

Study of a novel supramolecular hydrogel electrolyte for aqueous zinc ion batteries

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Supporting Figure

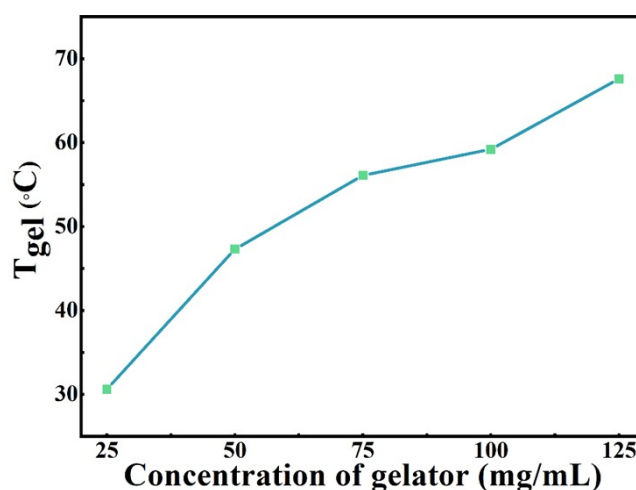


Figure S1 Phase transition temperature with different concentrations of gelator.



Figure S2. The gelation of different DMSO content solutions. The DMSO content was 10 %, 20 %, 30 %, 40 % and 50 % from left to right, respectively.

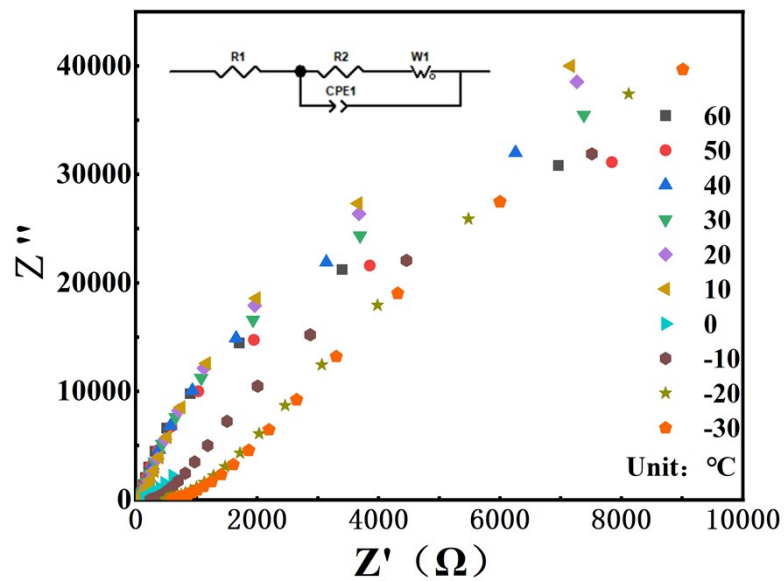


Figure S3. Electrochemical impedance plots of SBU-D20 at different temperature.

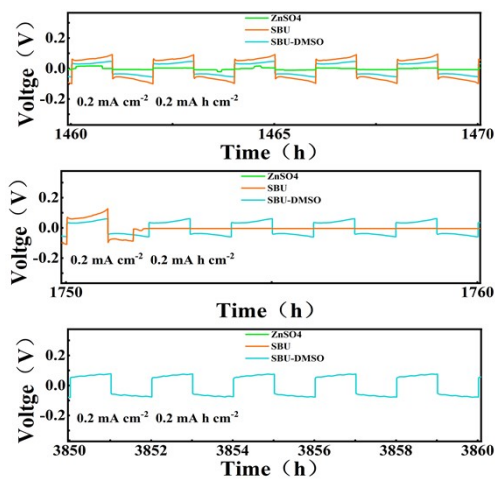


Figure S4. Voltage profiles of Zn/ Zn symmetrical batteries with different electrolyte at the current density of 0.2 mA cm^{-2} .

