

Electronic Supplementary Information (ESI)

Materials chemistry for rechargeable zinc-ion batteries

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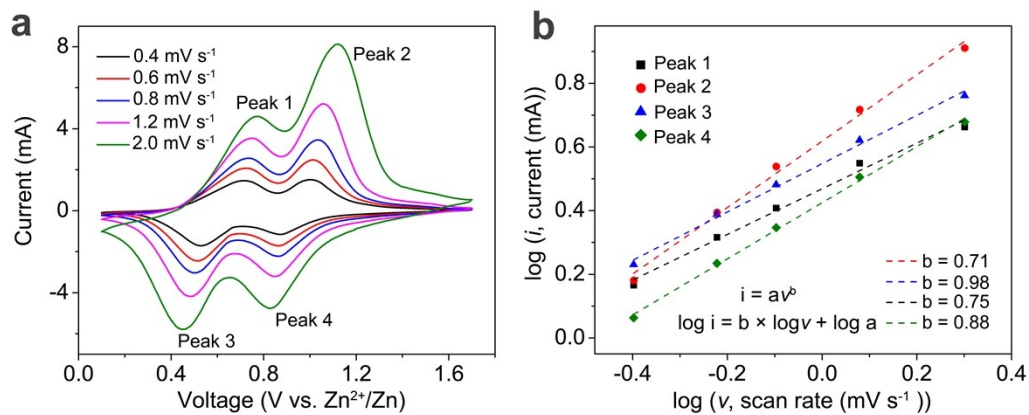


Fig. S1 (a) Typical cyclic voltammety curves of V₂O₅ cathode and the corresponding (b) $\log i$ vs $\log v$ plots for the pseudocapacitive analysis. Reproduced with permission from ref. 39. Copyright 2018, American Chemical Society.

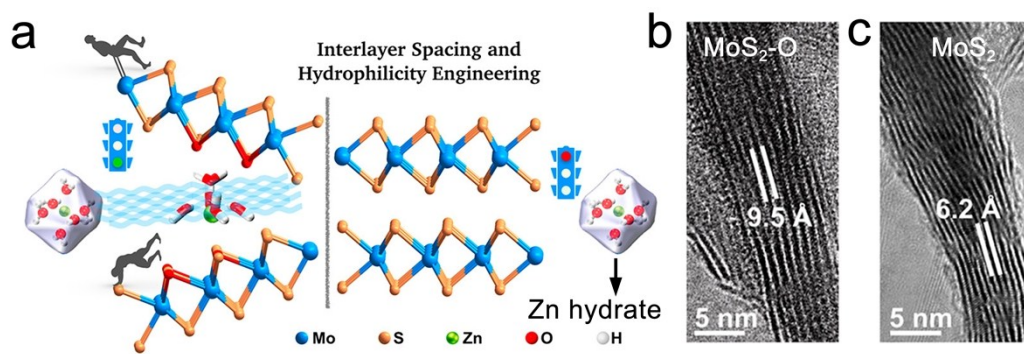


Fig. S2 (a) Schematic illustration of the interlayer spacing and hydrophilicity engineering for MoS₂. TEM images of (b) MoS₂-O and (c) MoS₂ nanosheets. Reproduced with permission from ref. 49. Copyright 2019, American Chemical Society.

Table S1 Summary of the configuration and electrochemical performance for ZIBs.

