Supporting Information

Electrochemical Induced V_5S_8/V_2O_5 Heterostructures Manipulate Redox Kinetics for Aqueous Zinc-Ion Batteries

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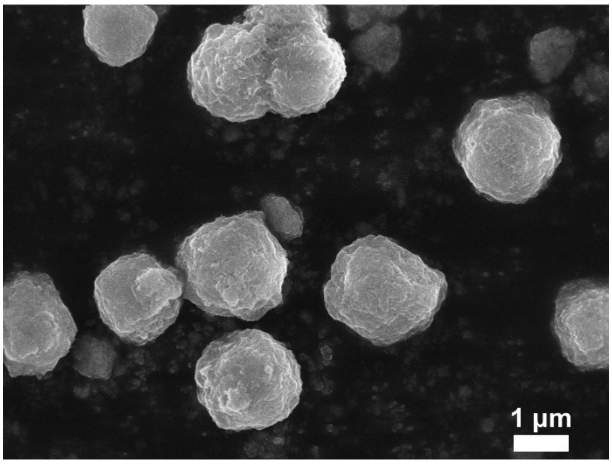


Figure S1. SEM image of VS_4.

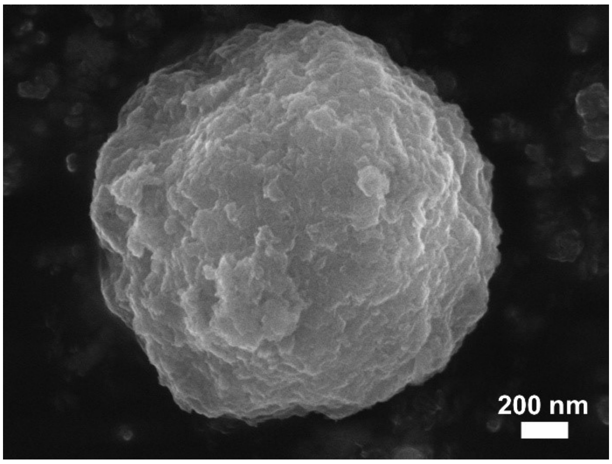


Figure S2. SEM image of VS_4.

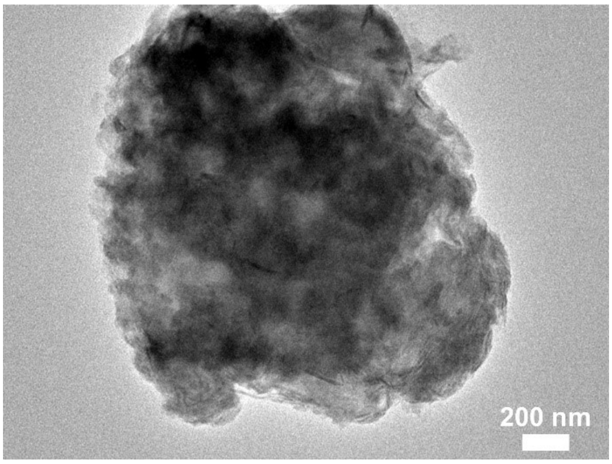


Figure S3. TEM image of VS_4.

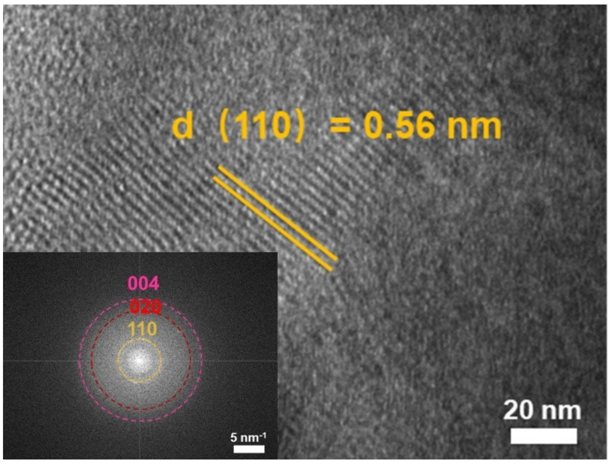


Figure S4. HRTEM image with corresponding SAED pattern of VS_4.

