## Supporting Information

# The Synthesis of Hierarchical $ZnCo_2O_4$@$MnO_2$ Core-Shell Nanosheet Arrays on Ni Foam for High-Performance All-Solid-State Asymmetric Supercapacitors

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**Table S1** The comparison results of electrochemical performance for $ZnCo_2O_4$ and $ZnCo_2O_4$@$MnO_2$ composite electrodes.

| **Samples** | Mass loading (mg $cm^{-2}$) | Ca (F $cm^{-2}$) | Cs (F $g^{-1}$) |
|---|---|---|---|
| **$ZnCo_2O_4$** | 1.01 | 1.54 | 1544.40 |
| **ZCM-2** | 1.19 | 2.60 | 2170.00 |
| **ZCM-4** | 1.41 | 2.50 | 1996.29 |
| **ZCM-6** | 1.60 | 2.41 | 1607.20 |

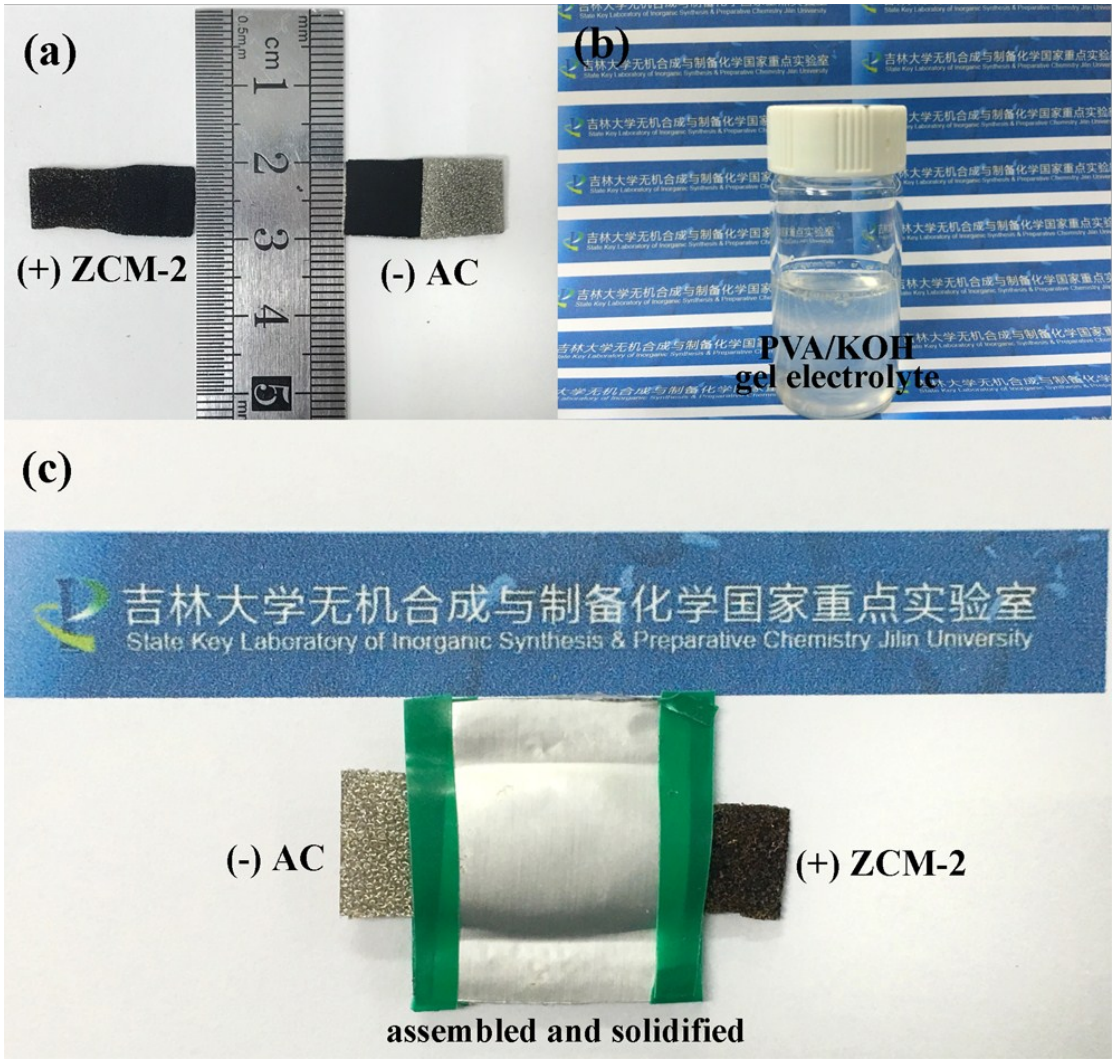


**Fig.S1** Fabrication process of all-solid-state ASCs. (a) ZCM-2 electrode and AC electrode; (b) PVA/KOH gel electrolyte; (c) assembled all-solid-state ASC.

