Supplementary Information

Cobalt-doped Zn_2GeO_4 Nanorods Assembled into Hollow Spheres as High-Performance Anode Materials for Lithium-Ion Batteries

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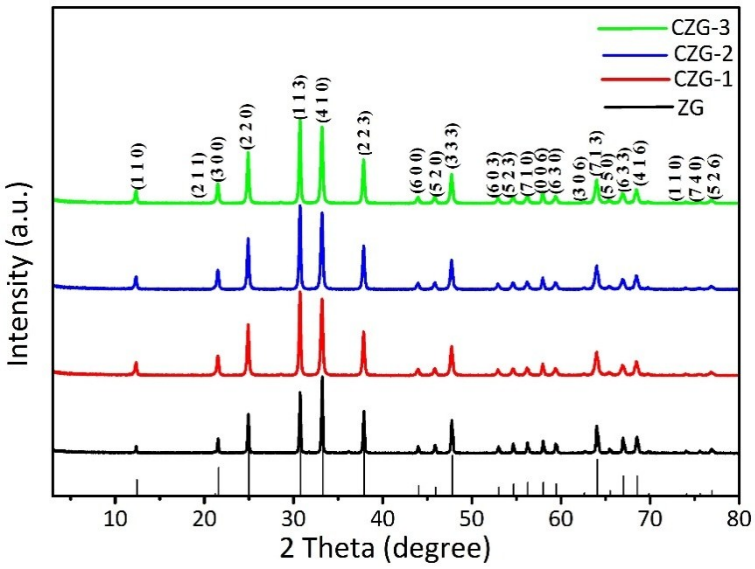

Fig. S1 The XRD patterns of the as-prepared Zn_2GeO_4 and Co-doped Zn_2GeO_4 products.

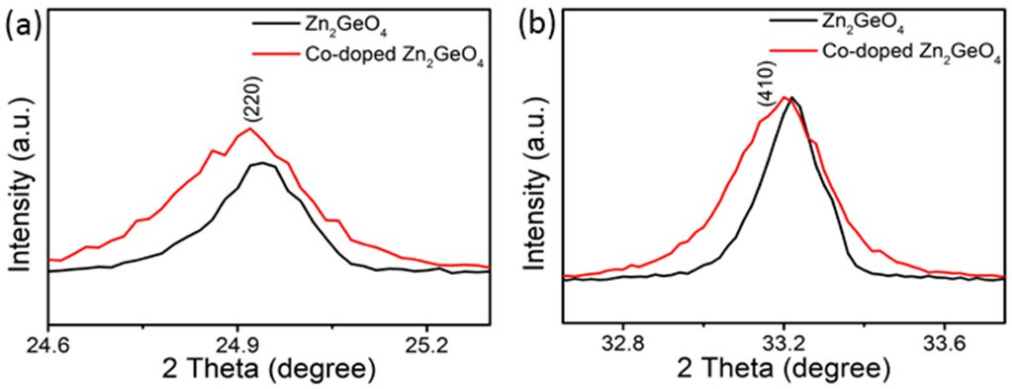

Fig. S2 Magnified (220) and (410) peaks from the powder XRD date of pure Zn_2GeO_4 and Co-doped Zn_2GeO_4 samples.

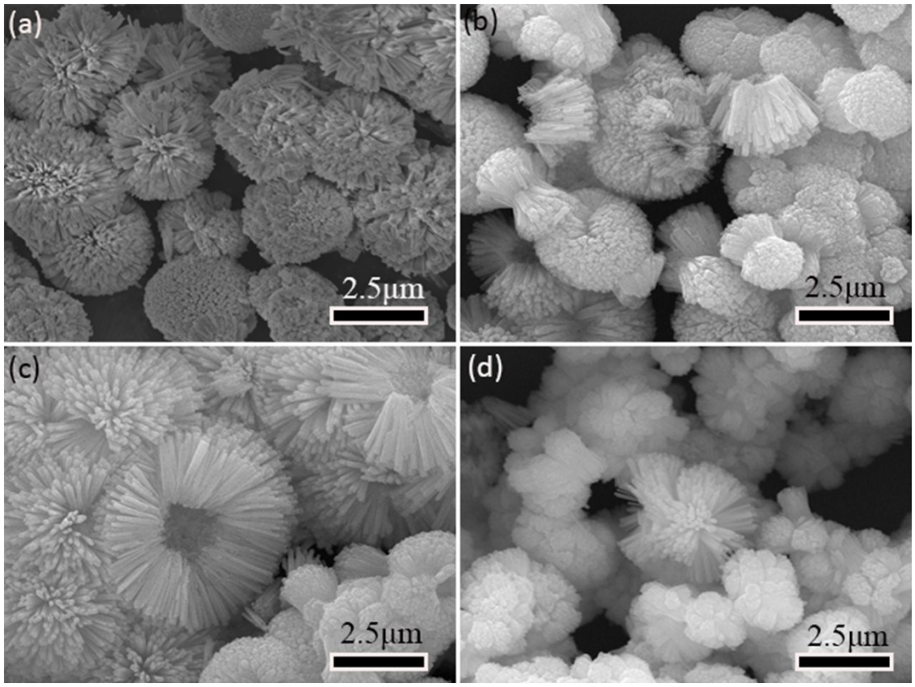

Fig. S3 The FESEM images of ZG (a), CZG-1 (b), CZG-2 (c) and CZG-3 (d) hollow microspheres obtained.