Cathode	Electrolyte	Anode	Voltage (V)	Capacity (mAh g ⁻¹)	Capacity retention/cycles	Ref.
α -MnO ₂	1 M ZnSO ₄	Zn foil	1.0–1.8	233 (83 mA g ⁻¹), 43.3 (133 mA g ⁻¹)	65%/50 cycles (83 mA g ⁻¹)	[S1]
α -MnO ₂	1 M ZnSO ₄	Zn foil	0.7–2.0	195 (10.5 mA g ⁻¹)	70%/30 cycles (42 mA g ⁻¹)	[S2]
α -MnO ₂	2 M ZnSO ₄ + 0.1 M MnSO ₄	Zn foil	1.0–1.8	255 (61.6 mA g ⁻¹)	92%/5000 cycles (1540 mA g ⁻¹)	[S3]
α -MnO ₂	2 M ZnSO ₄ + 0.1 M MnSO ₄	Polyamide coated Zn	0.6–1.75	300 (20 mA g ⁻¹)	88%/1000 cycles (600 mA g ⁻¹)	[S4]
α -MnO ₂	EG-waPUA/PAM hydrogel electrolyte	Zn electroplated nickel–copper cloth	0.9–1.8	275 (200 mA g ⁻¹)	87.4%/600 cycles (2400 mA g ⁻¹)	[S5]
α -MnO ₂ /CNT	2 M ZnSO ₄ + 0.5 M MnSO ₄	Zn powder	1.0–1.9	665 (100 mA g ⁻¹)	99%/500 cycles (5000 mA g ⁻¹)	[S6]
α -MnO ₂	1 M ZnSO ₄	Zn foil	0.8–2.0	205 (10 mA g ⁻¹)	66%/30 cycles (10 mA g ⁻¹)	[S7]
α -MnO ₂ @ Graphene	2 M ZnSO ₄ + 0.2 M MnSO ₄	Zn foil	1.0–1.85	382.2 (300 mA g ⁻¹)	94%/3000 cycles (3000 mA g ⁻¹)	[S8]
α -MnO ₂ /rGO	2 M ZnSO ₄ + 0.1 M MnSO ₄	Electroplated Zn on carbon cloth	1.0–1.9	332.2 (300 mA g ⁻¹)	96%/500 cycles (6000 mA g ⁻¹)	[S9]
β -MnO ₂	3 M Zn(CF ₃ SO ₃) ₂ + 0.1 M Mn(CF ₃ SO ₃) ₂	Zn foil	0.8–1.9	225 (200 mA g ⁻¹)	94%/2000 cycles (2000 mA g ⁻¹)	[S10]
β -MnO ₂	1 M ZnSO ₄	Zn foil	1.0–1.8	180 (200 mA g ⁻¹)	75%/200 cycles (200 mA g ⁻¹)	[S11]
γ -MnO ₂	1 M ZnSO ₄	Zn foil	1.0–1.8	285 (0.05 mA cm ⁻²)	63%/40 cycles (0.5 mA cm ⁻²)	[S12]
δ -MnO ₂	1 M ZnSO ₄	Zn foil	1.0–1.8	285 (83 mA g ⁻¹), 92 (666 mA g ⁻¹)	43%/100 cycles (83 mA g ⁻¹)	[S13]
δ -MnO ₂	1 M ZnSO ₄ + 0.1 M MnSO ₄	Zn foil	1.0–1.85	266 (100 mA g ⁻¹)	79.6%/2000 cycles (2000 mA g ⁻¹)	[S14]
δ -MnO ₂ nanoflower/ graphite	1 M ZnSO ₄	Zn deposited Ni-foam	1.0–1.75	235 (200 mA g ⁻¹)	45.6%/100 cycles (400 mA g ⁻¹)	[S15]
δ -MnO ₂	0.5 M Zn(TFSI) ₂ /AN	Zn foil	0.05–1.9	123 (12.3 mA g ⁻¹)	50%/125 cycles (12.3 mA g ⁻¹)	[S16]
MnO ₂	2 M ZnSO ₄ + 0.2 M MnSO ₄	MOF-coated Zn foil	0.8–1.9	192.4 (500 mA g ⁻¹)	88.9%/600 cycles	[S17]

