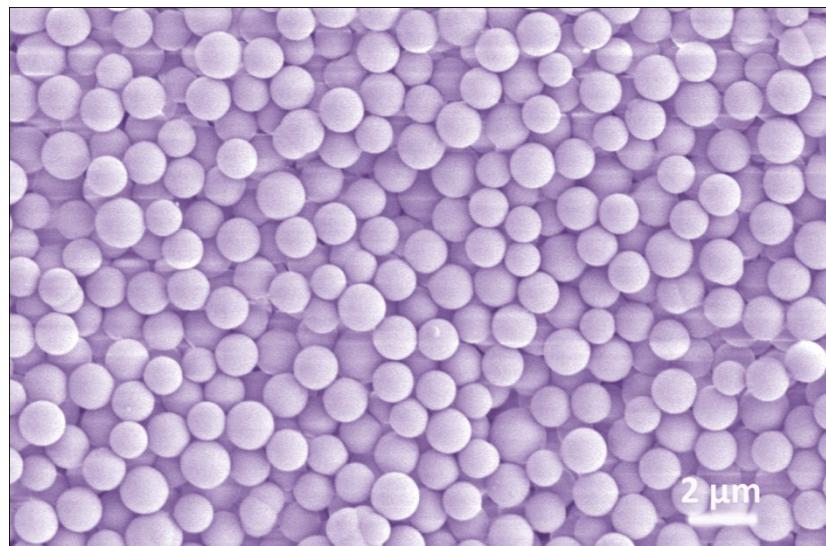
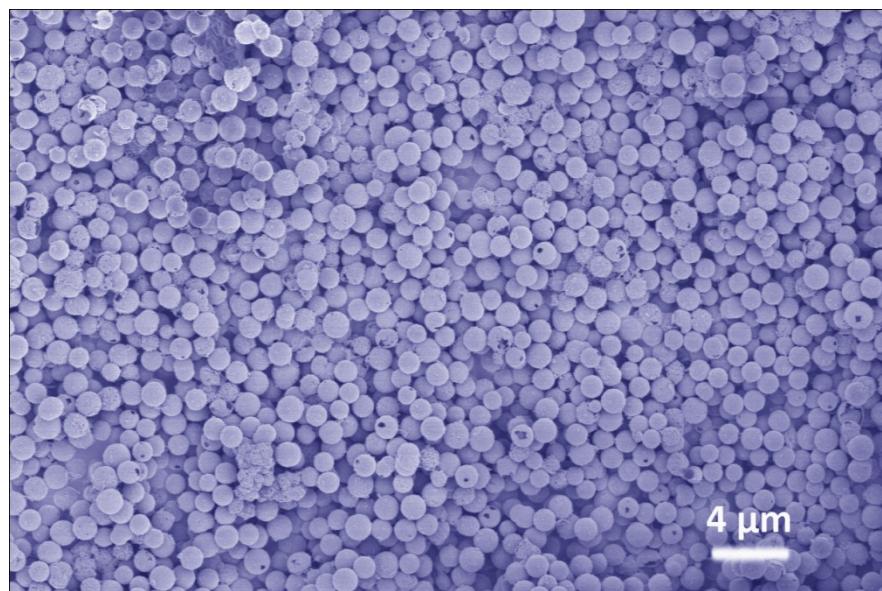


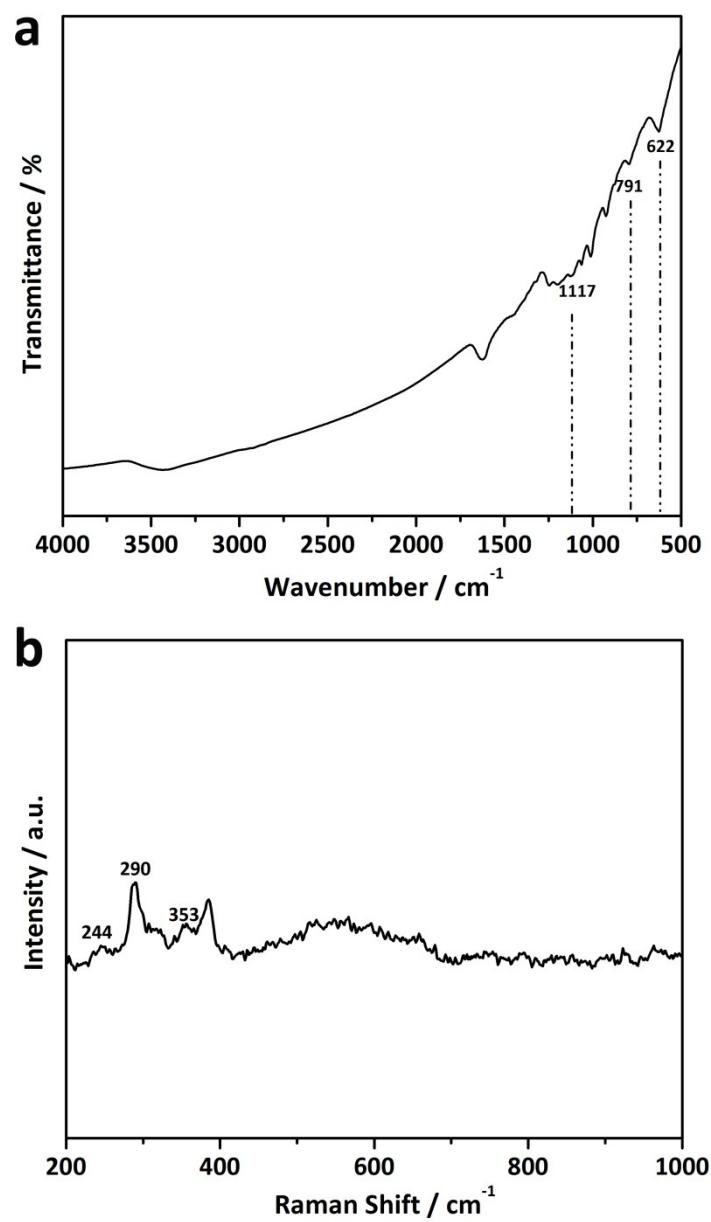
### Electronic Supplementary Information (ESI)



