyatomic anions (inset).

Table S1. (Pauling) Electronegativity of a few elements.

Elements	O	Cl	N	C	S	P	Au	Fe	Mo	Mn	Cr
electronegativity value	3.5	3.0	3.0	2.5	2.5	2.1	1.9	1.7	1.6	1.6	1.6

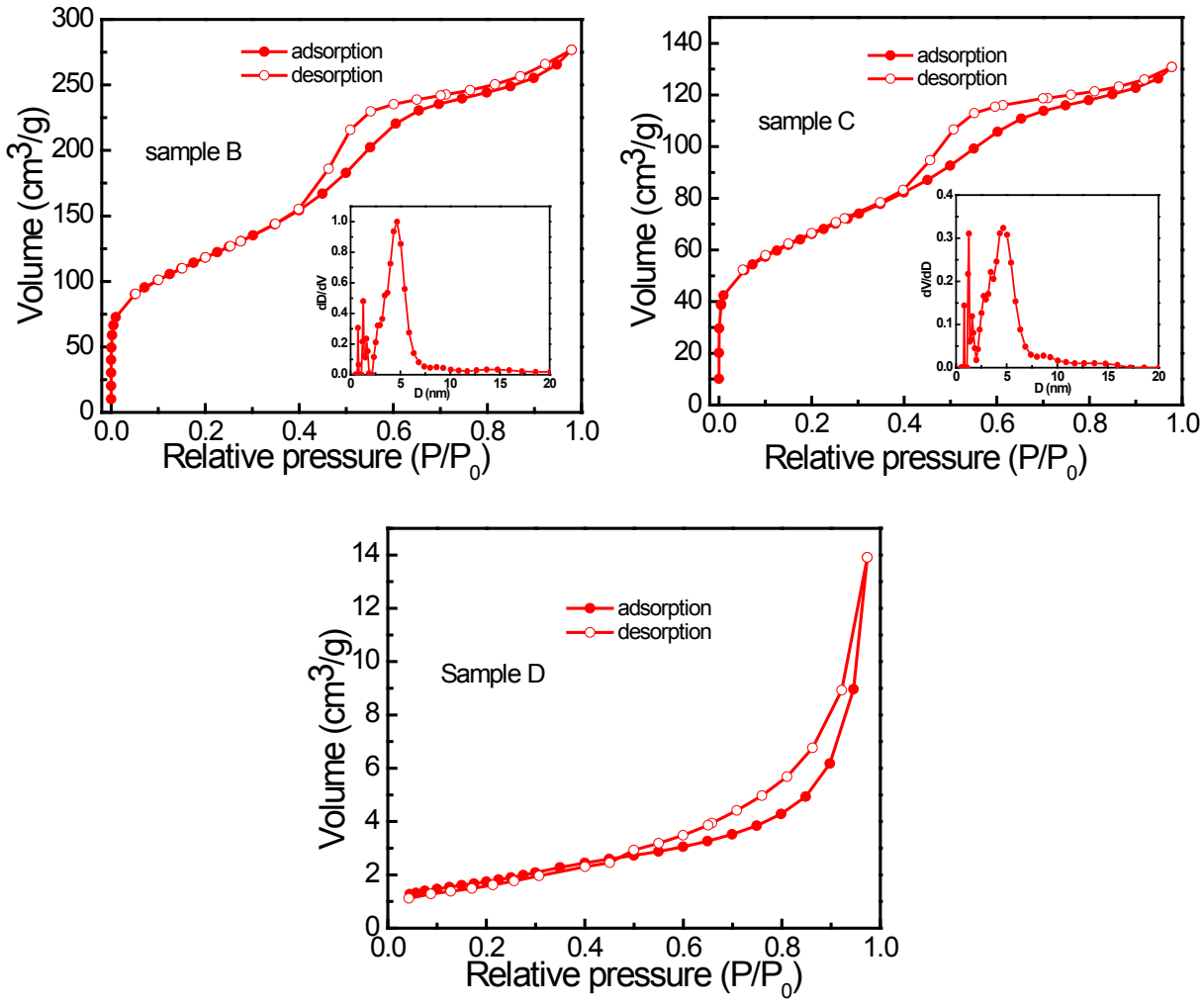

Figure S2. N_2 adsorption/desorption isotherm of samples B, C, D at 77 K.

