

Supporting Information

Composite $\text{K}_2\text{Mo}_4\text{O}_{13}/\alpha\text{-MoO}_3$ Nanorods: Sonochemical Preparation and Applications for Advanced Li^+/Na^+ Pseudocapacitance

Mingxiang Hu ^{a,b}, Huijuan Jing ^a, Tao Li ^c, Jiahao Wang ^a, Huaming Yang ^d, Ruitao Lv ^{b,*}, Deliang Chen ^{a,c,*}

^aSchool of Materials and Science Engineering, Zhengzhou University, Zhengzhou 450001, PR China.

^bState Key Laboratory of New Ceramics and Fine Processing, School of Materials Science and Engineering, Tsinghua University, Beijing 100084, PR China.

^cSchool of Materials and Science Engineering & Chemical Engineering and Energy Technology, Dongguan University of Technology Dongguan 523808, PR China

^dDepartment of Inorganic Materials, School of Resources Processing and Bioengineering, Central South University, Changsha 410083, PR China

***Corresponding Authors:** Professor Dr. Deliang Chen, E-mail: dlchen@zzu.edu.cn; Professor Dr. Ruitao Lv, E-mail: lvruitao@tsinghua.edu.cn

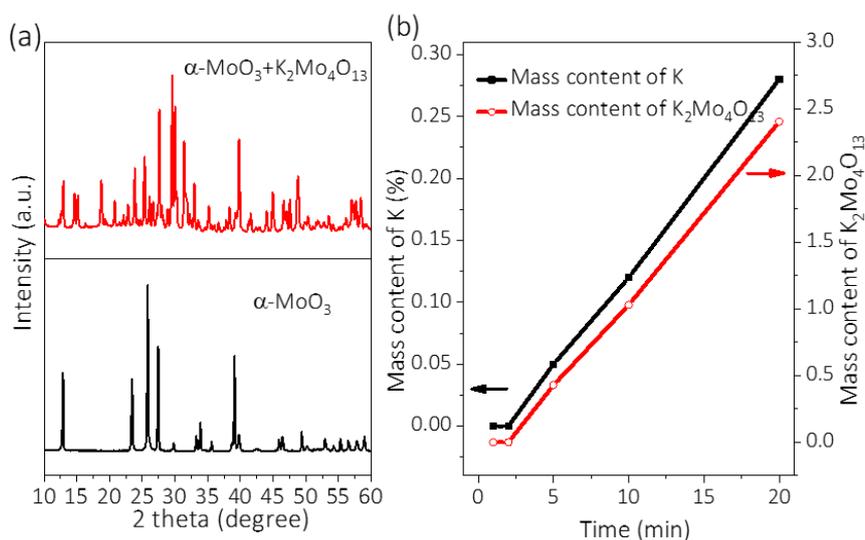


Figure S1. (a) X-ray diffraction (XRD) patterns of $\alpha\text{-MoO}_3/\text{K}_2\text{Mo}_4\text{O}_{13}$ and $\alpha\text{-MoO}_3$ (CMO) powders derived from commercial molybdic acid; (b) Mass ratios of element K and compound $\text{K}_2\text{Mo}_4\text{O}_{13}$ in KMO (derived from plate-liked MoO_3 .)

