

Supplementary Information

High lithium storage properties in manganese sulfide anode via an intercalation-cum-conversion reaction

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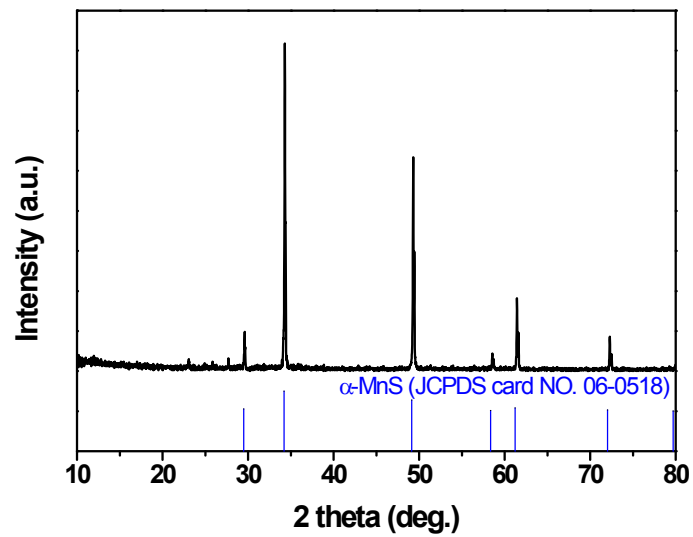


Fig. S1 XRD pattern of the commercial MnS powder.

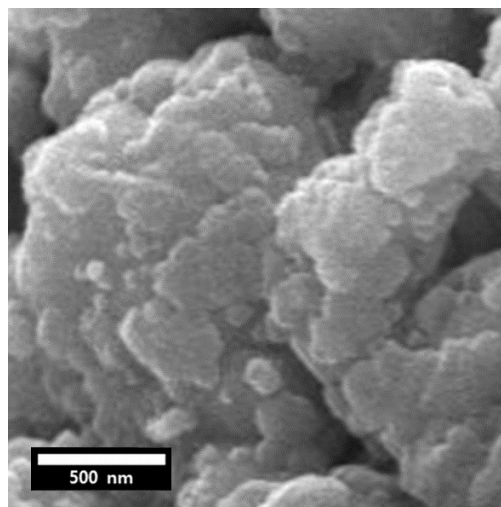


Fig. S2 SEM image of the commercial MnS powder.

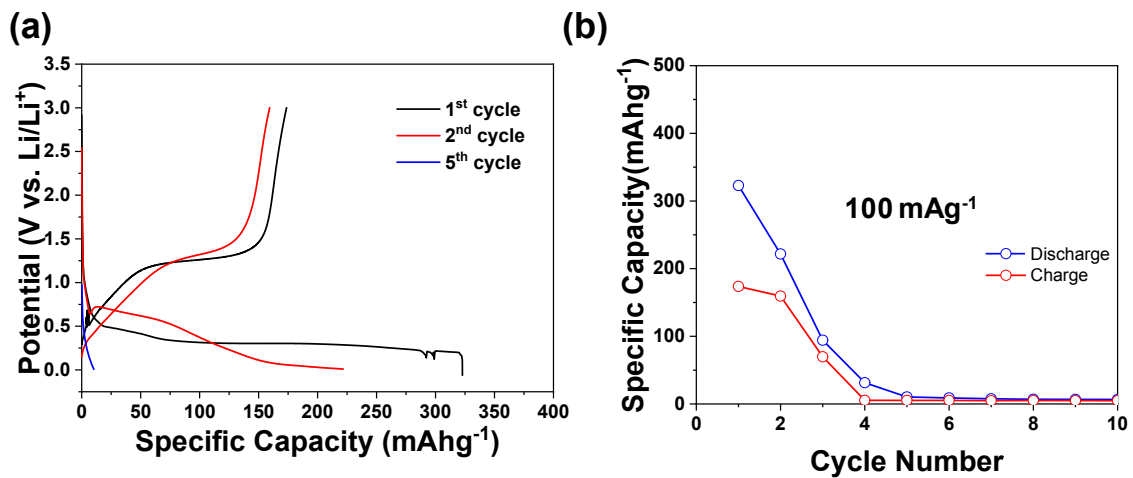


Fig. S3 (a) Discharge/charge curves and (b) cycle performance of the commercial MnS electrode.