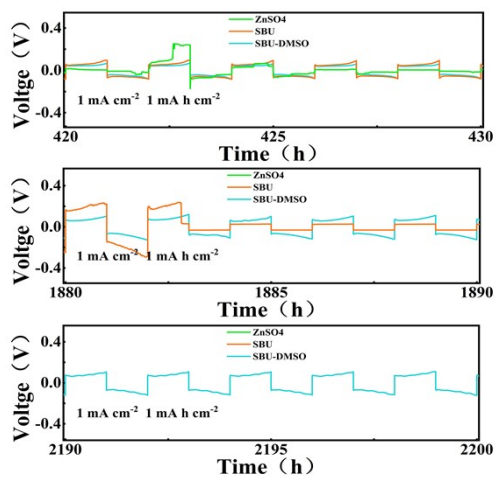


Figure S5. Voltage profiles of Zn/ Zn symmetrical batteries with different electrolyte at the

current density of 1 mA cm^{-2} .

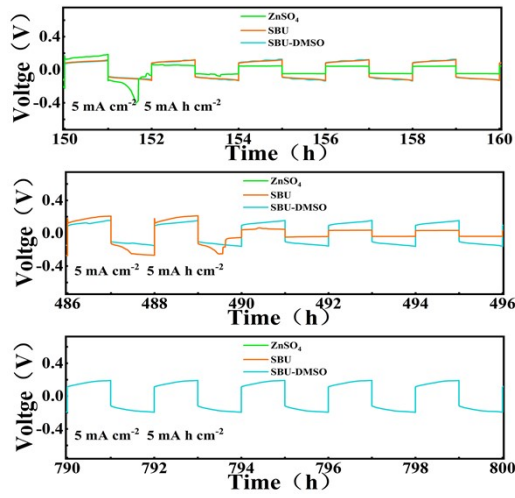


Figure S6. Voltage profiles of Zn/ Zn symmetrical batteries with different electrolyte at the current density of 5 mA cm^{-2} .

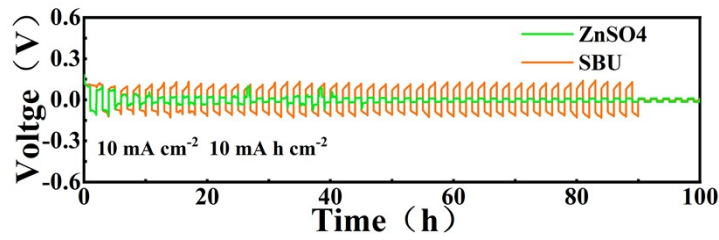


Figure S7. Galvanostatic Zn plating/stripping in Zn/Zn symmetrical batteries with $10 \text{ mA} \cdot \text{cm}^{-2}$, 10 mA h cm^{-2}

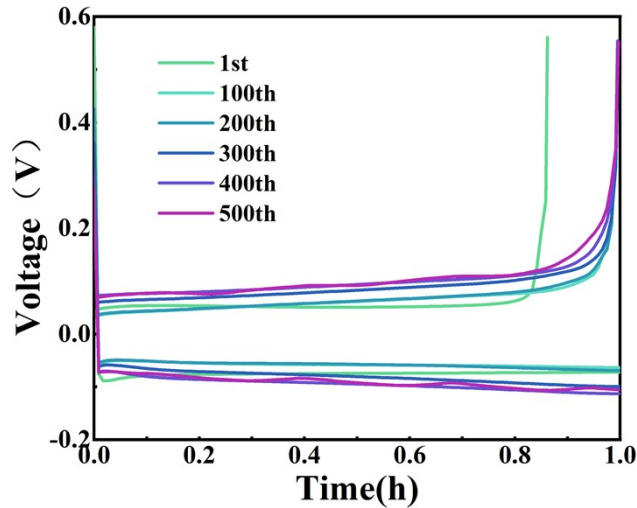


Figure S8. Voltage profiles of Zn/Cu batteries with SBU-DMSO electrolyte.