							(700 mA g ⁻¹)
MnO ₂	2 M ZnSO ₄ + 0.1 M MnSO ₄	Zn foil	1.0–1.9	275 (300 mA g ⁻¹), 121 (3000 mA g ⁻¹)	-/2000 cycles (3000 mA g ⁻¹)	[S18]	
MnO ₂ containing crystal water	1 M ZnSO ₄	Zn foil	1.0–1.9	350 (100 mA g ⁻¹)	75.3%/200 cycles (3000 mA g ⁻¹)	[S19]	
Commercial MnO ₂	1 M ZnSO ₄ + 0.5 M Na ₂ SO ₄ + 0.1 M MnSO ₄ + 1 g L ⁻¹ Polyacrylamide	PMA-modified Zn@Cu mesh	0.8–1.9	156.8 (200 mA g ⁻¹)	98.5%/600 cycles (1000 mA g ⁻¹)	[S20]	
MnO ₂ @carbon fiber paper	2 M ZnSO ₄ + 0.2 M MnSO ₄	Zn foil	1.0–1.8	290 (90 mA g ⁻¹)	99.3%/10000 cycles (1885 mA g ⁻¹)	[S21]	
Mn ₃ O ₄	2 M ZnSO ₄	Zn foil	0.8–1.9	239.2 (100 mA g ⁻¹)	72%/300 cycles (500 mA g ⁻¹)	[S22]	
Binder-free Mn ₃ O ₄	2 M ZnSO ₄ + 0.1 M MnSO ₄	Zn foil	1.0–1.8	296 (100 mA g ⁻¹)	100%/500 cycles (500 mA g ⁻¹)	[S23]	
α-Mn ₂ O ₃	2 M ZnSO ₄ + 0.1 M MnSO ₄	Zn foil	1.0–1.9	75 (2000 mA g ⁻¹)	65%/2000 cycles (2000 mA g ⁻¹)	[S24]	
Na _{0.44} MnO ₂	1 M Na ₂ SO ₄ + 0.5 M ZnSO ₄ + 0.05 M MnSO ₄	Zn foil	1.0–1.9	340 (100 mA g ⁻¹)	100%/150 cycles (100 mA g ⁻¹)	[S25]	
Na _{0.95} MnO ₂	0.5 M Zn(CH ₃ COO) ₂ + 0.5 M CH ₃ COONa	Zn foil	1.0–2.0	60 (50 mA g ⁻¹)	92%/1000 cycles (200 mA g ⁻¹)	[S26]	
Ca _{0.28} MnO ₂ ·0.5H ₂ O	1 M ZnSO ₄ + 0.1 M MnSO ₄	Zn foil	0.4–1.9	298 (175 mA g ⁻¹), 124.5(3500 mA g ⁻¹)	81%/5000 cycles (3500 mA g ⁻¹)	[S27]	
KMn ₈ O ₁₆	1 M ZnSO ₄ + 0.3 M KSO ₄	Zn foil	0.8–1.8	130 (100 mA g ⁻¹)	50%/100 cycles (100 mA g ⁻¹)	[S28]	
K _{0.8} Mn ₈ O ₁₆	2 M ZnSO ₄ + 0.1 M KSO ₄	Zn foil	0.8–1.8	320 (100 mA g ⁻¹)	-/1000 cycles (1000 mA g ⁻¹)	[S29]	
PANI-intercalated MnO ₂	2 M ZnSO ₄ + 0.1 M MnSO ₄	Zn foil	1.0–1.8	280 (200 mA g ⁻¹)	85%/5000 cycles (2000 mA g ⁻¹)	[S30]	
MnOx@N-doped carbon	1 M ZnSO ₄	Zn foil	0.8–1.8	100 (2000 mA g ⁻¹)	-/1600 cycles (2000 mA g ⁻¹)	[S31]	
LiMn ₂ O ₄	20 m LiTFSI+ 1 m Zn(TFSI) ₂	Zn foil	0.8–2.1	66 (0.2 C)	85%/4000 cycles (4 C)	[S32]	
ZnMn ₂ O ₄	1 M ZnSO ₄ + 0.05 M MnSO ₄	Zn foil	0.8–1.9	106.5 (100 mA g ⁻¹)	84%/300 cycles (100 mA g ⁻¹)	[S33]	
ZnMn ₂ O ₄	3 M Zn(CF ₃ SO ₃) ₂ + 0.1 M Mn(CF ₃ SO ₃) ₂	Zn foil	0.8–2.0	150 (50 mA g ⁻¹)	94%/500 cycles (500 mA g ⁻¹)	[S34]	

