

Supplementary Information

$\text{Co}_3\text{O}_4/\text{ZnO}$ nanoheterostructure derived from core-shell

ZIF-8@ZIF-67 for supercapacitors

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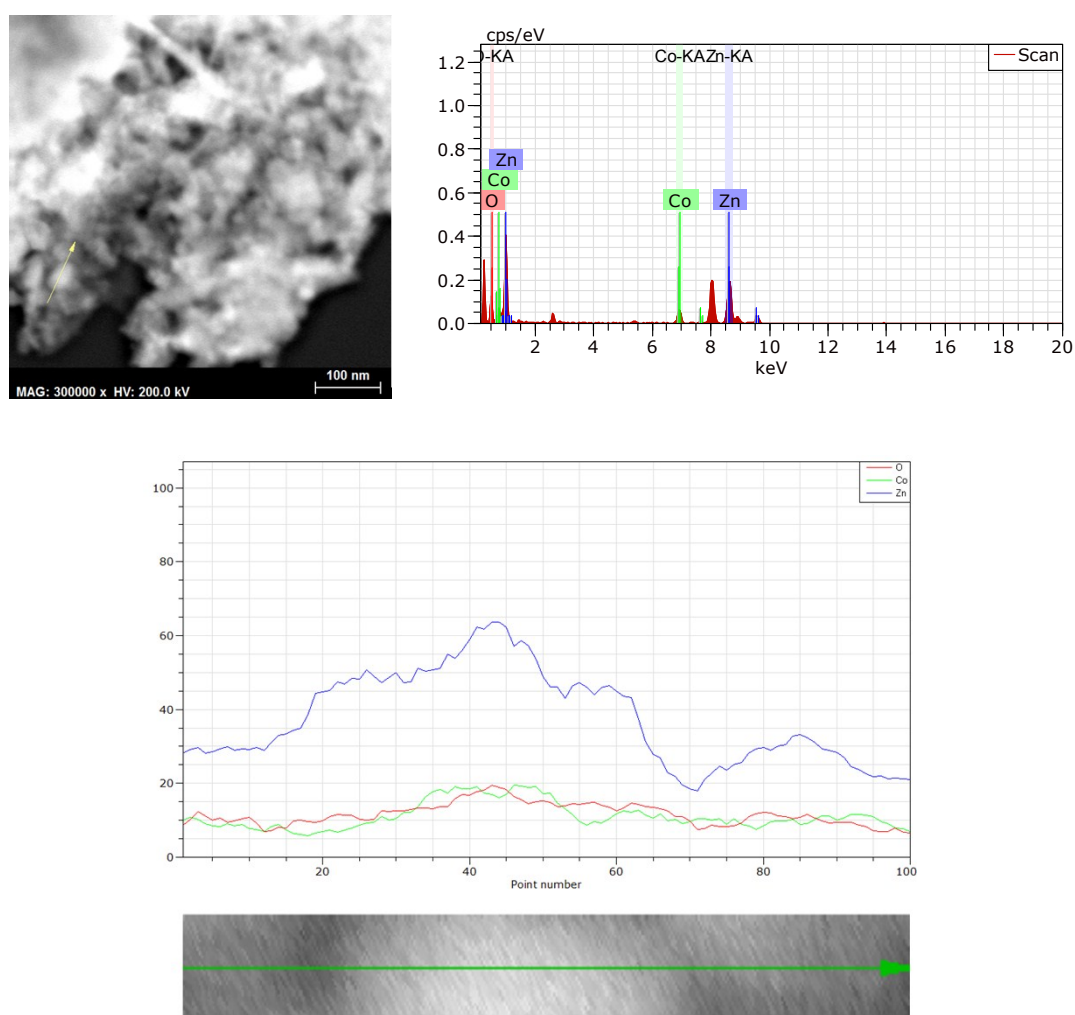


Fig. S1 The elemental line-scan of $\text{Co}_3\text{O}_4/\text{ZnO}$ nanoheterostructure