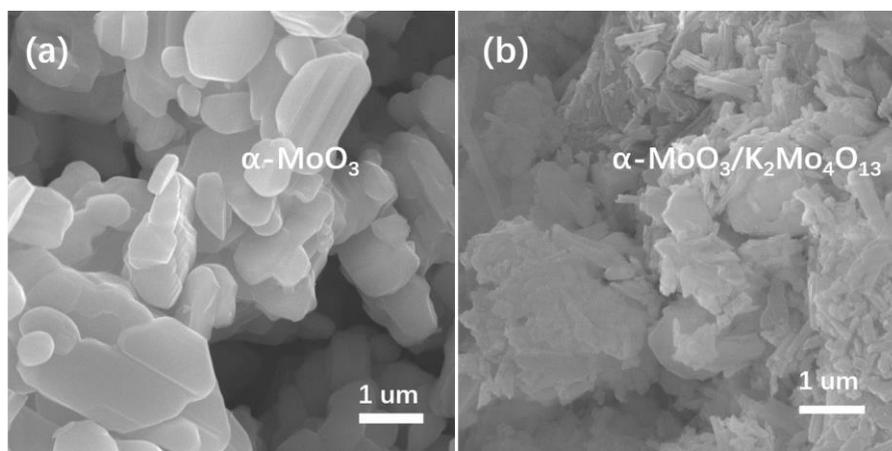


Figure S2. Scanning electron microscope (SEM) images of (a) CMO ($\alpha\text{-MoO}_3$ powders derived from commercial molybdic acid), and (b) KMO ($\alpha\text{-MoO}_3/\text{K}_2\text{Mo}_4\text{O}_{13}$).

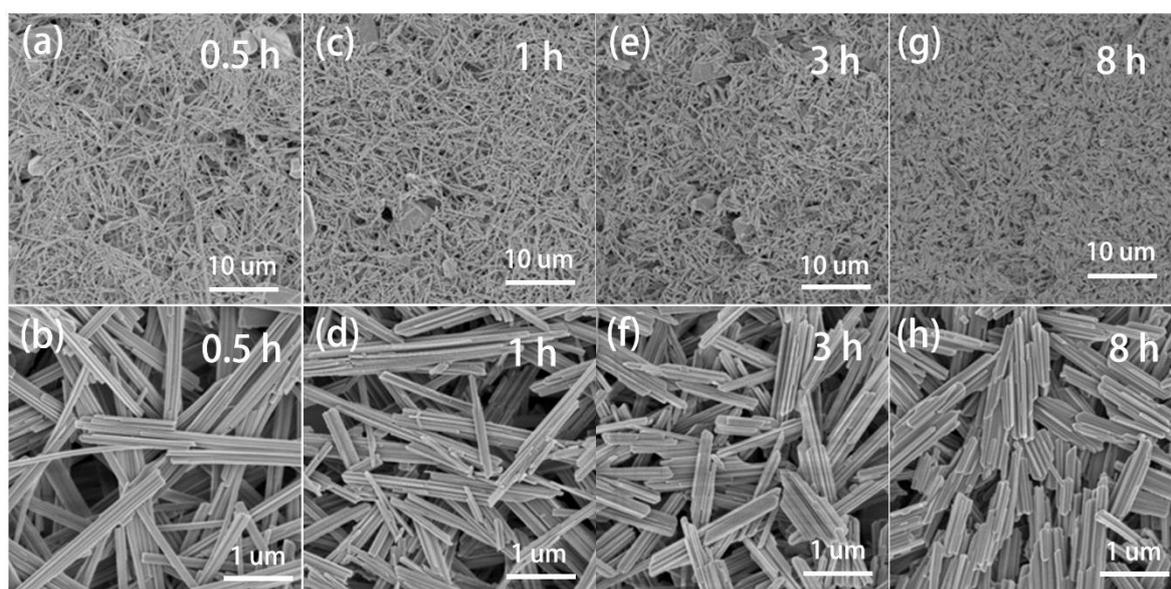


Figure S3. SEM images of KMO with different sonication time: (a, b) 0.5 h; (c, d) 1 h; (e, f) 3 h and (g, h) 8 h.

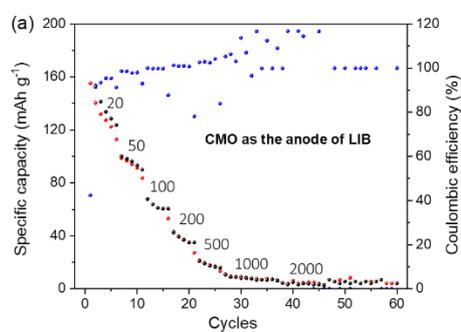


Figure S4. (a) Rate performance of the CMO powders as anodes in LIBs.