ZnAl _x Co _{2-x} O ₄	0.3 M Zn(CF ₃ SO ₃) ₂ /MeCN	Zn foil	1.4–2.2	134 (32 mA g ⁻¹)	97%/100 cycles (32 mA g ⁻¹)	[S35]
ZnNi _x Mn _x Co _{2-2x} O ₄	0.3 M Zn(CF ₃ SO ₃) ₂ /MeCN	Zn foil	0.9– 2.15	180 (21 mA g ⁻¹)	90%/100 cycles (42 mA g ⁻¹)	[S36]
V ₂ O ₅	21 m LiTFSI+ 1 m Zn(CF ₃ SO ₃) ₂	Zn foil	0.2–1.6	238 (50 mA g ⁻¹), 156 (1000 mA g ⁻¹)	80%/2000 cycles (2000 mA g ⁻¹)	[S37]
V ₂ O ₅	3 M Zn(CF ₃ SO ₃) ₂	Zn foil	0.2–1.6	470 (200 mA g ⁻¹)	91.1%/4000 cycles (5000 mA g ⁻¹)	[S38]
V ₂ O ₅	3 M Zn(CF ₃ SO ₃) ₂	Zn foil	0.5–1.5	319 (20 mA g ⁻¹)	81%/500 cycles (600 mA g ⁻¹)	[S39]
V ₂ O ₅	3 M ZnSO ₄	Zn foil	0.4–1.4	224 (100 mA g ⁻¹)	67%/400 cycles (1000 mA g ⁻¹)	[S40]
V ₂ O ₅	2 M Zn(CF ₃ SO ₃) ₂	Zn foil	0.3–1.5	401 (100 mA g ⁻¹)	73%/1000 cycles (2000 mA g ⁻¹)	[S41]
V ₂ O ₅	Zn(TFSI) ₂ /Ace eutectic	Zn foil	0.6–1.8	110 (600 mA g ⁻¹)	92.8%/800 cycles (600 mA g ⁻¹)	[S42]
V ⁴⁺ -V ₂ O ₅	2 M ZnSO ₄	Zn foil	0.4–1.4	262.1 (1000 mA g ⁻¹)	82%/1000 cycles (10000 mA g ⁻¹)	[S43]
V ₂ O ₅ ·1.6H ₂ O	2 M Zn(CF ₃ SO ₃) ₂	Zn foil	0.3– 1.65	426 (100 mA g ⁻¹), 251 (20000 mA g ⁻¹)	95%/5000 cycles (10000 mA g ⁻¹)	[S44]
V ₂ O ₅ ·2.2H ₂ O	3 M Zn(CF ₃ SO ₃) ₂	Zn/SS mesh	0.3–1.6	450 (100 mA g ⁻¹), 222 (10000 mA g ⁻¹)	72%/3000 cycles (5000 mA g ⁻¹)	[S45]
V ₂ O ₅ /CNT	1 M ZnSO ₄	Zn foil	0.2–1.7	312 (1000 mA g ⁻¹)	81%/2000 cycles (1000 mA g ⁻¹)	[S46]
V ₂ O ₅ /graphene	3 M ZnSO ₄	Zn foil	0.2–1.8	489 (100 mA g ⁻¹), 123 (70000 mA g ⁻¹)	80%/3500 cycles (30000 mA g ⁻¹)	[S47]
V ₂ O ₅ ·nH ₂ O/ graphene	3 M Zn(CF ₃ SO ₃) ₂ + 0.1 M Vanadium sol	Zn foil	0.2–1.6	381 (60 mA g ⁻¹), 248 (30000 mA g ⁻¹)	71%/900 cycles (6000 mA g ⁻¹)	[S48]
VO ₂	1 M ZnSO ₄	Zn foil	0.2–1.3	325.6 (50 mA g ⁻¹)	86%/5000 cycles (3000 mA g ⁻¹)	[S49]
VO ₂	3 M Zn(CF ₃ SO ₃) ₂	Zn foil	0.2–1.2	357 (50 mA g ⁻¹), 171 (51200 mA g ⁻¹)	91.2%/300 cycles (850 mA g ⁻¹)	[S50]
VO ₂ /graphene	3 M Zn(CF ₃ SO ₃) ₂	Zn foil	0.3–1.3	276 (100 mA g ⁻¹)	99%/1000 cycles (4000 mA g ⁻¹)	[S51]
V ₃ O ₇ ·H ₂ O	1 M ZnSO ₄	Zn/rGO	0.3–1.5	267 (300 mA g ⁻¹)	79%/1000 cycles (1500 mA g ⁻¹)	[S52]
V ₃ O ₇ ·H ₂ O	1 M ZnSO ₄	Zn foil	0.4–1.1	375 (375 mA g ⁻¹)	80%/200 cycles (3000 mA g ⁻¹)	[S53]
H ₂ V ₃ O ₈	3 M Zn(CF ₃ SO ₃) ₂	Zn foil	0.2–1.6	423.8 (100 mA g ⁻¹)	94.3%/1000 cycles	[S54]

