Electronic Supplementary Material (ESI) for Energy & Environmental Science

Synthesis of Mo_2N Nanolayer Coating MoO_2 Hollow Nanostructures as High-Performance Anode Materials for Lithium-Ion Batteries

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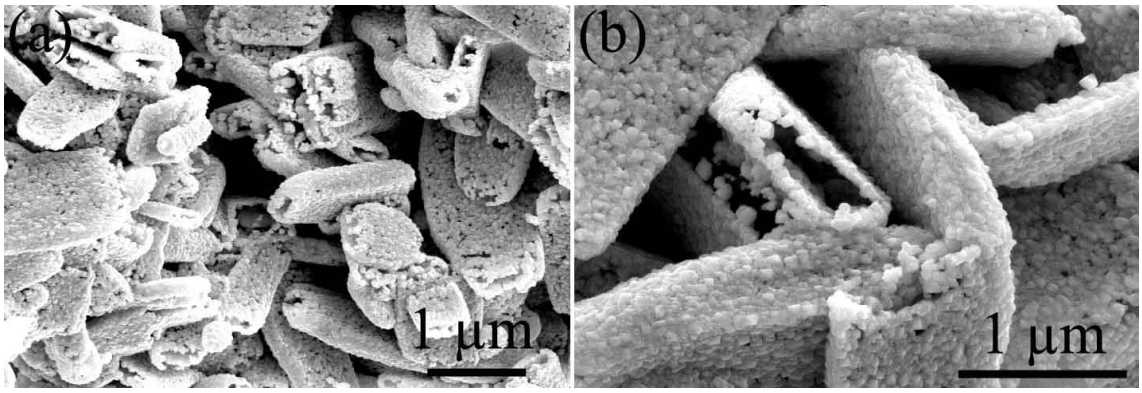

Figure SI-1. SEM images of the bare MoO_2 hollow nanostructures.

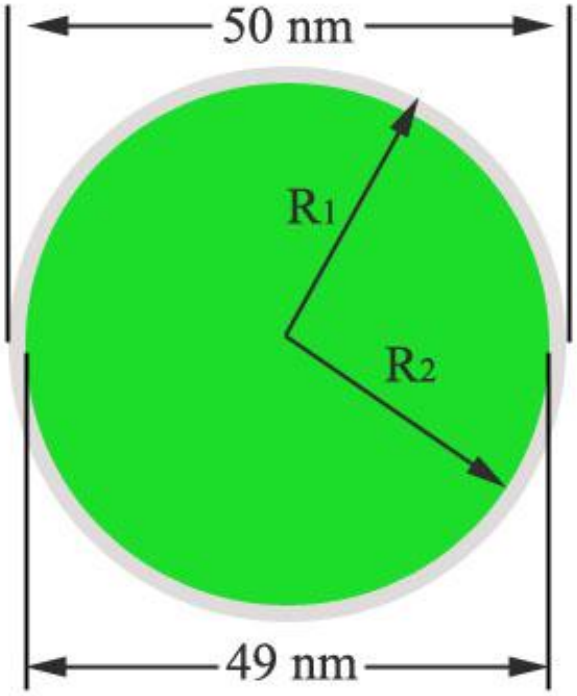

Figure SI-2. Illustrates the calculation method to get the volume fraction of Mo_2N. The average size of the edge is evaluated to be ~ 0.5 nm. The diameter of the MoO_2 nanoparticles is estimated to be about 50 nm. Based on the thickness of the Mo_2N coating layers and the size of the MoO_2 nanoparticles, the fraction of MoO_2 is estimated to be ~ 5.9% in volume, and ~ 8% in weight, using the densities of Mo_2N and MoO_2 which are 9.06 g cm^{-3}, and 6.47 g cm^{-3}, respectively.