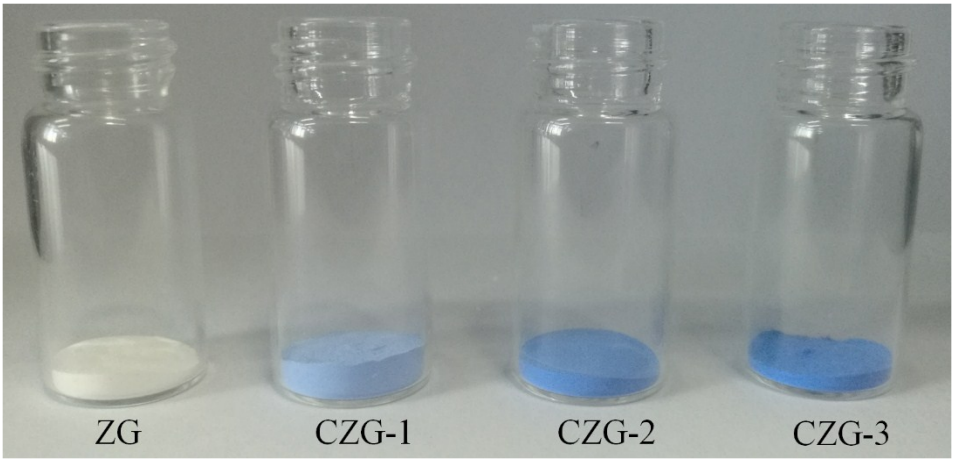

Fig. S4 Color of the obtained products with different amount of Co doped, ZG (no Co doped), CZG-1 (5% Co doped), CZG-2 (10% Co doped) and CZG-3 (20% Co doped).

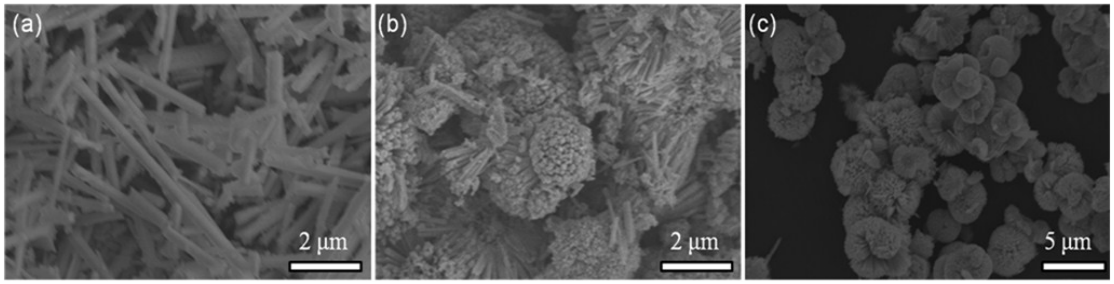

Fig.S5 FESEM images of the products obtained with different amount of TEOA (a) 0 g, (b) 3.0 g, (c) 4.0 g.