							(5000 mA g ⁻¹)
H ₂ V ₃ O ₈ /graphene	3 M Zn(CF ₃ SO ₃) ₂	Zn foil	0.2–1.6	394 (100 mA g ⁻¹), 270 (6000 mA g ⁻¹)	87%/2000 cycles (6000 mA g ⁻¹)	[S55]	
V ₅ O ₁₂ ·6H ₂ O	3 M Zn(CF ₃ SO ₃) ₂ ; Gelatin/Zn(CF ₃ SO ₃) ₂	Zn foil	0.2–1.6	354.8 (500 mA g ⁻¹), 300 (100 mA g ⁻¹)	94%/1000 cycles (2000 mA g ⁻¹) 96%/50 cycles (100 mA g ⁻¹)	[S56]	
V ₆ O ₁₃	3 M Zn(CF ₃ SO ₃) ₂	Zn foil	0.2–1.5	360 (200 mA g ⁻¹), 145 (24000 mA g ⁻¹)	92%/2000 cycles (4000 mA g ⁻¹)	[S57]	
V ₆ O ₁₃ ·nH ₂ O	3 M Zn(CF ₃ SO ₃) ₂	Zn foil	0.2–1.4	395 (100 mA g ⁻¹), 97 (20000 mA g ⁻¹)	87%/1000 cycles (5000 mA g ⁻¹)	[S58]	
V ₁₀ O ₂₄ ·12H ₂ O	3 M Zn(CF ₃ SO ₃) ₂	Zn foil	0.7–1.7	165 (200 mA g ⁻¹)	80.1%/3000 cycles (10000 mA g ⁻¹)	[S59]	
LiV ₃ O ₈	1 M ZnSO ₄	Zn foil	0.6–1.2	256 (16 mA g ⁻¹)	75%/65 cycles (133 mA g ⁻¹)	[S60]	
Li _x V ₂ O ₅ ·nH ₂ O	2 M ZnSO ₄	Zn foil	0.4–1.4	470 (500 mA g ⁻¹)	76%/500 cycles (5000 mA g ⁻¹)	[S61]	
Na _{0.33} V ₂ O ₅	3 M Zn(CF ₃ SO ₃) ₂	Zn foil	0.2–1.6	367.1 (100 mA g ⁻¹)	93%/1000 cycles (1000 mA g ⁻¹)	[S62]	
NaV ₃ O ₈	1 M ZnSO ₄ + 1 M NaSO ₄	Zn foil	0.3– 1.25	380 (50 mA g ⁻¹)	82%/1000 cycles (4000 mA g ⁻¹)	[S63]	
Na _{1.1} V ₃ O _{7.9} / graphene	1 M Zn(CF ₃ SO ₃) ₂	Zn foil	0.4–1.4	191 (50 mA g ⁻¹)	84.8%/100 cycles (300 mA g ⁻¹)	[S64]	
Na ₂ V ₆ O ₁₆ ·3H ₂ O	1 M ZnSO ₄	Zn foil	0.4–1.4	266.6 (361 mA g ⁻¹)	80%/1000 cycles (14440 mA g ⁻¹)	[S65]	
Na ₅ V ₁₂ O ₃₂	2 M ZnSO ₄	Zn foil	0.4–1.4	281 (500 mA g ⁻¹)	71%/2000 cycles (4000 mA g ⁻¹)	[S66]	
K ₂ V ₆ O ₁₆ ·2.7H ₂ O	3 M Zn(CF ₃ SO ₃) ₂	Zn foil	0.4–1.4	239.2 (100 mA g ⁻¹)	82%/400 cycles (6000 mA g ⁻¹)	[S67]	
Ca _{0.20} V ₂ O ₅ ·0.8H ₂ O	30 m ZnCl ₂	Zn foil	0.25– 1.9	496 (50 mA g ⁻¹)	51.1%/100 cycles (50 mA g ⁻¹)	[S68]	
Ca _{0.25} V ₂ O ₅ ·nH ₂ O	1 M ZnSO ₄	Zn foil	0.6–1.6	340 (0.2 C)	96%/3000 cycles (80 C)	[S69]	
CaV ₆ O ₁₆ ·3H ₂ O	3 M Zn(CF ₃ SO ₃) ₂	Zn foil	0.2–1.6	367 (50 mA g ⁻¹), 265 (100 mA g ⁻¹)	100%/300 cycles (500 mA g ⁻¹)	[S70]	
Mg _{0.34} V ₂ O ₅ ·nH ₂ O	3 M Zn(CF ₃ SO ₃) ₂	Zn foil	0.2–1.8	352 (100 mA g ⁻¹)	97%/2000 cycles (5000 mA g ⁻¹)	[S71]	
Zn _{0.25} V ₂ O ₅ ·nH ₂ O	1 M ZnSO ₄	Zn foil	0.5–1.4	300 (50 mA g ⁻¹)	80%/1000 cycles (2400 mA g ⁻¹)	[S72]	
Al-doped VO _{1.52} (OH) _{0.77}	1 M ZnSO ₄	Zn foil	0.2– 1.13	156 (15 mA g ⁻¹)	68%/50 cycles (15 mA g ⁻¹)	[S73]	
Zn ₂ (OH)VO ₄	2 M ZnSO ₄ + 4%	Zn nanoflake	0.4–1.5	204 (100 mA g ⁻¹)	89%/2000 cycles (4000 mA g ⁻¹)	[S74]	