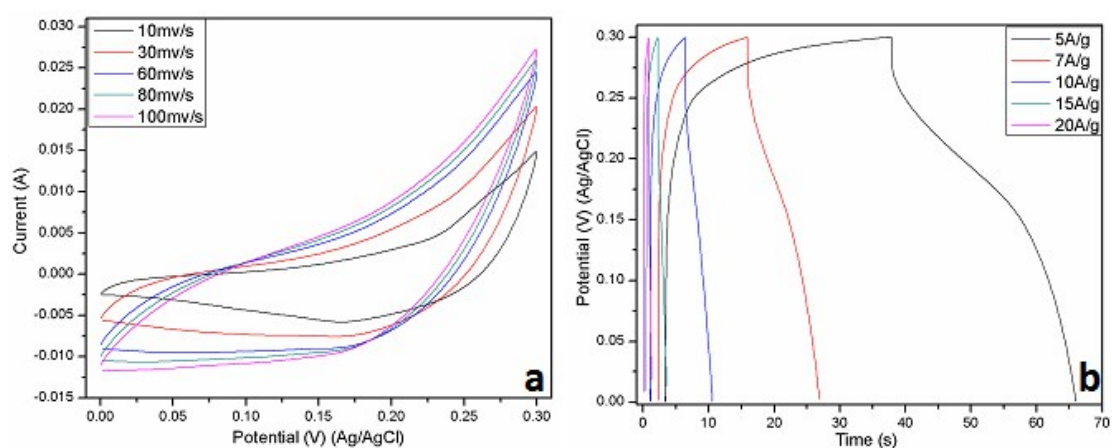


Fig. S2 Cyclic voltammetry (CV) curves of at various scan rates (a), galvanostatic charge-discharge (GDC) curves at different current densities (b) of Co_3O_4 derived from ZIF-67

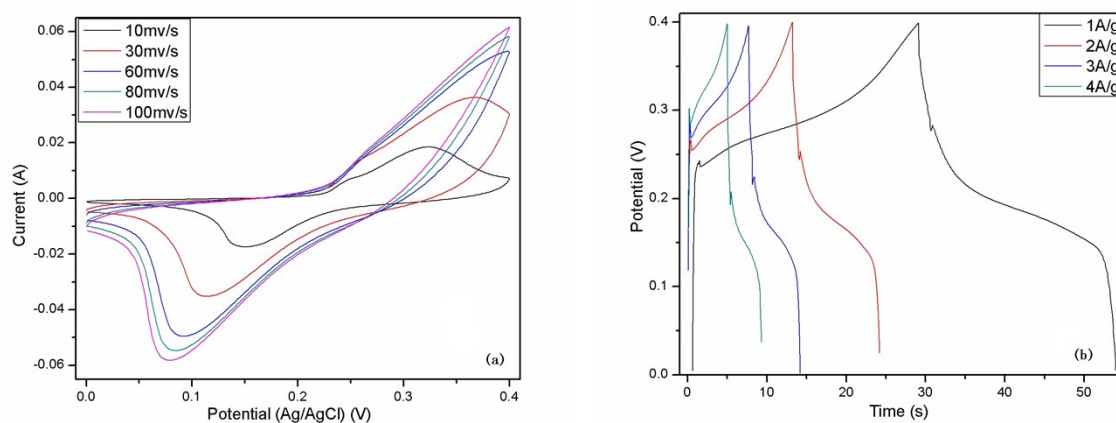


Fig. S3 Cyclic voltammetry (CV) curves of at various scan rates (a), galvanostatic charge-discharge (GDC) curves at different current densities (b) of ZnO derived from ZIF-8

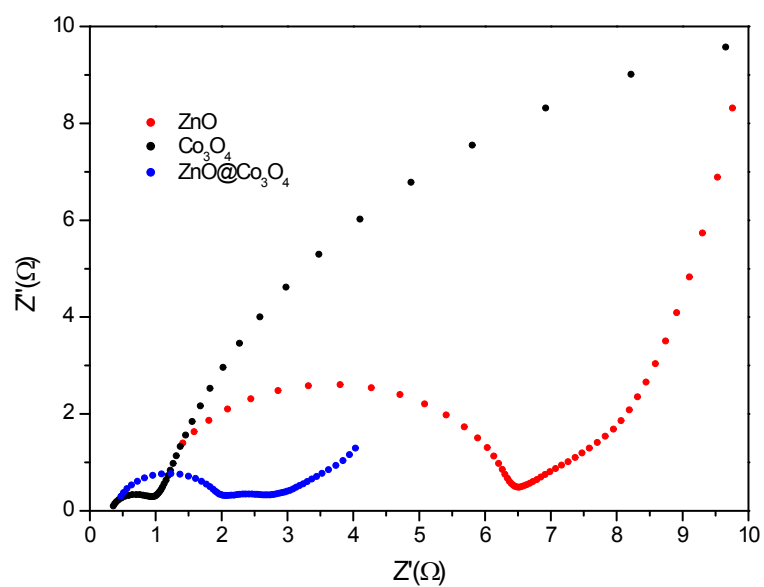


Fig. S4 Electrochemical impedance spectroscopy (EIS) of Co_3O_4 , ZnO and $\text{Co}_3\text{O}_4/\text{ZnO}$ nanoheterostructure