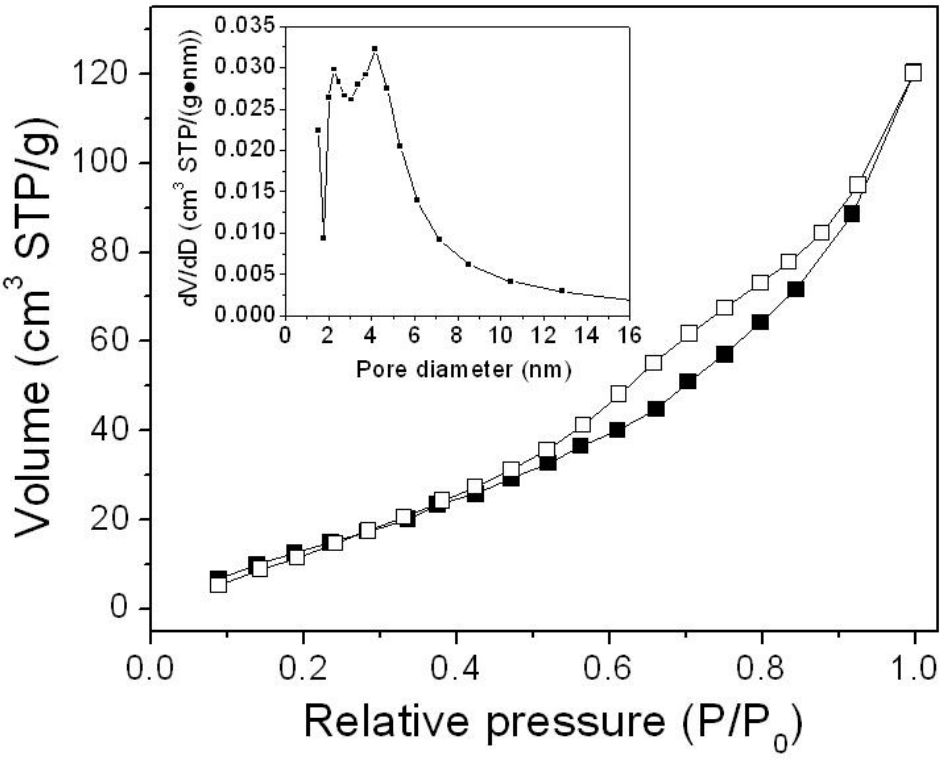

Figure SI-3. N_2 adsorption-desorption isotherms and pore size distribution (inset) of the Mo_2N nanolayer coating MoO_2 hollow nanostructures at 77 K.

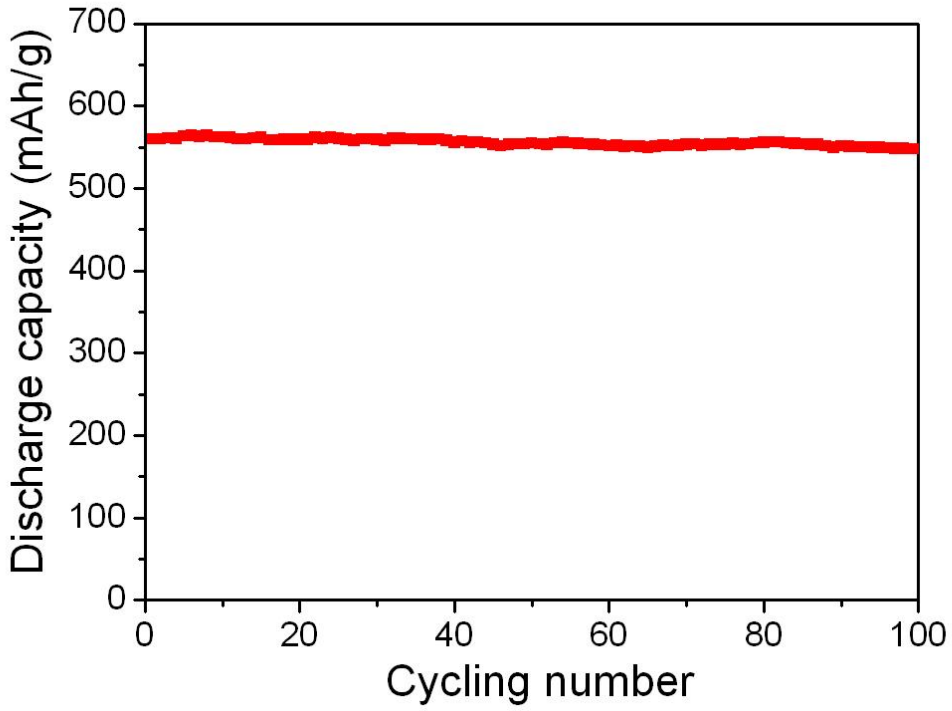

Figure SI-4. The discharge capacity as a function of the cycle number for Mo_2N nanolayer coating MoO_2 hollow nanostructures at a current density of 2000 mA g^{-1}.