fumed silica						
$\text{Zn}_3\text{V}_2\text{O}_7(\text{OH})_2 \cdot 2\text{H}_2\text{O}$	1 M ZnSO_4	Zn foil	0.2–1.8	213 (50 mA g^{-1})	68%/300 cycles (200 mA g^{-1})	[S75]
$\text{Fe}_5\text{V}_{15}\text{O}_{39}(\text{OH})_9 \cdot 9\text{H}_2\text{O}$	0.3 M $\text{Zn}(\text{TFSI})_2$	Zn foil	0.4–1.6	385 (100 mA g^{-1})	80%/300 cycles (5000 mA g^{-1})	[S76]
$\text{Mn}_x\text{V}_2\text{O}_5 \cdot n\text{H}_2\text{O}$	3 M $\text{Zn}(\text{CF}_3\text{SO}_3)_2$	Zn foil	0.2–1.6	415 (50 mA g^{-1})	96%/2000 cycles (4000 mA g^{-1})	[S77]
$\delta\text{-Ni}_{0.25}\text{V}_2\text{O}_5 \cdot n\text{H}_2\text{O}$	3 M ZnSO_4	Zn foil	0.3–1.7	402 (200 mA g^{-1})	98%/1200 cycles (5000 mA g^{-1})	[S78]
$\text{Ag}_{0.33}\text{V}_2\text{O}_5$	2 M ZnSO_4	Zn foil	0.4–1.4	350 (50 mA g^{-1})	83%/100 cycles (1000 mA g^{-1})	[S79]
$\text{Ba}_{1.2}\text{V}_6\text{O}_{16} \cdot 3\text{H}_2\text{O}$	2 M ZnSO_4	Zn foil	0.3–1.4	345.5 (100 mA g^{-1})	95.6%/2000 cycles (10000 mA g^{-1})	[S80]
$\text{Co}_{0.247}\text{V}_2\text{O}_5 \cdot 0.944\text{H}_2\text{O}$	20 m LiTFSI + 1 m $\text{Zn}(\text{TFSI})_2$	Zn foil	0.6–2.2	432 (100 mA g^{-1})	90.26%/7500 cycles (10000 mA g^{-1})	[S81]
$\text{NaCa}_{0.6}\text{V}_6\text{O}_{16} \cdot 3\text{H}_2\text{O}$	3 M $\text{Zn}(\text{CF}_3\text{SO}_3)_2$	Zn foil	0.4–1.5	347 (100 mA g^{-1})	83%/10000 cycles (5000 mA g^{-1})	[S82]
$\text{Zn}_x\text{Mo}_{2.5+y}\text{VO}_{9+z}$	0.5 M $\text{Zn}(\text{CH}_3\text{COO})_2$	Zn foil	0.01–1.6	180 (20 mA g^{-1})	66.6%/30 cycles (20 mA g^{-1})	[S83]
$\text{NH}_4\text{V}_4\text{O}_{10}$	3 M $\text{Zn}(\text{CF}_3\text{SO}_3)_2$	Zn foil	0.8–1.7	147 (200 mA g^{-1})	70.3%/5000 cycles (5000 mA g^{-1})	[S84]
$(\text{NH}_4)_2\text{V}_{10}\text{O}_{25} \cdot 8\text{H}_2\text{O}$	2 M ZnSO_4	Zn foil	0.7–1.7	228.8 (100 mA g^{-1})	90.1%/5000 cycles (5000 mA g^{-1})	[S85]
VOPO_4	21 m LiTFSI + 1 m $\text{Zn}(\text{CF}_3\text{SO}_3)_2$	Zn foil	0.8–2.1	139 (50 mA g^{-1})	93%/1000 cycles (5000 mA g^{-1})	[S86]
$\text{VOPO}_4 \cdot x\text{H}_2\text{O}$	13 m ZnCl_2 + 0.8 m H_3PO_4	Zn foil	0.7–1.9	170 (100 mA g^{-1})	87%/500 cycles (2000 mA g^{-1})	[S87]
$\text{Li}_3\text{V}_2(\text{PO}_4)_3/\text{C}$	4 M $\text{Zn}(\text{CF}_3\text{SO}_3)_2$	Zn foil	0.2–1.9	141 (300 mA g^{-1})	99%/4000 cycles (1500 mA g^{-1})	[S88]
$\text{Na}_3\text{V}_2(\text{PO}_4)_3$	0.5 M $\text{Zn}(\text{CH}_3\text{COO})_2$	Zn foil	0.8–1.6	97 (50 mA g^{-1})	74%/100 cycles (50 mA g^{-1})	[S89]
$\text{Na}_3\text{V}_2(\text{PO}_4)_3/\text{C}$	0.5 M CH_3COONa + 0.5 M $\text{Zn}(\text{CH}_3\text{COO})_2$	Zn foil	0.8–1.7	92 (50 mA g^{-1})	74%/200 cycles (50 mA g^{-1})	[S90]
$\text{Na}_3\text{V}_2(\text{PO}_4)_3/\text{rGO}$	2 M $\text{Zn}(\text{CF}_3\text{SO}_3)_2$	Zn foil	0.6–1.8	114 (35 mA g^{-1})	75%/200 cycles (50 mA g^{-1})	[S91]
$\text{Na}_3\text{V}_2(\text{PO}_4)_2\text{F}_3$	2 M $\text{Zn}(\text{CF}_3\text{SO}_3)_2$	Carbon film functionalizing Zn	0.8–1.9	61.7 (20 mA g^{-1})	95%/4000 cycles (1000 mA g^{-1})	[S92]
$\text{Na}_3\text{V}_2(\text{PO}_4)_2\text{O}_2\text{F}$	1 M NaClO_4 + 0.5 M $\text{Zn}(\text{CF}_3\text{SO}_3)_2/\text{TMP}$	Zn foil	1.0–2.2	126.5 (26 mA g^{-1})	83.5%/1000 cycles (130 mA g^{-1})	[S93]