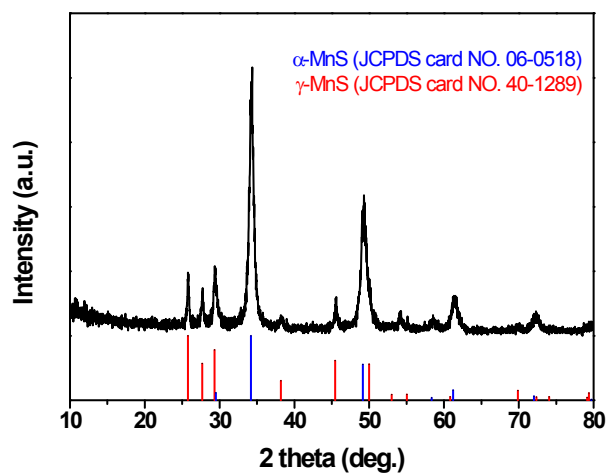


Fig. S4 XRD pattern of the as-prepared MnS after polyol reaction.

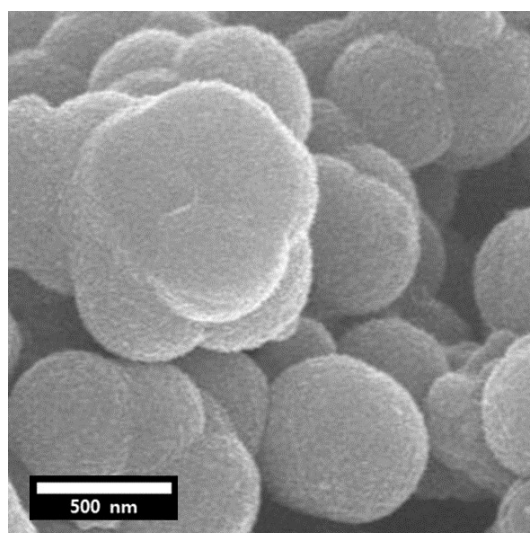


Fig. S5 SEM image of the as-prepared MnS powder.