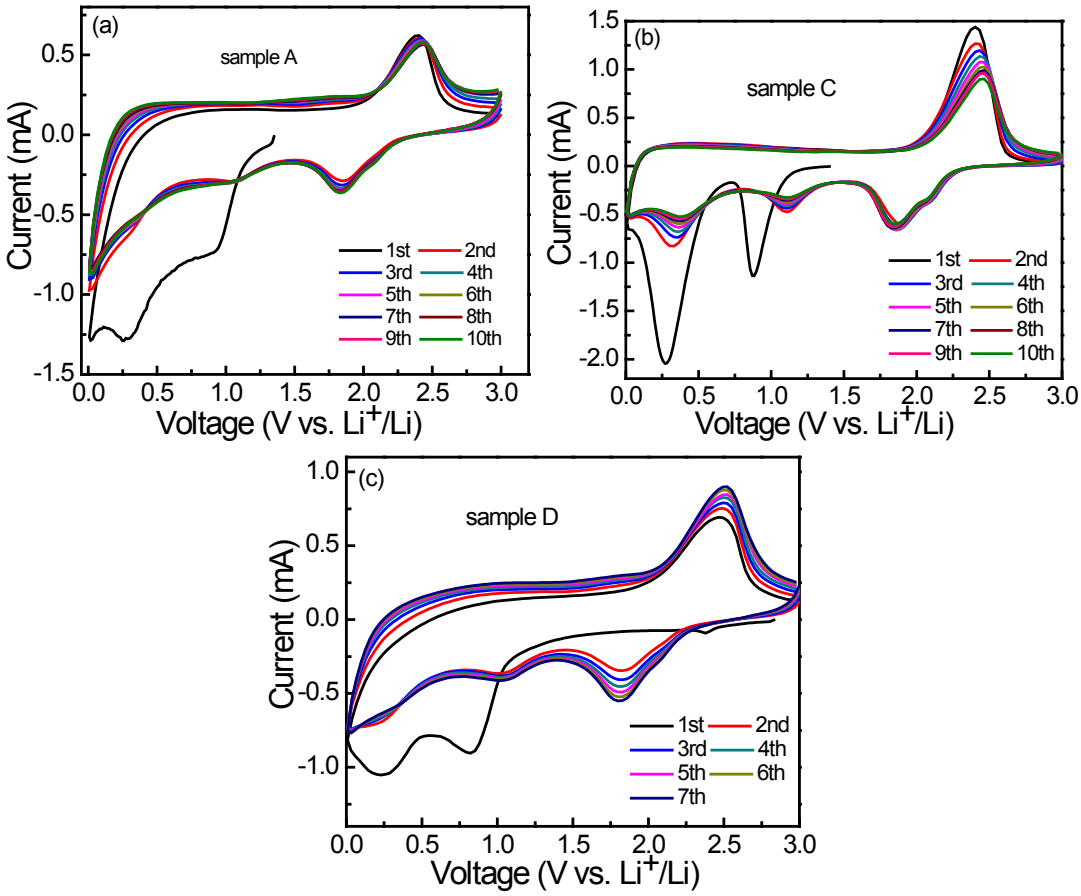

Figure S3. cyclic voltammetry profiles of (a) sample A; (b) sample C; (c) sample D, recorded at the scan rate of 0.5 mV/s in the voltage window of 0.005-3 V vs. Li^+/Li.

Table S2. Data summarized from the cyclic performance of the four samples

		A	B	C	D
1st cycle	charge capacity (mAh g^{-1})	555.7	679.6	731.3	719.8
	discharge capacity	1405.7	1281.6	1155.3	814.4
	efficiency (%)	39.5	53	63.3	88.4
2nd cycle	charge capacity	590	742.9	738.1	734.1
	discharge capacity	678.6	814.3	778.9	759.4
	efficiency	86.9	91.2	94.8	96.7
3rd cycle	charge capacity	592.9	759.2	739.2	729.7
	discharge capacity	657.1	810.2	763.4	747.3
	efficiency	90.2	93.7	96.9	97.6
50th cycle	charge capacity	484.3	642.9	596.4	381.3
	discharge capacity	491.4	657.1	608.8	394.5
	efficiency	98.5	97.8	98.0	96.7