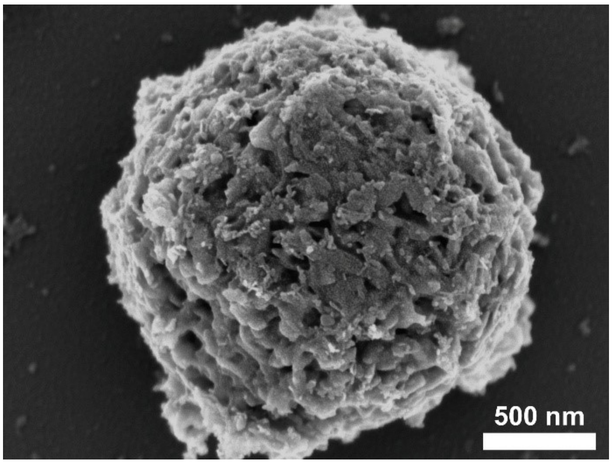


Figure S5. SEM image of V_5S_8.

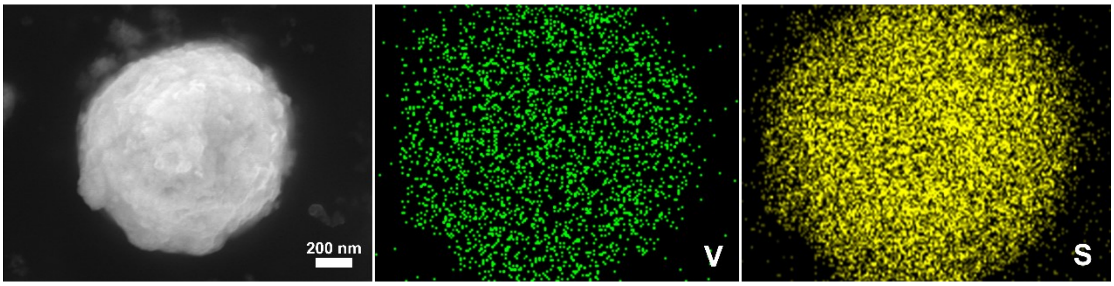
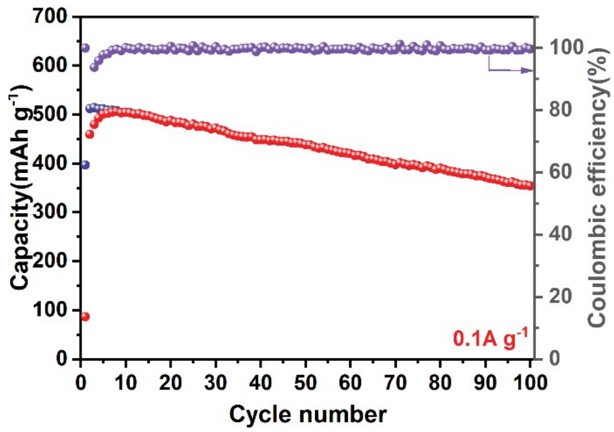


Figure S6. Element mapping of VS_4.



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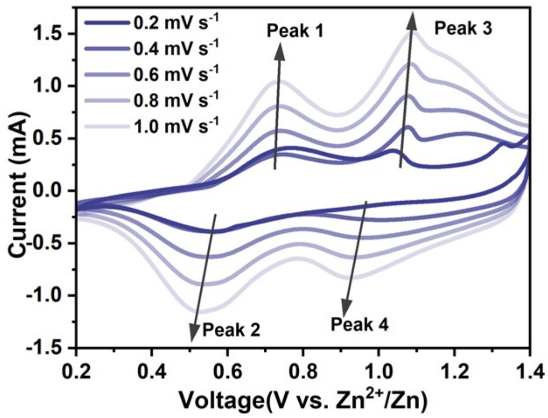