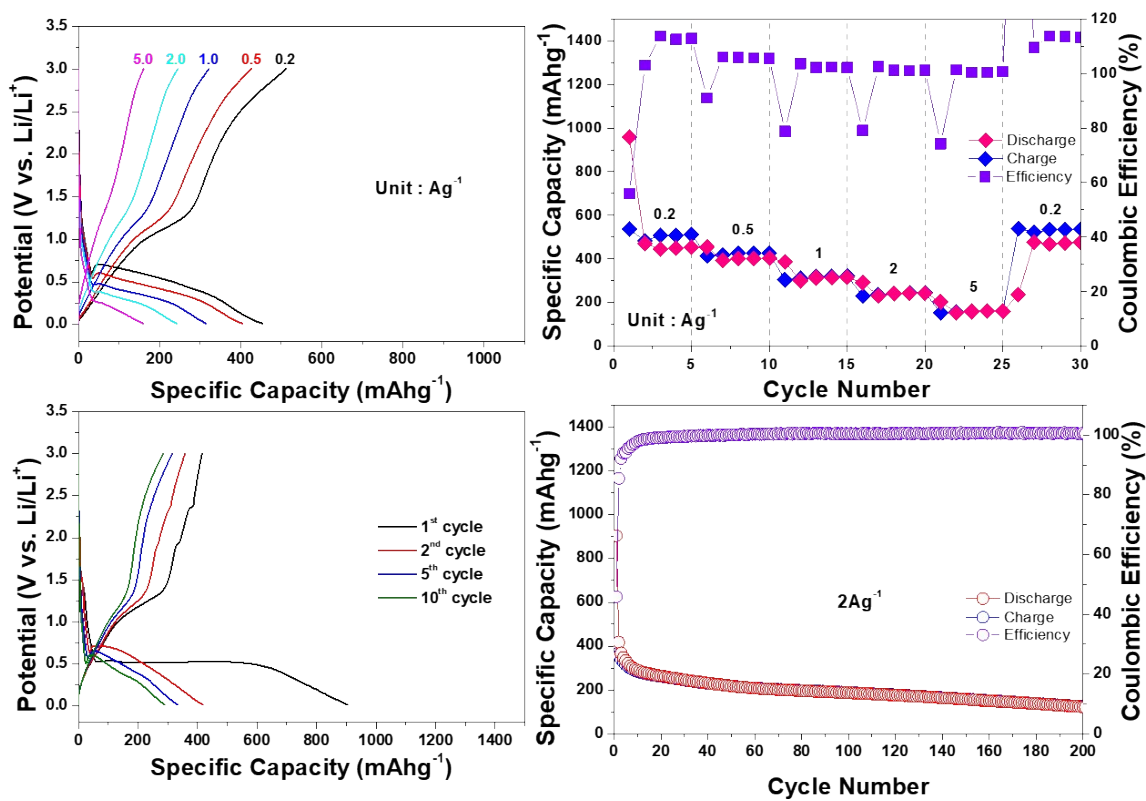


Fig. S6 Electrochemical properties of the as-prepared MnS electrode including discharge/charge curves at different current densities, C-rate and Cycling performances.

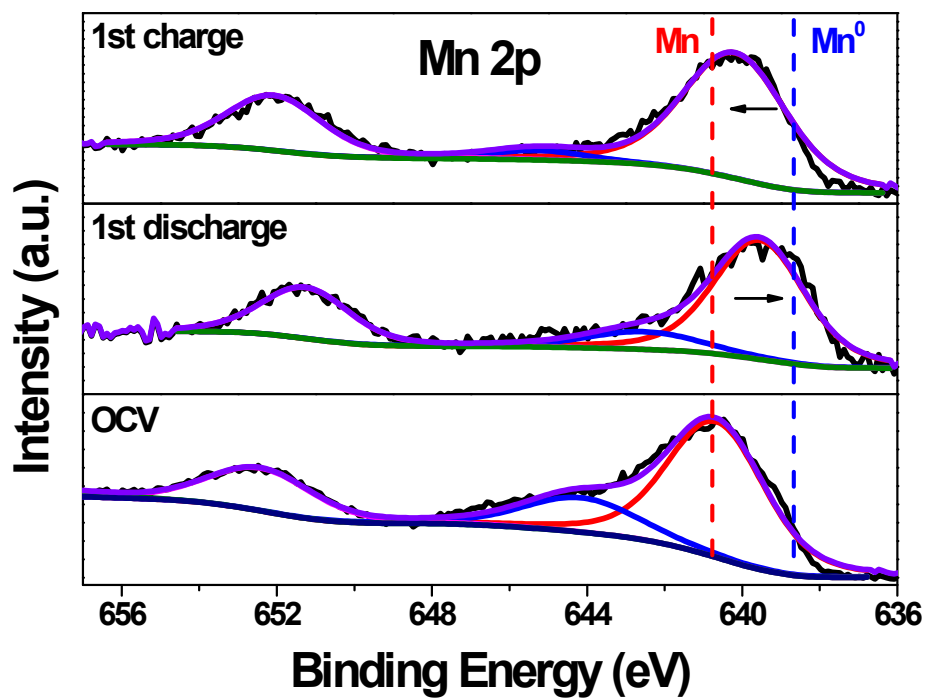


Fig. S7 Ex situ Mn XPS spectra α -MnS@NS-C electrode at OCV and fully discharged and charged states of the initial cycle.