VN _{0.9} O _{0.15}	3 M Zn(CF ₃ SO ₃) ₂	Zn foil	0.2–1.8	603 (34 mA g ⁻¹), 186 (25500 mA g ⁻¹)	100%/1500 cycles (4250 mA g ⁻¹)	[S94]
VN _x O _y	2 M ZnSO ₄	Zn foil	0.4–1.4	240 (1000 mA g ⁻¹)	75%/2000 cycles (20000 mA g ⁻¹)	[S95]
VS ₂	1 M ZnSO ₄	Zn foil	0.4–1.0	190 (50 mA g ⁻¹)	98%/200 cycles (500 mA g ⁻¹)	[S96]
VS ₂	water@ZnMOF-808	Zn foil	0.4–1.0	140 (200 mA g ⁻¹)	89%/250 cycles (200 mA g ⁻¹)	[S97]
VS ₄ /graphene	1 M Zn(CF ₃ SO ₃) ₂	Zn foil	0.3–1.8	180 (1000 mA g ⁻¹)	93.3%/165 cycles (1000 mA g ⁻¹)	[S98]
CuFe(CN) ₆	0.02 M ZnSO ₄	Zn foil	0.5–1.4	53 (60 mA g ⁻¹)	96%/100 cycles (60 mA g ⁻¹)	[S99]
CuFe(CN) ₆	1 M ZnSO ₄	Zn foil	1.2–2.1	55 (60 mA g ⁻¹)	90%/50 cycles (60 mA g ⁻¹)	[S100]
CuFe(CN) ₆	1 M Na ₂ SO ₄ + 0.01 M ZnSO ₄	Hyper-dendritic Zn	1.4–2.1	60 (60 mA g ⁻¹)	97%/500 cycles (300 mA g ⁻¹)	[S101]
Zn ₃ [Fe(CN) ₆] ₂	3 M ZnSO ₄	Zn foil	0.8–1.9	66.5 (60 mA g ⁻¹)	81%/200 cycles (300 mA g ⁻¹)	[S102]
Zn ₃ [Fe(CN) ₆] ₂	1 M ZnSO ₄	Zn foil	0.8–1.9	65.4 (60 mA g ⁻¹)	80%/200 cycles (300 mA g ⁻¹)	[S103]
Na _{0.61} Fe _{1.94} (CN) ₆	1 M ZnSO ₄	Zn foil	0.9–1.6	73.5 (100 mA g ⁻¹)	80%/1000 cycles (300 mA g ⁻¹)	[S104]
Fe[Fe(CN) ₆]	0.1 M KCl	Zn foil	0.8–2.15	142 (416 mA g ⁻¹)	82%/500 cycles (416 mA g ⁻¹)	[S105]
CoFe(CN) ₆	4 m Zn(CF ₃ SO ₃) ₂	Zn foil	0.75–1.9	173.4 (300 mA g ⁻¹)	100%/2200 cycles (3000 mA g ⁻¹)	[S106]
NiFe(CN) ₆	0.5 M Na ₂ SO ₄ + 0.05 M ZnSO ₄	Zn foil	0.9–1.9	76.2 (100 mA g ⁻¹)	81%/1000 cycles (500 mA g ⁻¹)	[S107]
Na ₂ MnFe(CN) ₆	1 M Na ₂ SO ₄ + 1 M ZnSO ₄ + SDS	Zn foil	1.0–2.0	137 (160 mA g ⁻¹)	75%/2000 cycles (800 mA g ⁻¹)	[S108]
Zn _{0.32} K _{0.86} Ni[Fe(CN) ₆] _{0.95} H ₂ O _{0.77}	0.5 M Zn(ClO ₄) ₂ /AN	Zn foil	0.7–1.8	55.6 (11.2 mA g ⁻¹)	95%/35 cycles (11.2 mA g ⁻¹)	[S109]
Calix[4]quinone	3 M Zn(CF ₃ SO ₃) ₂	Zn foil	0.8–1.3	335 (60 mA g ⁻¹)	87%/1000 cycles (500 mA g ⁻¹)	[S110]
<i>p</i> -Chloranil	1 M Zn(CF ₃ SO ₃) ₂	Zn foil	0.8–1.4	200 (43 mA g ⁻¹)	65%/200 cycles (217 mA g ⁻¹)	[S111]
Poly(benzoquinonyl sulfide)	1 M Zn(CF ₃ SO ₃) ₂	Zn foil	0.2–1.8	203 (20 mA g ⁻¹)	86%/50 cycles (40 mA g ⁻¹)	[S112]
Polyaniline–Cellulose	1 M ZnSO ₄ + 0.3 M (NH ₄) ₂ SO ₄	Zn-deposited graphite papers	0.7–1.7	142.3 (200 mA g ⁻¹)	84.7%/1000 cycles (4000 mA g ⁻¹)	[S113]
Polyaniline	1 M Zn(CF ₃ SO ₃) ₂	Zn foil	0.5–1.5	95 (5000 mA g ⁻¹)	92%/3000 cycles (5000 mA g ⁻¹)	[S114]
Sulfo self-doped PANI	1 M ZnSO ₄	Carbon film coated Zn	0.5–1.6	184 (200 mA g ⁻¹)	85%/2000 cycles (10000 mA g ⁻¹)	[S115]