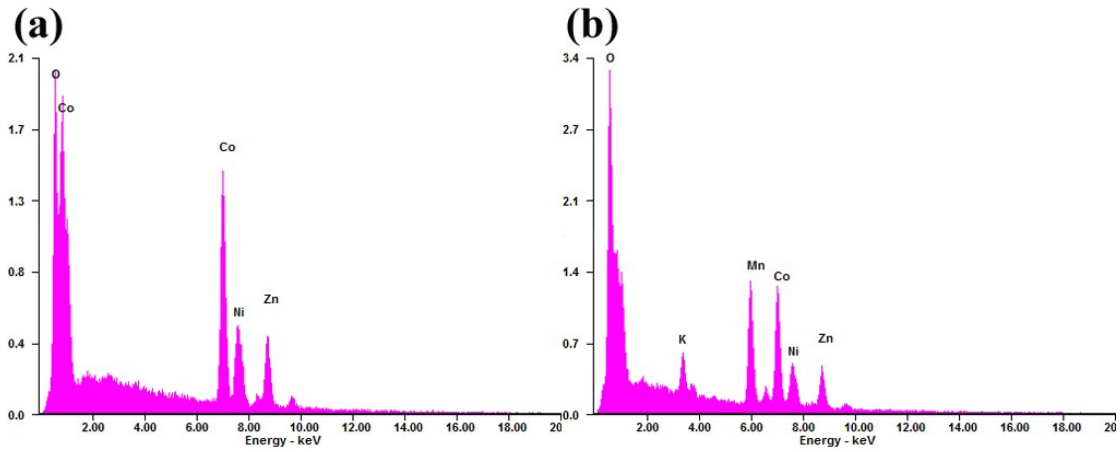


**Fig.S2** EDS spectra of (a) $ZnCo_2O_4$ and (b) $ZnCo_2O_4$@$MnO_2$ nanosheet arrays.

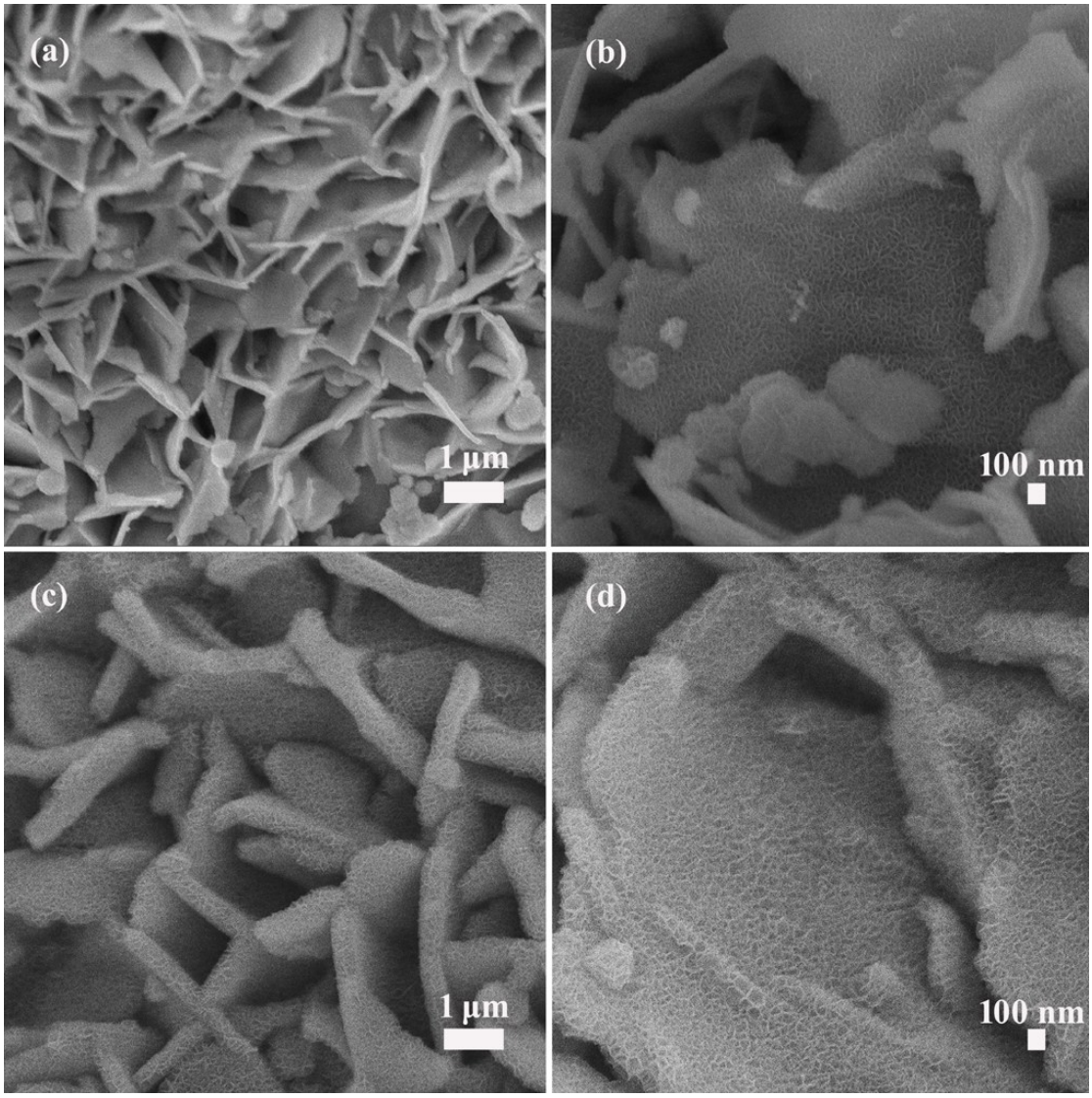


**Fig.S3** SEM images of hierarchical $ZnCo_2O_4$@$MnO_2$ nanosheet arrays obtained with different concentration of $KMnO_4$ solution.