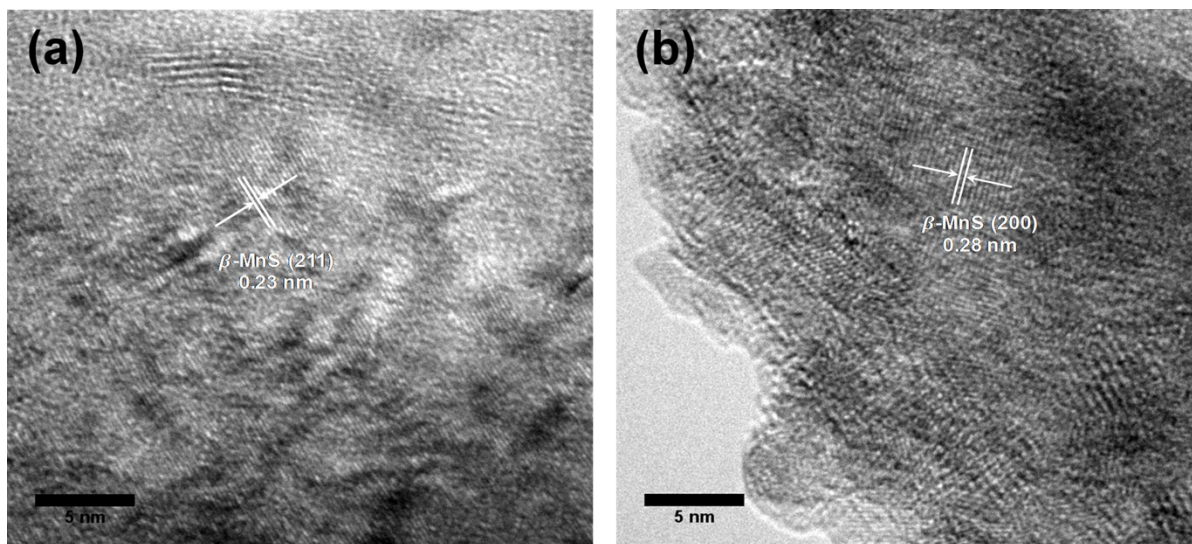


Fig. S8. Ex situ HRTEM images of α -MnS@NS-C after initial (a) discharged and (b) charged states.

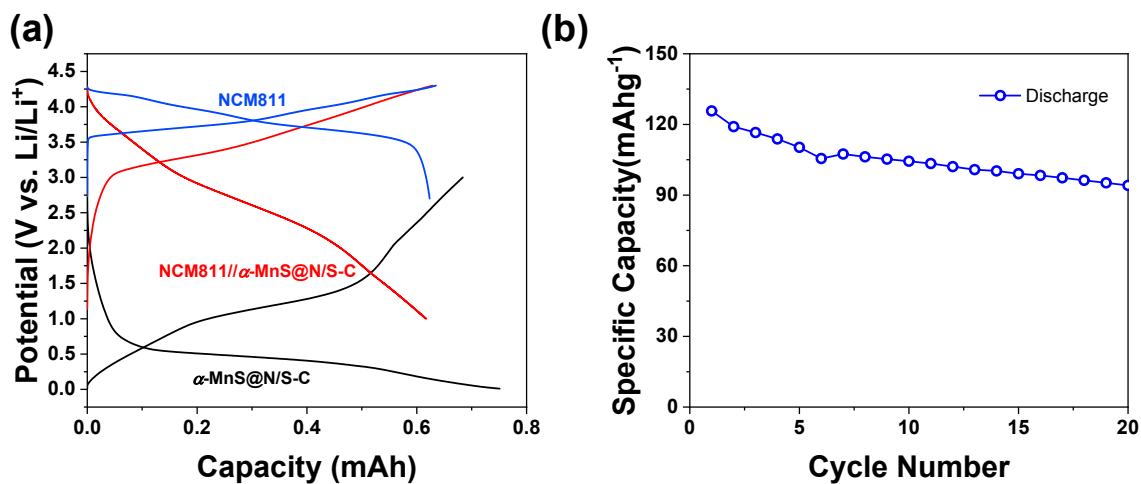


Fig. S9. (a) Optimization of potential window for the full cell using half-cell data for the NCM811 cathode and the α -MnS@NS-C electrode; Electrochemical performance of α -MnS@NS-C/1 M LiPF₆-EC-DMC / NCM 811 full-cell and (b) cyclability plot in the potential range of 1 – 4.3 V at 20 mA g⁻¹.