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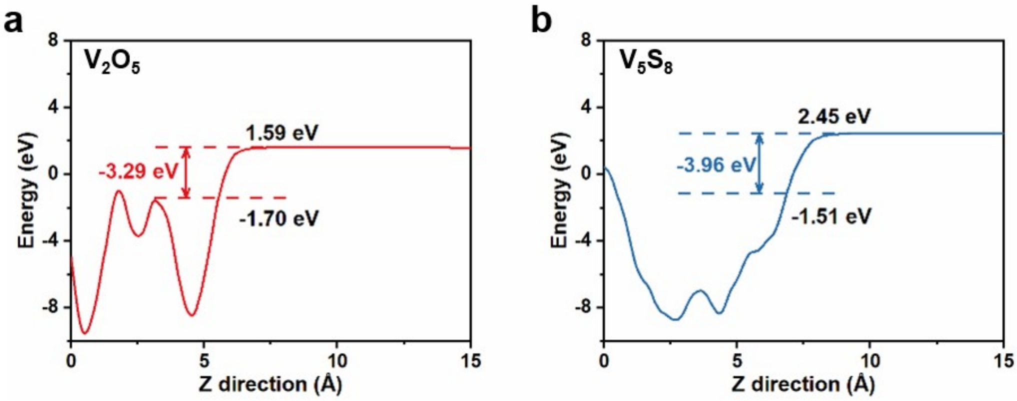

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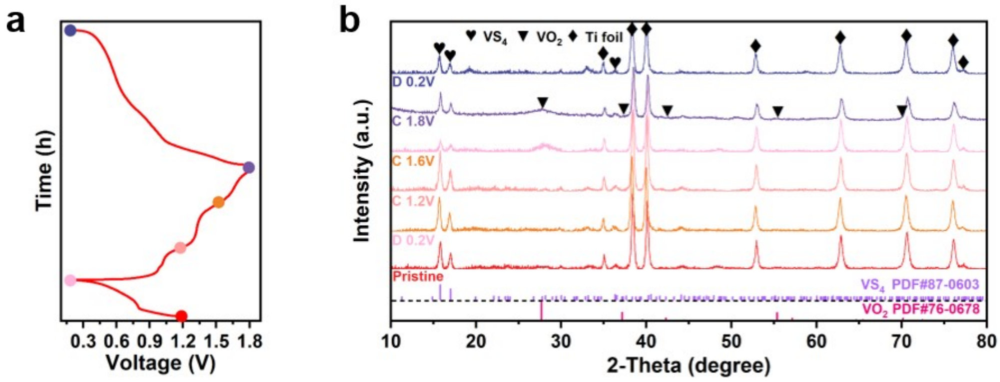

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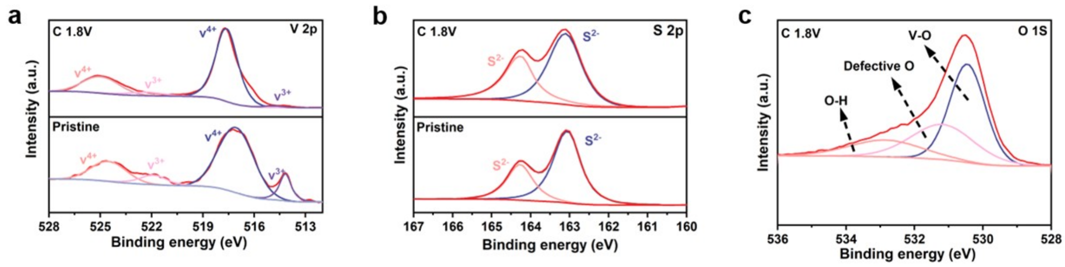