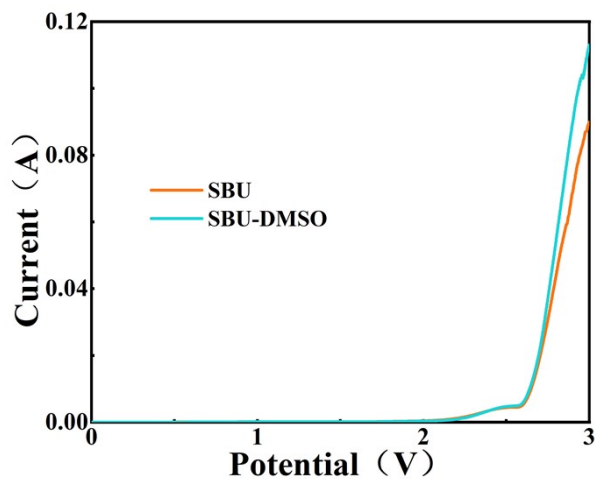


Figure S9. LSV curve of SBU and SBU-DMSO

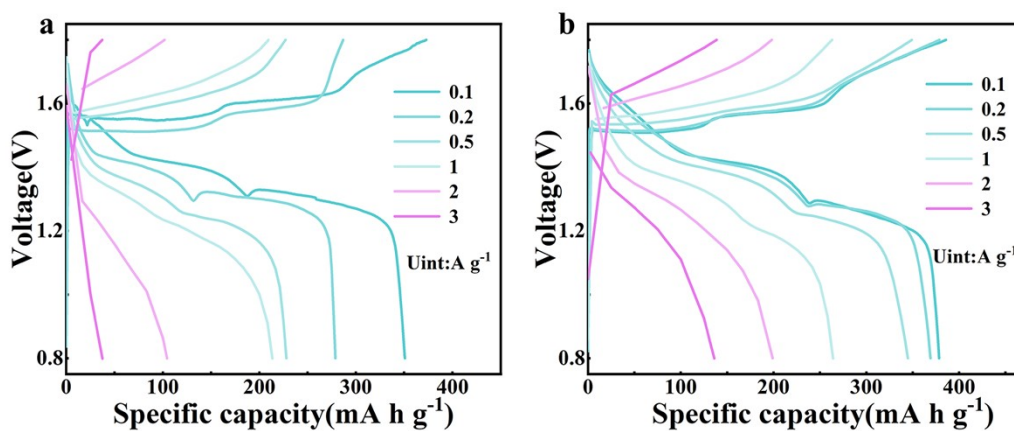


Figure S10. GCD curves of β MnO₂/Zn full cell at different current densities, (a) with ZnSO₄ LE, (b) with SBU electrolyte.

Supporting Table

Table S1. The cycle life of Zn/ Zn-symmetric batteries with different electrolytes.

<u>Electrolyte</u>	Density/Capacity (mA cm ⁻² /mA h cm ⁻²)	Lifespan(hours)	<u>references</u>
ZnSO ₄ /SBU/DMSO	5/5	800	This work
	1/1	2300	
	0.2/0.2	4000	
ZnSO ₄ /DMSO	1/1	2100	1
	3/3	200	
ZnSO ₄ / cyclodextrin	5/5	200	2
	1/1	1000	
ZnSO ₄ /vanillin	1/10	200	3
	1/5	350	
	1/1	1000	
ZnSO ₄ /CMC/PAM hydrogel	0.2/0.2	500	4
ZnSO ₄ /iota carrageenan (IC) and Aam hydrogel	0.25/0.25	400	5
ZnSO ₄ / alginate hydrogel	2/2	600	6
	1/0.5	1000	
ZnSO ₄ / PEG/ agarose	5/1	300	7

Reference

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