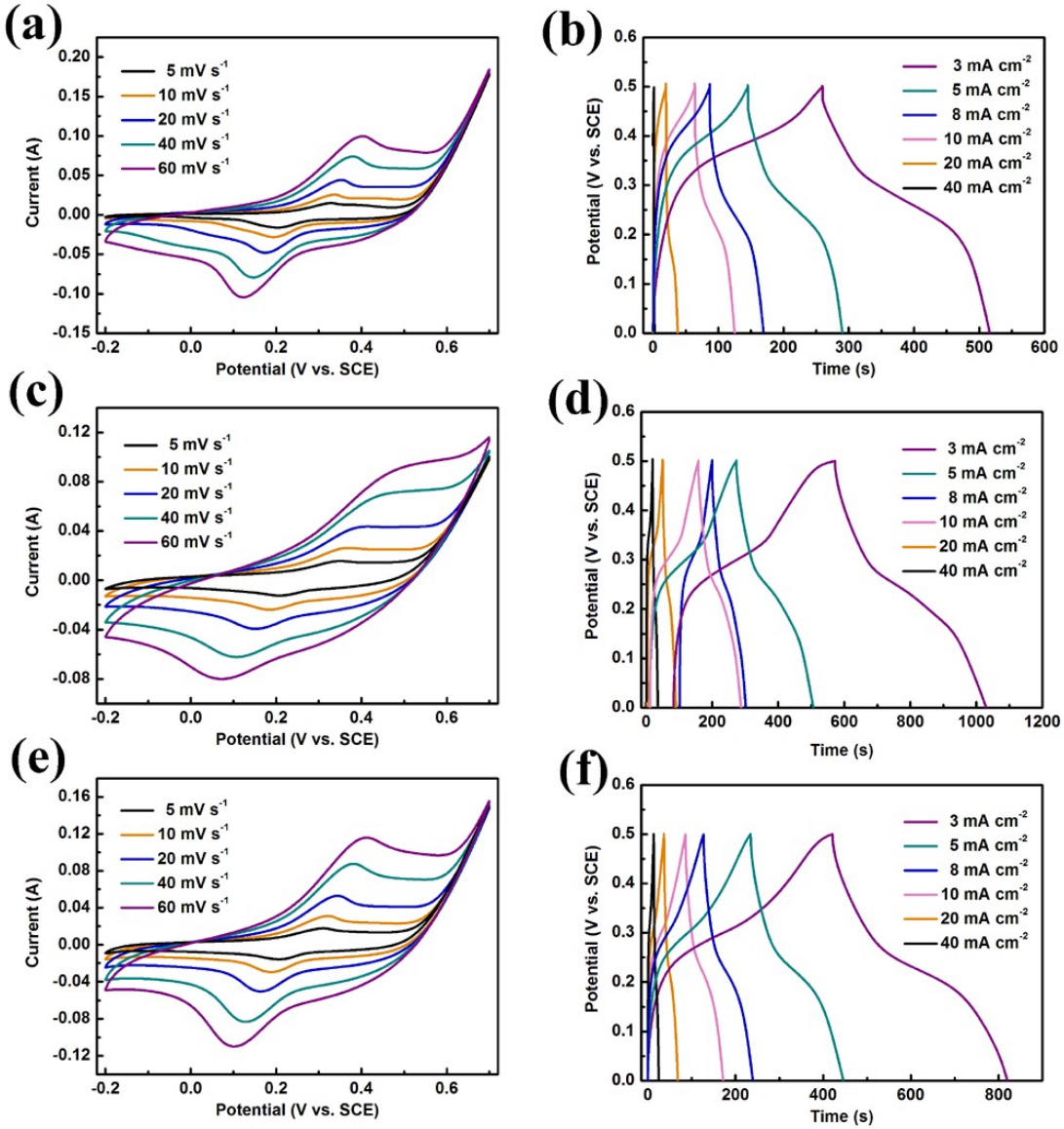


**Fig.S4** CV curves of (a) $ZnCo_2O_4$, (c) ZCM-4, (e) ZCM-6 electrode at various scan rates ranging from 6 to 60 mV $s^{-1}$; CD curves of (b) $ZnCo_2O_4$, (d) ZCM-4, (f) ZCM-6 electrode at different current densities.