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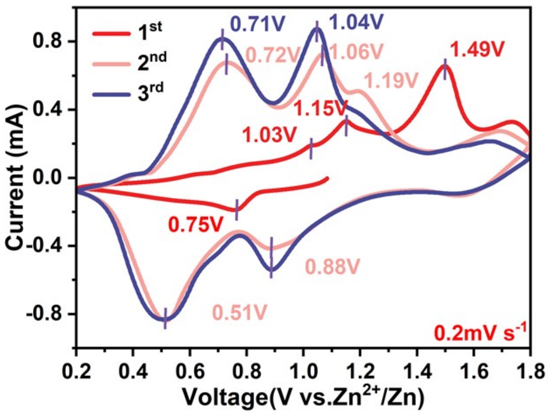

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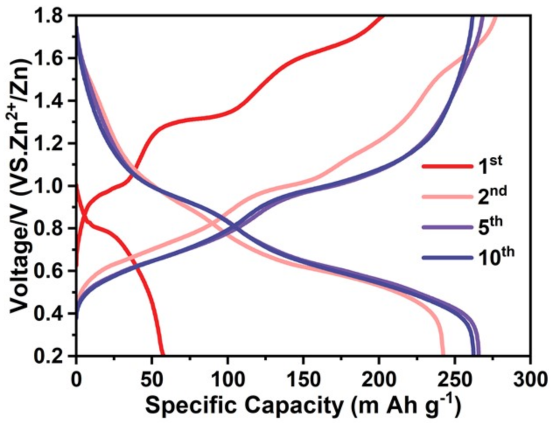

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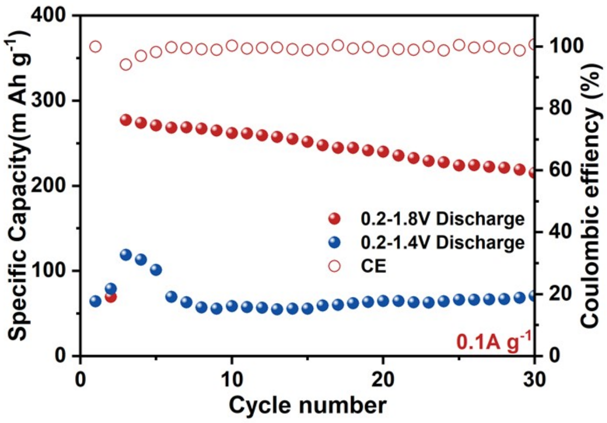

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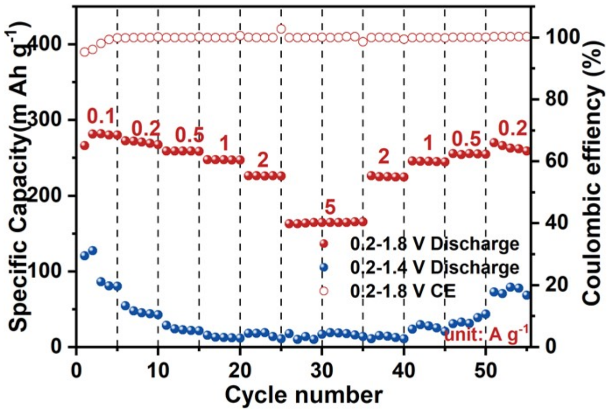

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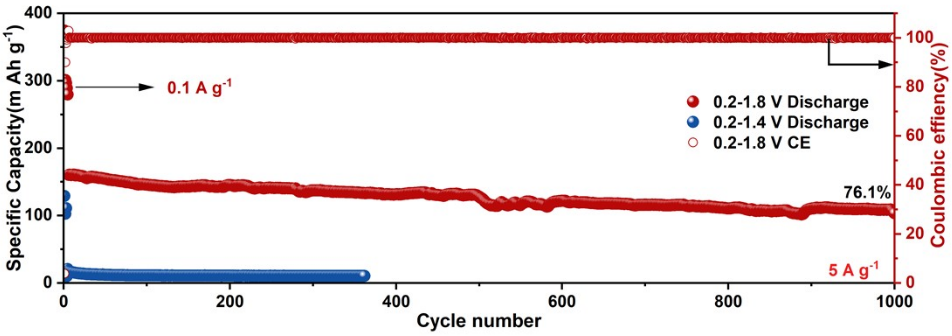

