

Electronic Supplementary Information for

High-performance Zn₂SnO₄ anodes enabled by MOF-derived MnO decoration and carbon confinement for lithium-ion batteries

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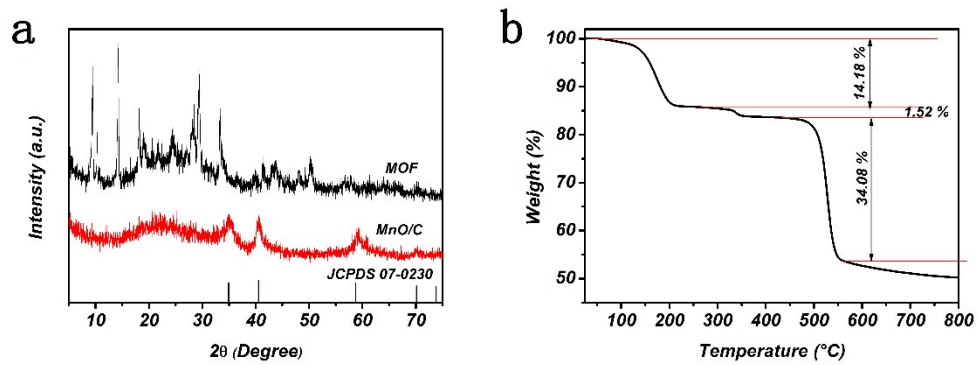


Figure S1. (a) XRD patterns of Mn-MOF and MnO@C; (b) TGA curve of Mn-MOF.

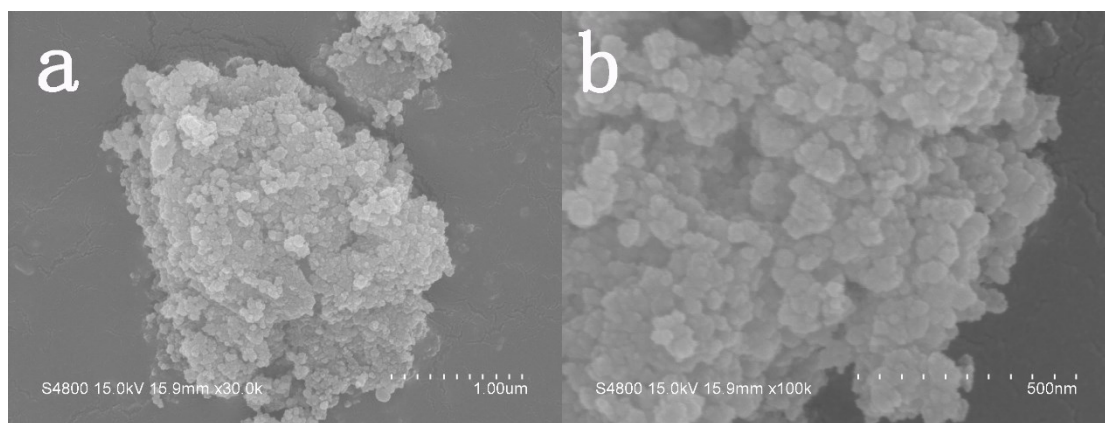


Figure S2. SEM images of $\text{Zn}_2\text{SnO}_4@\text{MnO}/\text{C}$.

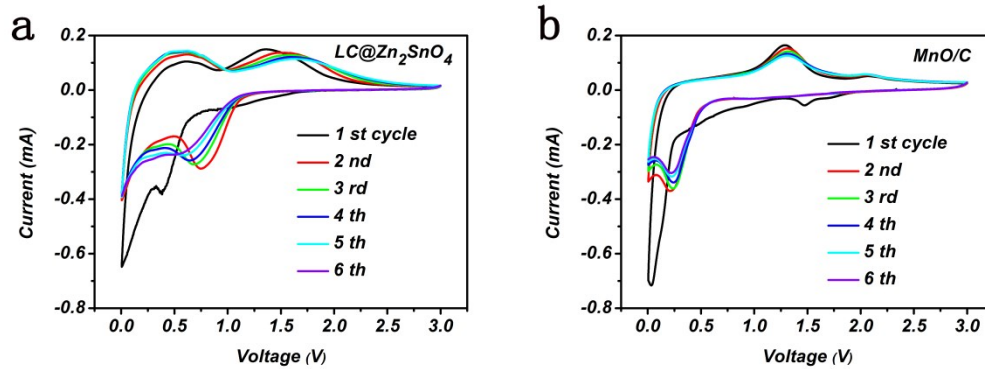


Figure S3. Cyclic voltammograms of (a) LC@Zn₂SnO₄ and (b) MnO/C composite at a scan rate of 0.1 mV s⁻¹.