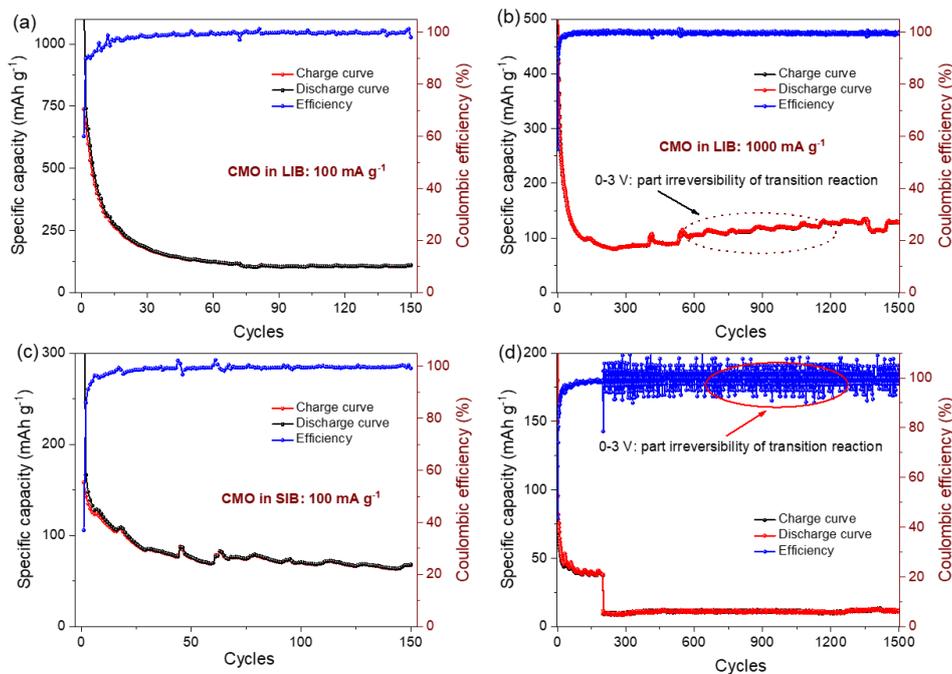


Figure S5. (a,b) Cycling performance of CMO in LIB at (a) 0.1 A g^{-1} and (b) 1 A g^{-1} ; (c,d) Cycling performance of CMO in SIB at (c) 0.1 A g^{-1} and (d) 1 A g^{-1} .