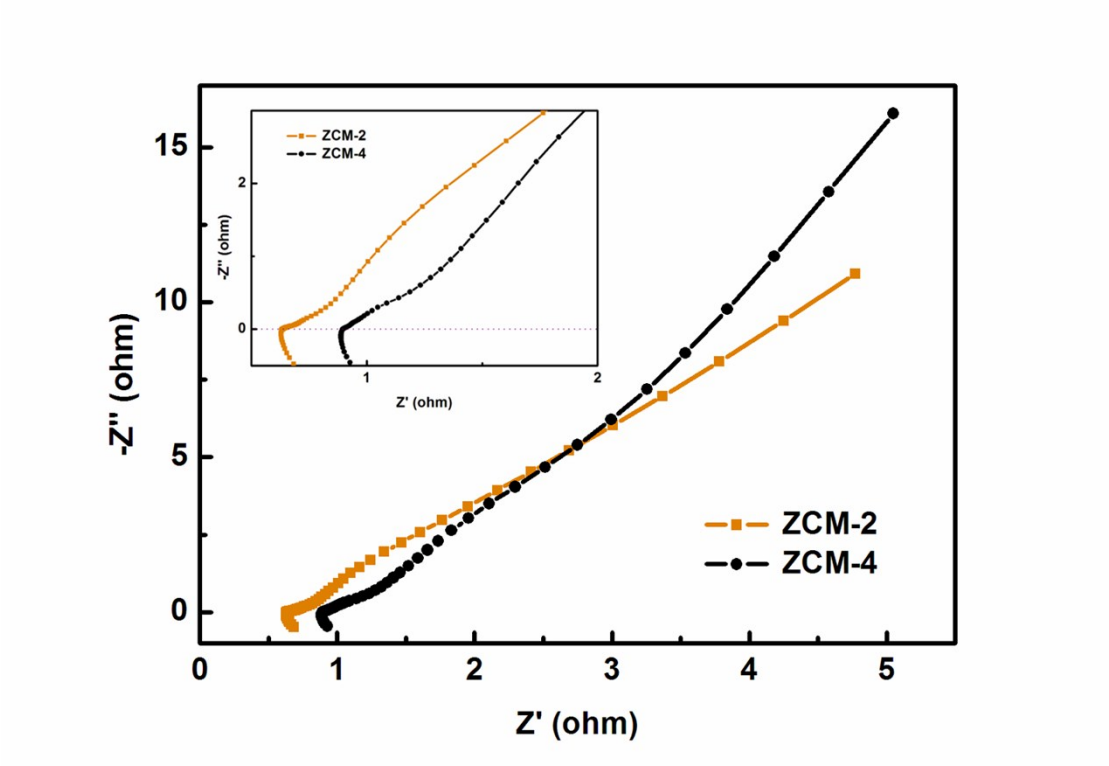


**Fig.S5** EIS curves of ZCM-2 electrode and ZCM-4 electrode.

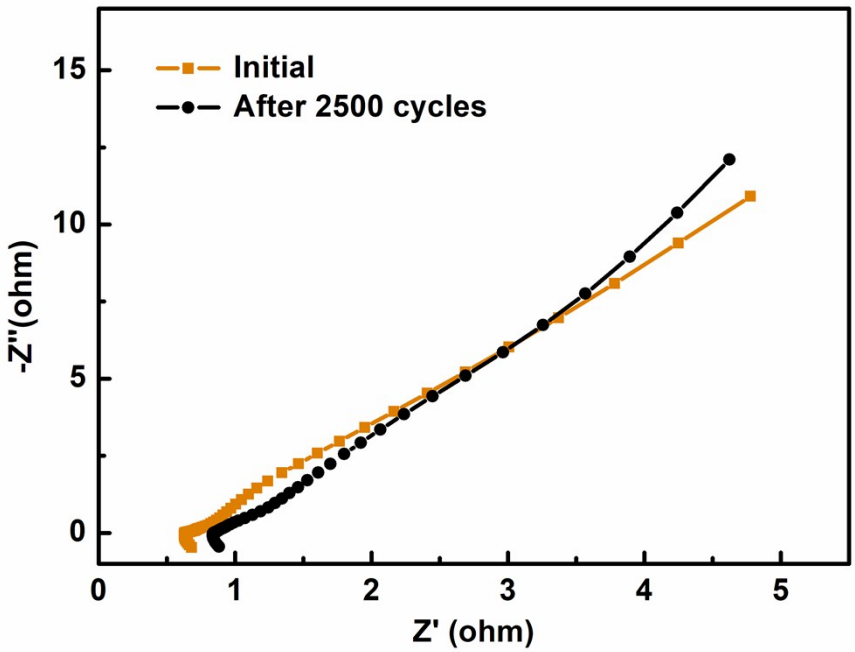


**Fig.S6** EIS curves of ZCM-2 electrode measured before and after 2500 charge-discharge cycles.