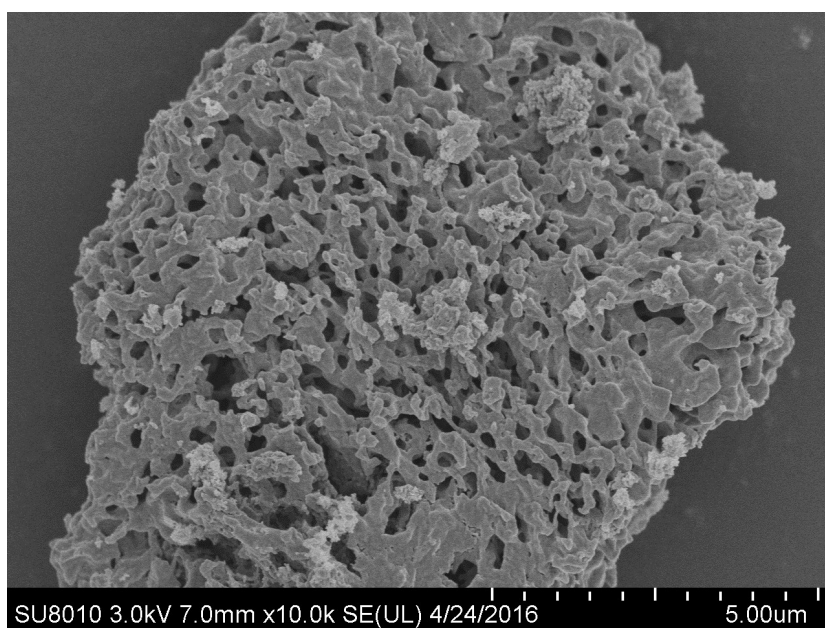


Fig. S5 SEM of Co_3O_4 derived from ZIF-67

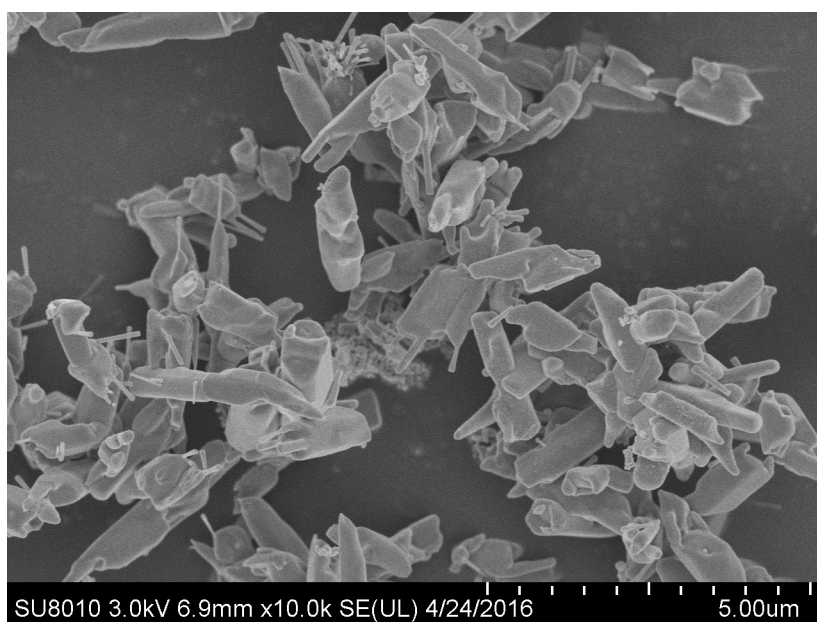


Fig. S6 SEM of ZnO derived from ZIF-8

Table S1 Various performance parameters for $\text{Co}_3\text{O}_4/\text{ZnO}$ heterostructure //carbon supercapacitor

Current density ($\text{A} \cdot \text{g}^{-1}$)	Discharge time (s)	Specific capacitance ($\text{F} \cdot \text{g}^{-1}$)	Specific energy ($\text{Wh} \cdot \text{kg}^{-1}$)	Specific power ($\text{W} \cdot \text{kg}^{-1}$)
1	248	177	48.2	699.7
2	111	158.6	43.2	1401
4	48	137	37.3	2797.5
5	36	128.6	35	3500
8	20	114.3	31	5580
10	12	107	29	6960
16	9	103	28	11200
20	6.5	93	25	13846

Table S2 Various performance parameters for Co₃O₄//carbon supercapacitor

Current density (A·g ⁻¹)	Discharge time (s)	Specific capacitance (F·g ⁻¹)	Specific energy (Wh·kg ⁻¹)	Specific power (W·kg ⁻¹)
1	115	88.5	20.8	651
2	43	66	15.5	1298
4	15	46	10.8	2592
5	10	38.5	9	3240
8	3.5	21.5	5.1	5194
10	1.5	11.5	2.7	6480

Table S3 Various performance parameters for the mixture of Co₃O₄/ZnO mixture//carbon supercapacitor

Current density (A·g ⁻¹)	Discharge time (s)	Specific capacitance (F·g ⁻¹)	Specific energy (Wh·kg ⁻¹)	Specific power (W·kg ⁻¹)
1	57	40	10.9	688
2	24	34	9.3	1395
4	7.5	21	5.7	2736
5	2.3	8.2	2.2	3443