

## Electronic Supplementary Material

Vanadium oxide cathode with synergistic engineering of calcium-ion intercalation and polyaniline coating for high performance zinc-ion batteries

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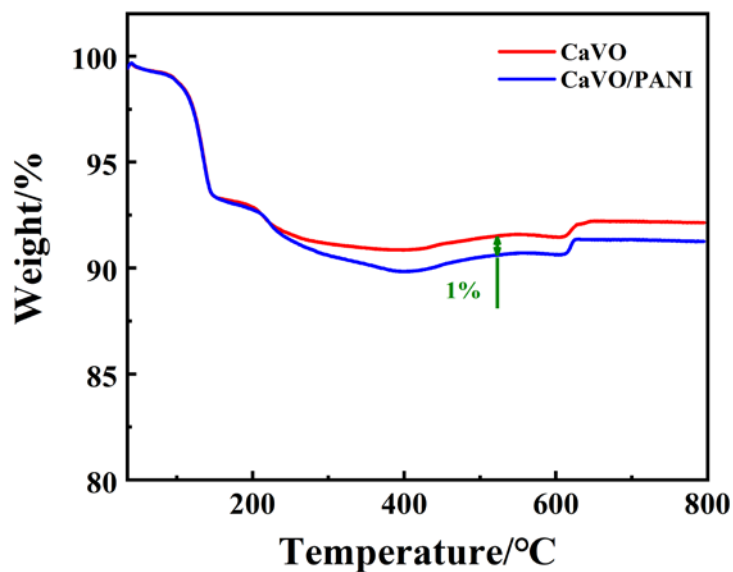


Fig. S1 TGA curves of the CaVO and CaVO/PANI samples.

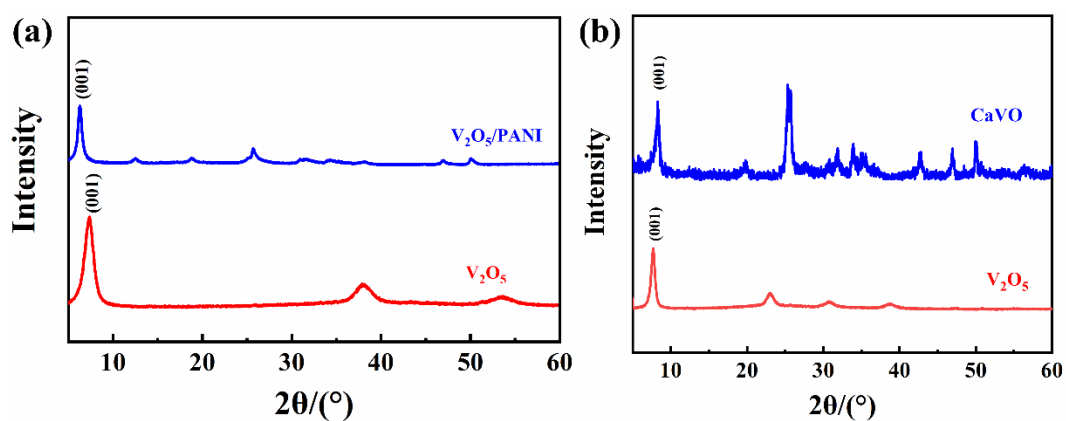


Fig. S2 XRD patterns of (a) V<sub>2</sub>O<sub>5</sub> and V<sub>2</sub>O<sub>5</sub>/PANI; (b) V<sub>2</sub>O<sub>5</sub> and CaVO cathode.