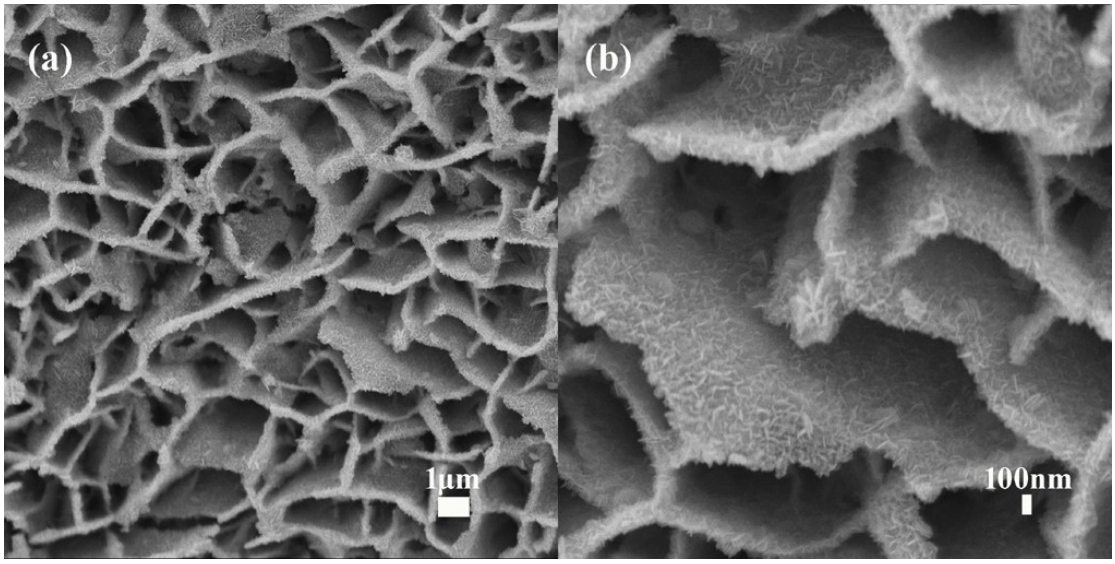


**Fig.S7** SEM images of ZCM-2 electrode after 3000 charge-discharge cycles

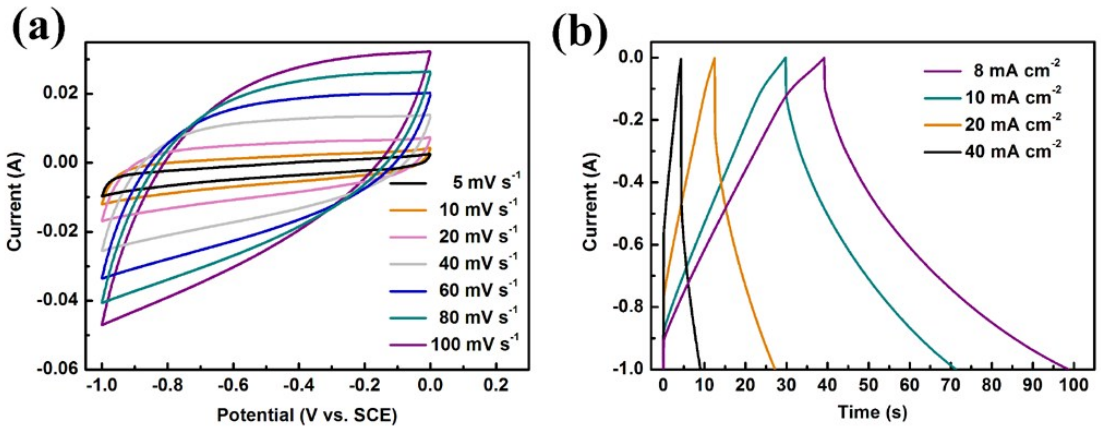


**Fig.S8** Electrochemical performance of AC electrode: (a) CV curves; (b) GCD curves.