Supporting Information

# Boosting zinc storage of small-molecule organic cathode by a desalinization strategy

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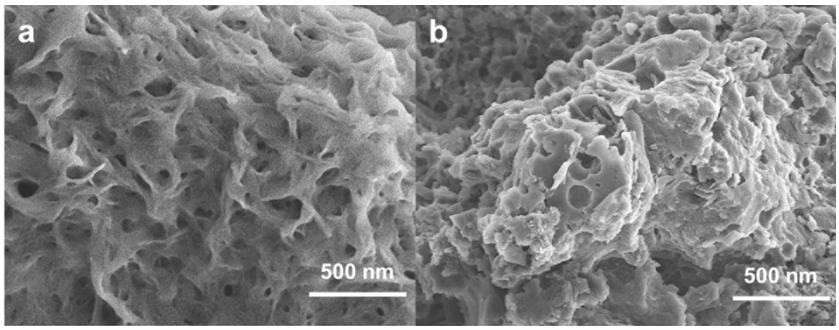


**Fig. S1** SEM images of (a) RSS and (b) TRT.

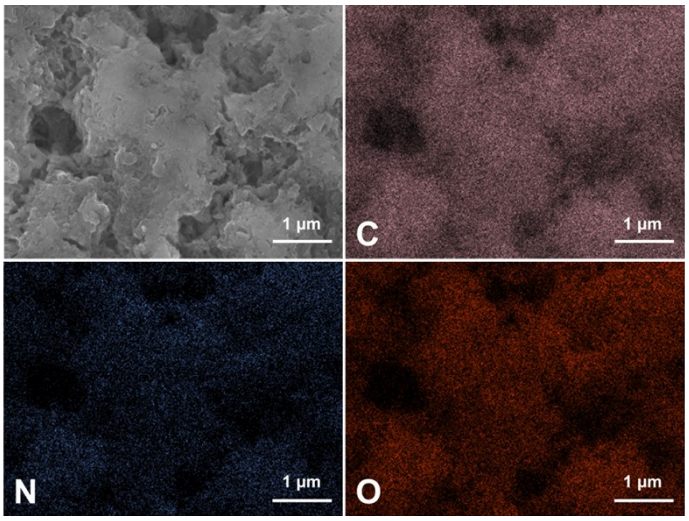


**Fig. S2** SEM images of TRT and the corresponding elemental mapping results.

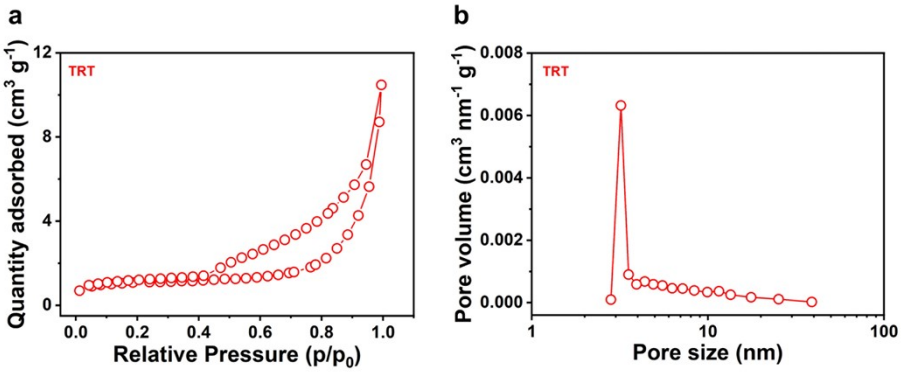


**Fig. S3** (a) $N_2$ adsorption-desorption curves, and (b) pore size distribution plots of TRT.

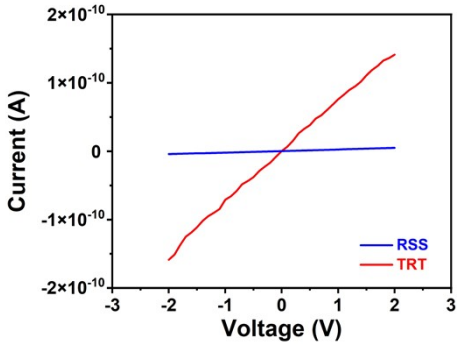


**Fig. S4** V-I plot of TRT.

The resistivity is calculated according to the relationship between the voltage (V) and current (I) as follow:

$$\rho = \frac{VS}{IL}$$

The conductivity ($\sigma$) is calculated using the following equation:

$$\sigma = \frac{1}{\rho}$$

S and L are cross-sectional area and length between two electrodes, respectively.

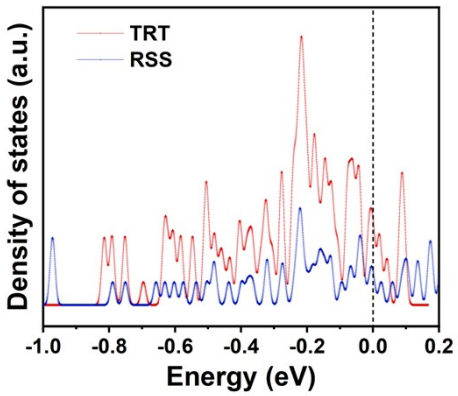


**Fig. S5** Calculated density of states of RSS and TRT as indicated.

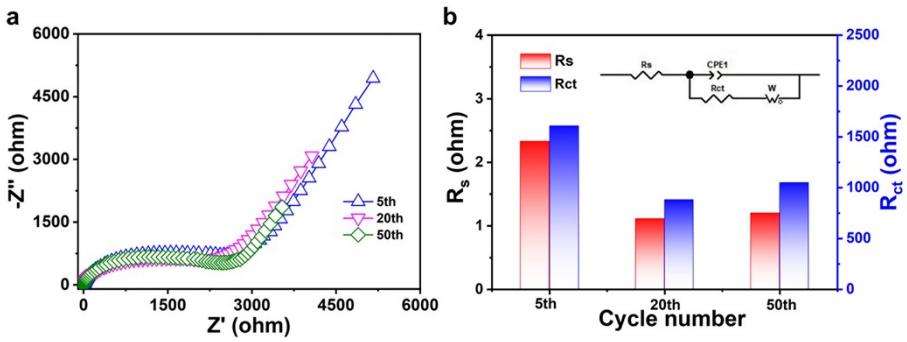


**Fig. S6** (a) EIS measurements of TRT, the Nyquist plots and (b) impedance fitting diagram of TRT under different cycles (5th, 20th, and 50th).