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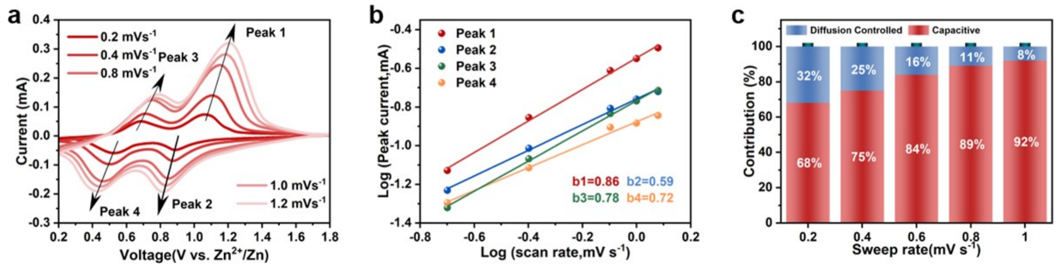

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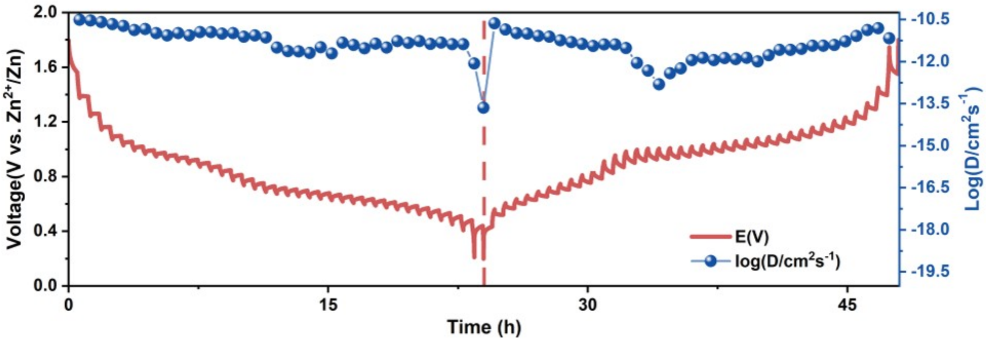

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Table S1. Comparison of electrochemical performances of the V_5S_8/V_2O_5 heterostructure with reported cathode materials for Zn^{2+} ions storage.

Material	**Current density (A g^{-1})**	**Specific capacity (mAh g^{-1})**	**Cycle number**	**capacity retention rate**	**Reference**
VS_2	0.1	170	25	77%	[1]
VS_2@VOOH	0.5	143	200	83%	[2]
VS_2/VO_x	0.05	310	70	75%	[3]
VS_4	1	219	100	57.2	[4]
VS_4/rGO	1	296	100	80%	[4]
Oxygen-incorporated MoS_2	0.1	232	/	68%	[5]
VS_2	0.5	165	500	83%	[6]
V_5S_8/V_2O_5 heterostructure	**0.1**	**352**	**100**	**81%**	**This work**

Table S2. Comparison of diffusion coefficient of the V_5S_8/V_2O_5 heterostructure with previous reported cathode materials.

Cathode Material	Diffusion coefficient [cm^2 s^{-1}]	Ref.
VS_2	10^{-9}-10^{-10}	[7]
W doped VS_4	10^{-12}	[8]
Mo doped VS_4	10^{-12}	[9]
VS_4	10^{-11}-10^{-13}	[10]
V_6O_{13}❿H_2O	10^{-10}-10^{-12}	[11]
V_5S_8/V_2O_5 heterostructure	**10^{-10}-10^{-12}**	**This work**

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