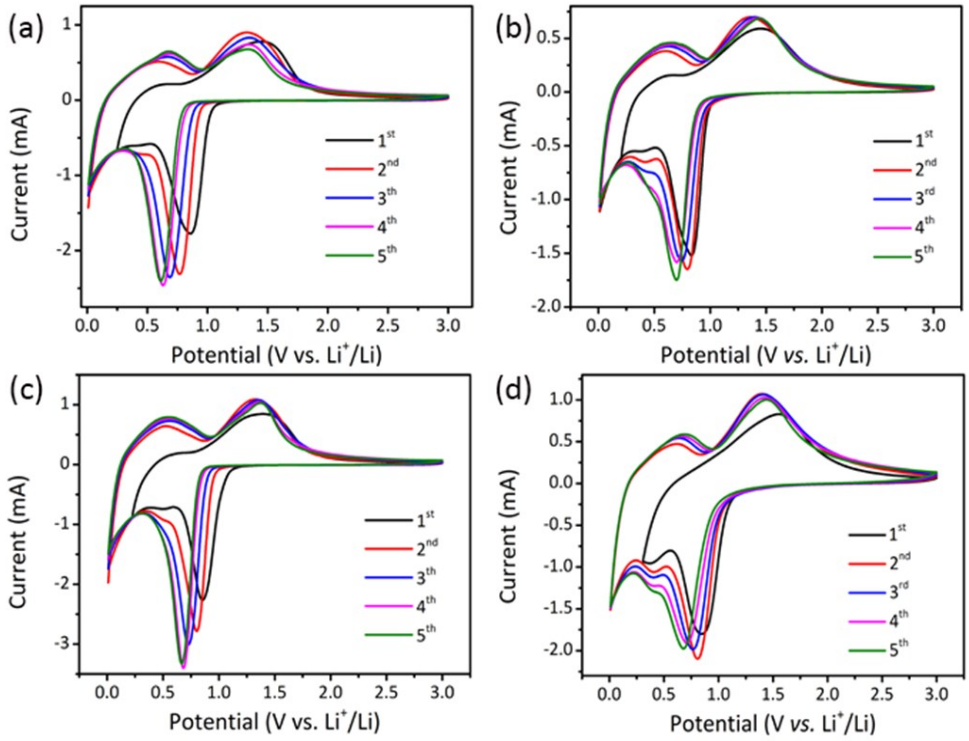

Fig. S6 The 1st five cycles of the cyclic voltamogram for ZG (a), CZG-1 (b), CZG-2 (c) and CZG-3 (d).

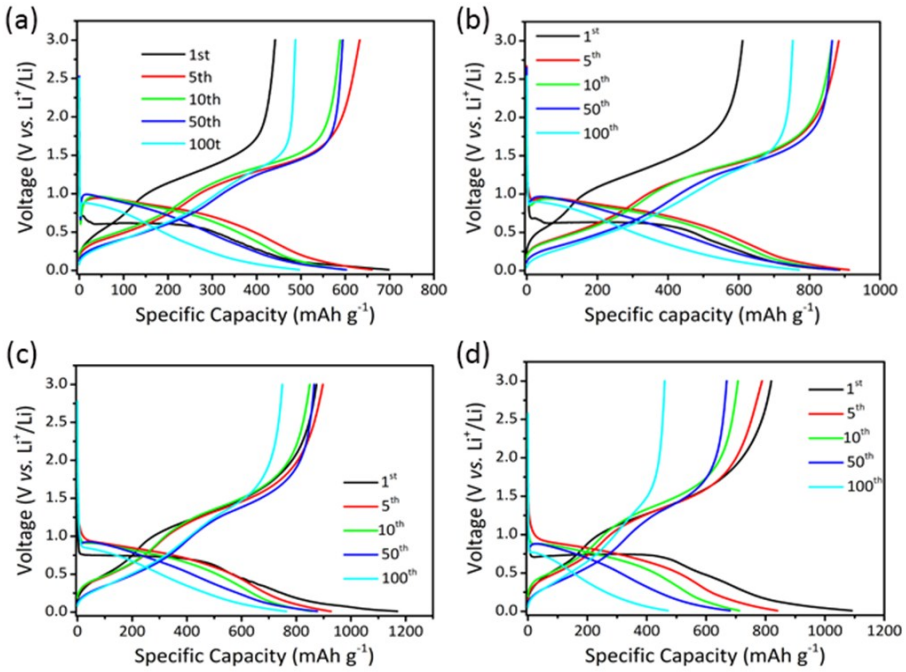

Fig. S7 Galvanostatic charge-discharge profiles of ZG (a), CZG-1 (b), CZG-2 (c), CZG-3 (d) for selected cycles at a current density of 1.0 A g^{-1} with the potential window from 0.01 V to 3.0 V. The initial Coulombic Efficiency is 63%, 74%, 75%, 69% for ZG, CZG-1, CZG-2 and CZG-3, respectively.

Table S1 Capacity retention after 100 charge/discharge cycles of the four samples with different Co^{2+} doped concentration at a current density of 1.0 A g^{-1}

Samples	Initial capacity/ mA h g^{-1}	Capacity after 100 cycles/ mA h g^{-1}	Capacity retention	Co^{2+} concentration
ZG	698	496	71%	0
CZG-1	886	772	87%	5%
CZG-2	1419	882	62%	10%
CZG-3	1091	471	43%	20%

Table S2 Comparison of the rate and cycling performance of Co-doped Zn_2GeO_4 (CZG-2) in this work with those of bare Zn_2GeO_4 and Zn_2GeO_4-based anodes materials with different morphology

Samples	Current density (mAh g^{-1})	Cycle number	Capacity (mAh g^{-1})	Ref.
Zn_2GeO_4 with fascicular structure	500	160	1034	1
ZnO@amorphous Zn_2GeO_4 core–shell hierarchical structure	500	250	905	2
Cobalt-doped Zn_2GeO_4 nanorods assembled into hollow spheres	1000	100	882	This work
Zn_2GeO_4 nanofibers anchored with amorphous carbon	2000	72	820	3
Zn_2GeO_4@carbon nanowires grown on Cu foils (with a 2 h reaction time)	2000	100	790	4

*Some of the information was not specified in the literature and was estimated according to the data graphs.

References

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