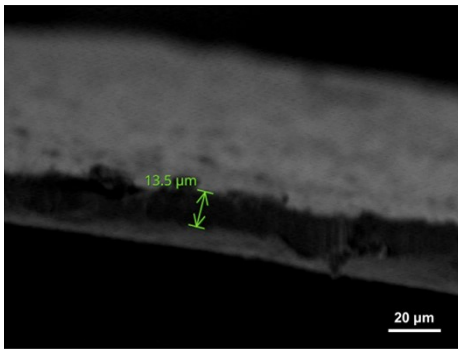


**Fig. S7** Cross-sectional image of the TRT electrode.

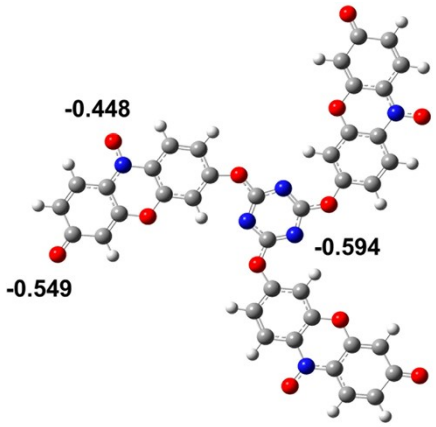


**Fig. S8** The planar structure of the TRT molecule and the charge distributions of the most negative atoms.

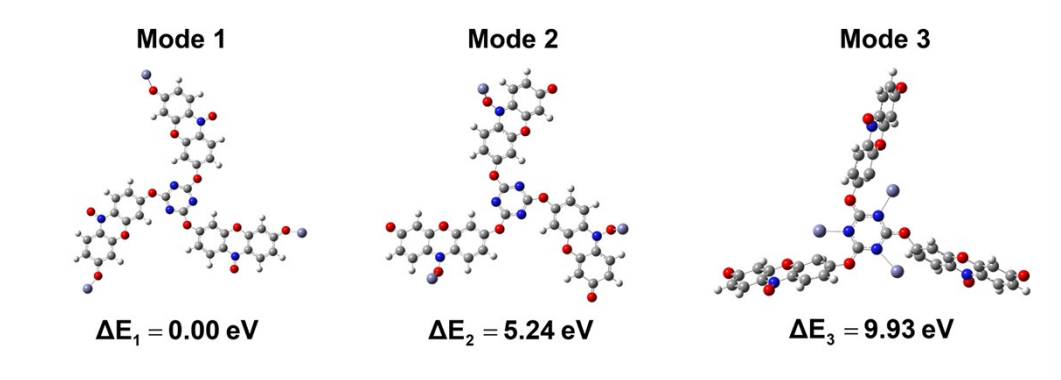


**Fig. S9** Various modes of Zn storage states for the TRT cathode.

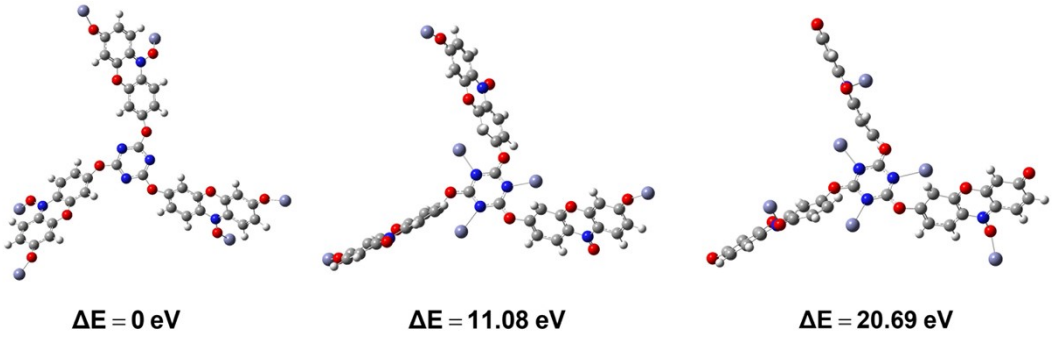


**Fig. S10** Three possible adsorption conformations with six zinc ions in different groups and their relative electronic energies (in eV).

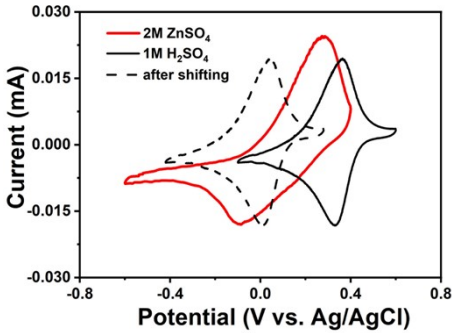


**Fig. S11** Typical CV curves of TRT at a scan rate of 1 mV $s^{-1}$ in 2M $ZnSO_4$ and 1M $H_2SO_4$ electrolyte.