2-ethynyl(exTTF)	1 M Zn(BF ₄) ₂	Zn foil	0.6–1.7	133 (2660 mA g ⁻¹)	86%/10000 cycles (15860 mA g ⁻¹)	[S116]
Pyrene-4,5,9,10-tetraone	2 M ZnSO ₄	Zn foil	0.4–1.5	336 (40 mA g ⁻¹)	70%/1000 cycles (3000 mA g ⁻¹)	[S117]
Hydroquinone-COF	3 M ZnSO ₄	Zn foil	0.2–1.8	276 (125 mA g ⁻¹)	95%/1000 cycles (3750 mA g ⁻¹)	[S118]
Mo ₆ S ₈	0.1 M ZnSO ₄	Zn foil	0.25–1.0	88 (6.4 mA g ⁻¹), 57 (128 mA g ⁻¹)	--	[S119]
Mo ₆ S ₈	1 M ZnSO ₄	Zn foil	0.25–1.0	79 (45 mA g ⁻¹), 63 (180 mA g ⁻¹)	98%/150 cycles (180 mA g ⁻¹)	[S120]
MoS ₂	3 M Zn(CF ₃ SO ₃) ₂	Zn foil	0.2–1.3	135 (100 mA g ⁻¹)	87.8%/1000 cycles (1000 mA g ⁻¹)	[S121]
MoS ₂ -O	3 M Zn(CF ₃ SO ₃) ₂	Zn foil	0.2–1.4	232 (100 mA g ⁻¹)	68%/2000 cycles (1000 mA g ⁻¹)	[S122]
MnS	ZnSO ₄	Zn foil	1.0–1.8	221 (100 mA g ⁻¹)	63.6%/100 cycles (500 mA g ⁻¹)	[S123]
LiMn _{0.8} Fe _{0.2} PO ₄	21 m LiTFSI + 0.5 m ZnSO ₄	Zn foil	1.0–2.3	137 (17 mA g ⁻¹), 59 (510 mA g ⁻¹)	98.9%/150 cycles (51 mA g ⁻¹)	[S124]
LiFePO ₄	CH ₃ COOLi (15 wt%) + Zn(CH ₃ COO) ₂ (15 wt%)	Zn foil	0.5–1.7	~155 (0.2 C)	~100%/125 cycles (1 C)	[S125]
LiCo _{1/3} Mn _{1/3} Ni _{1/3} PO ₄	1 M ZnSO ₄ + 1M LiOH	Zn foil	0.5–1.7	45 (20 mA)	--	[S126]
LiNi _{1/3} Co _{1/3} Mn _{1/3} O ₂	0.25 M Li ₂ SO ₄ + 0.125 M Zn(CH ₃ COO) ₂	Zn foil	1.0–1.9	115 (0.5 C)	99%/40 cycles (0.5 C)	[S127]

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