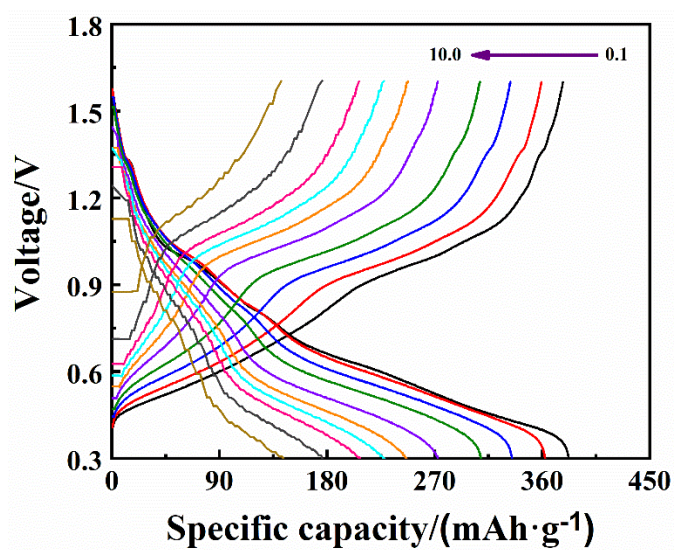
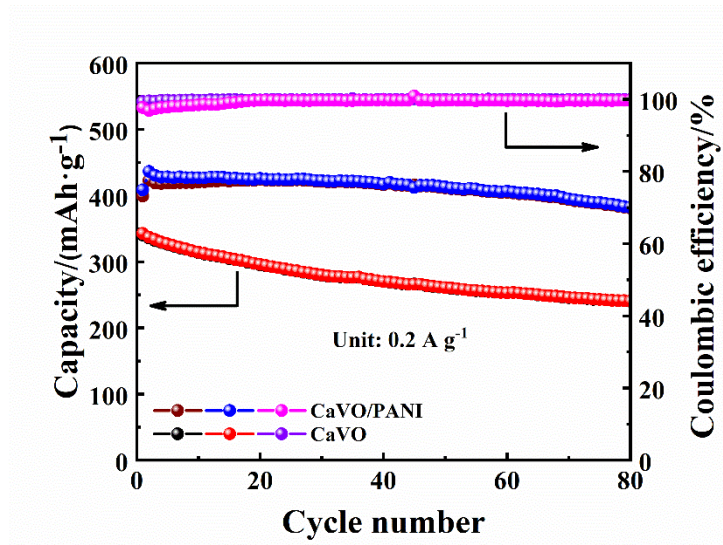
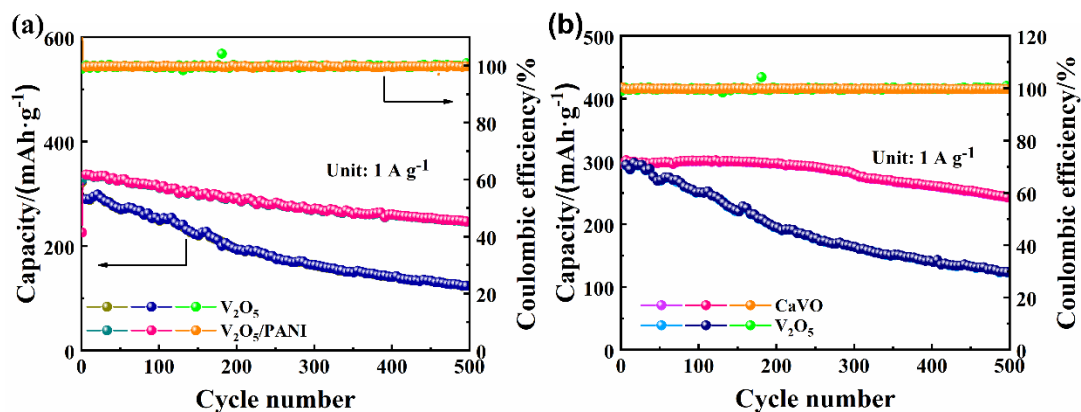


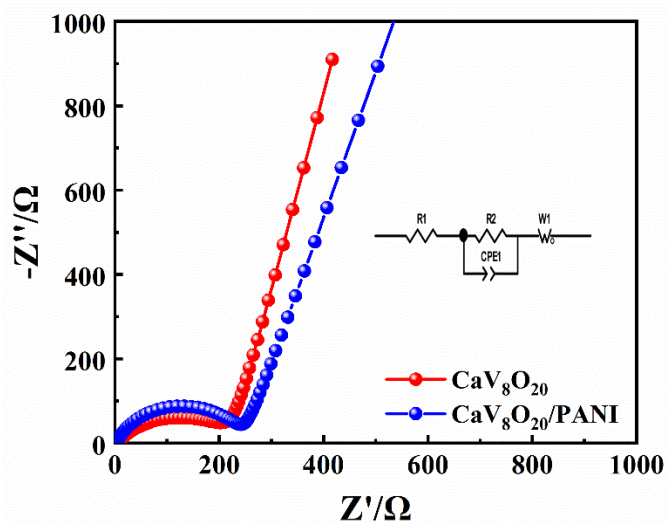
Fig. S3 The charge/discharge curves of CaVO at diverse current density.



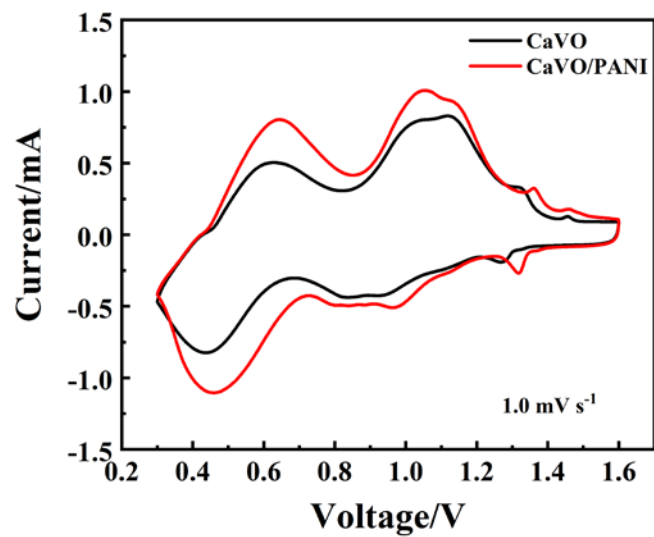
**Fig. S4** Cyclic performance of CaVO/PANI and CaVO at  $0.2 \text{ A g}^{-1}$ .



**Fig. S5** Cyclic performance of (a)  $\text{V}_2\text{O}_5$  and  $\text{V}_2\text{O}_5/\text{PANI}$ , (b)  $\text{V}_2\text{O}_5$  and CaVO at  $1 \text{ A g}^{-1}$ .



**Fig. S6** EIS curves of CaVO and CaVO/PANI cathodes.



**Fig. S7** CV curves of CaVO and CaVO/PANI cathodes at 1.0 mVs<sup>-1</sup>.