Table S1. Performance comparison of our work to the literature.

Samples	Current density mA/g	Discharge /charge capacities (mAh/g)	Reference
Flower-like Zn ₂ SnO ₄	300	501 after 50 cycles	14
Co-doped Zn ₂ SnO ₄ /GO	100	599 after 100 cycles	16
PPy/Zn ₂ SnO ₄	60	478.2 after 50 cycles	17
N-doped C /Zn ₂ SnO ₄	60	992.4 after 100 cycles	19
Zn ₂ SnO ₄ /rGONRS	100	727.2 after 50 cycles	20
3D Zn ₂ SnO ₄	100	739 after 100 cycles	21
Core-shell Zn ₂ SnO ₄	100	495 after 100 cycles	33
Zn ₂ SnO ₄ /CNT	100	703.8 after 30 cycles	34
Mn ₃ O ₄ / Zn ₂ SnO ₄	100	577.4 after 50 cycles	37
G/Zn ₂ SnO ₄	500	492 after 500 cycles	42
Carbon coated Zn ₂ SnO ₄	200	400 after 40 cycles	43
ZIF-8/Zn ₂ SnO ₄	500	349.2 after 20 cycles	44
Zn ₂ SnO ₄ @C/Sn	100	1140 after 100 cycles	45
Zn ₂ SnO ₄ /PANi	600	491 after 50 cycles	46
LC@Zn ₂ SnO ₄ @MnO/C	500	595 after 500 cycles	This work
	2000	400 after 150 cycles	

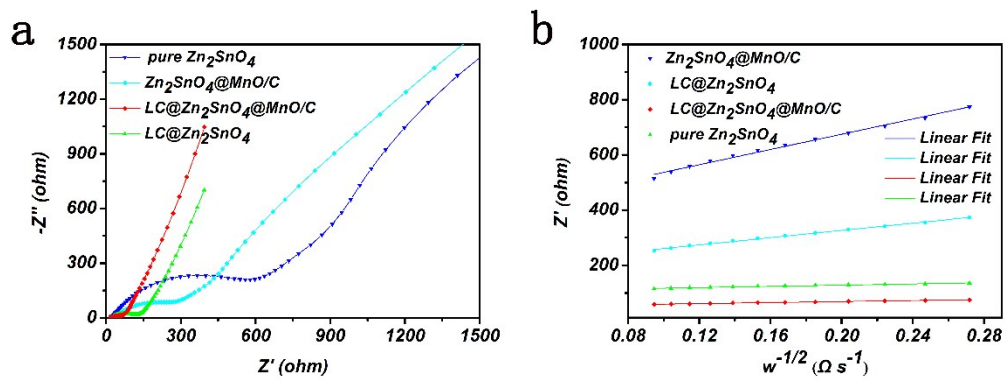


Figure S4. (a) Nyquist plots collected on the cells using $LC@Zn_2SnO_4@MnO/C$, $Zn_2SnO_4@MnO/C$, $LC@Zn_2SnO_4$ composites and pure Zn_2SnO_4 electrodes after 100 cycles; (b) The relationships between Z' and $\omega^{-1/2}$ of the as-prepared samples after 100 cycles.

Table S2. Impedance parameters of the cells using different electrodes after 100 cycles.

Samples	R_e (Ω)	R_{ct} (Ω)	σ_w ($\Omega \text{ cm}^2 \text{ s}^{-1/2}$)
pure Zn_2SnO_4	22.3	764.7	1380.24
$\text{LC@Zn}_2\text{SnO}_4$	20.74	137.1	110.02
$\text{Zn}_2\text{SnO}_4@\text{MnO/C}$	30.69	369.2	656.30
$\text{LC@Zn}_2\text{SnO}_4@\text{MnO/C}$	13.29	25.66	92.77