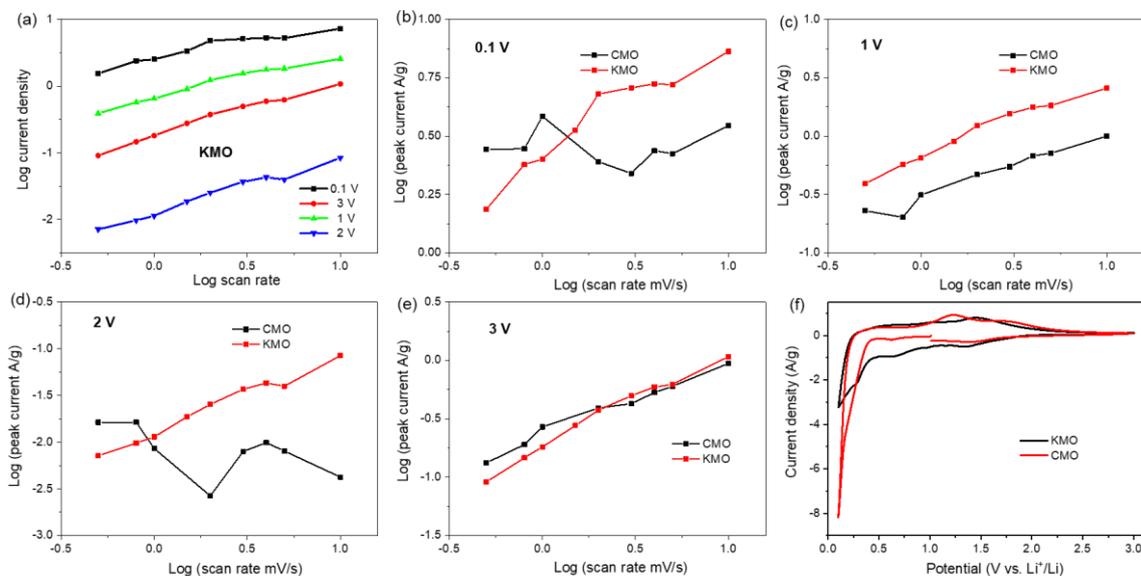


Figure S6. Determination of b values ($i=av^b$) based on the linear relation of $\log(i, \text{ peak current})$ versus $\log(v, \text{ scan rate})$: (a) KMO in LIBs at various potentials; (b-e) Comparison of CMO and KMO at (b) 0.1 V , (c) 1 V and (d) 2 V and (e) 3 V ; (f) Comparison of CV curves of KMO and CMO in SIBs.

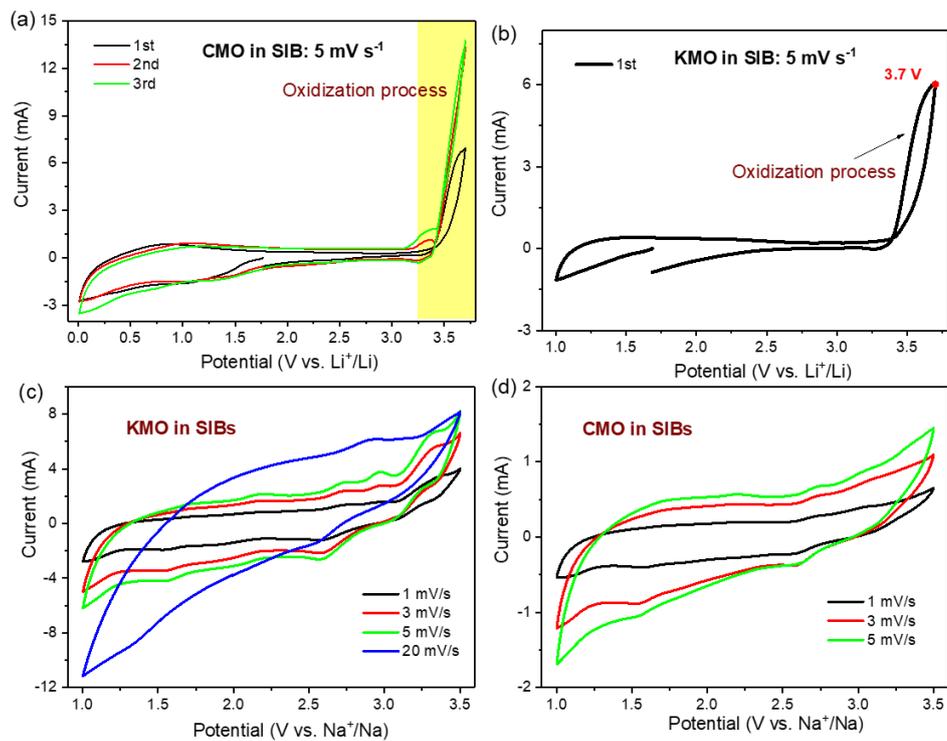


Figure S7. (a) Initial CV curves of CMO in SIB at 5 mV s⁻¹; (b) CV curve of the first cycle of KMO in SIB at 5 mV s⁻¹; (c) CV curves of KMO in SIBs under various scan rates; (d) CV curves of CMO in SIBs under various scan rates.