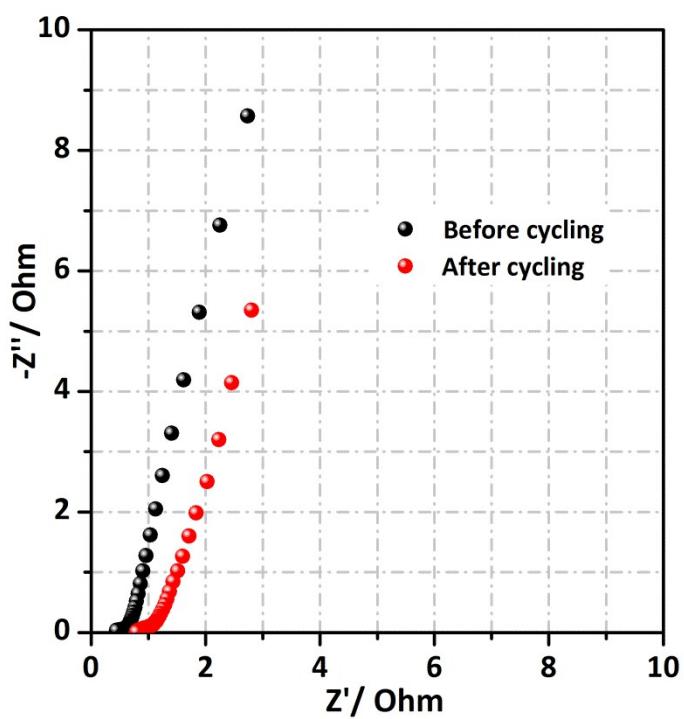
**Fig. S1** the panoramic FESEM image of the Ni-Co-Mn glycerate precursor.



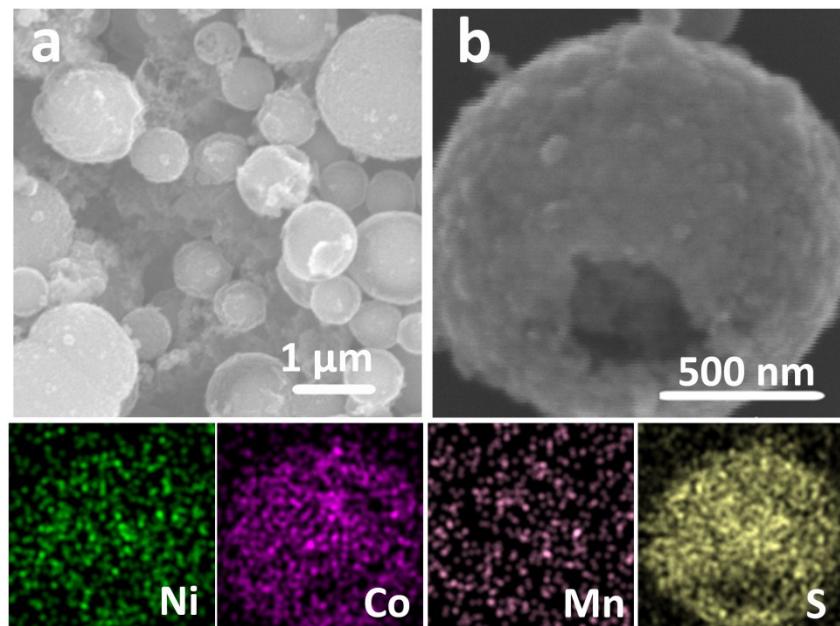
**Fig. S2** the panoramic FESEM image of the Ni-Co-Mn sulfide yolk-shell hollow spheres.



**Fig. S3** (a) FTIR and (b) Raman spectrum of the Ni-Co-Mn sulfide yolk-shell hollow spheres.



**Fig. S4** Electrochemical impedance spectra of the Ni-Co-Mn sulfides//AC-ASC device before and after cycling.



**Fig. S5** (a) FESEM image of Ni-Co-Mn sulfide yolk-shell hollow spheres after 6000 charging-discharging cycles at  $4.0\ \text{A g}^{-1}$  as electrodes for supercapacitors, (b) FESEM image and elemental mapping of Ni-Co-Mn sulfide yolk-shell hollow spheres after 6000 charging-discharging cycles.