

## Support Information

### An all-solid-state coaxial structural battery using sodium-based electrolyte

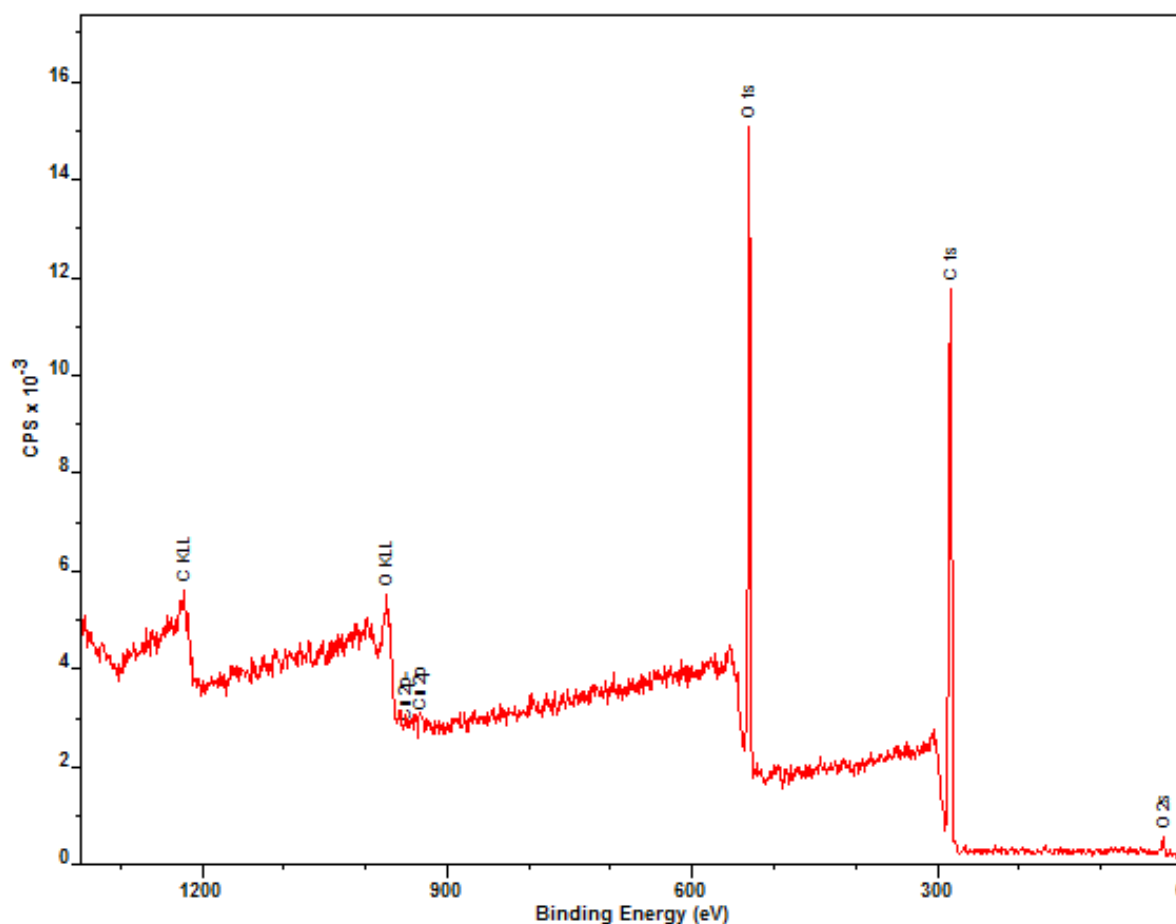
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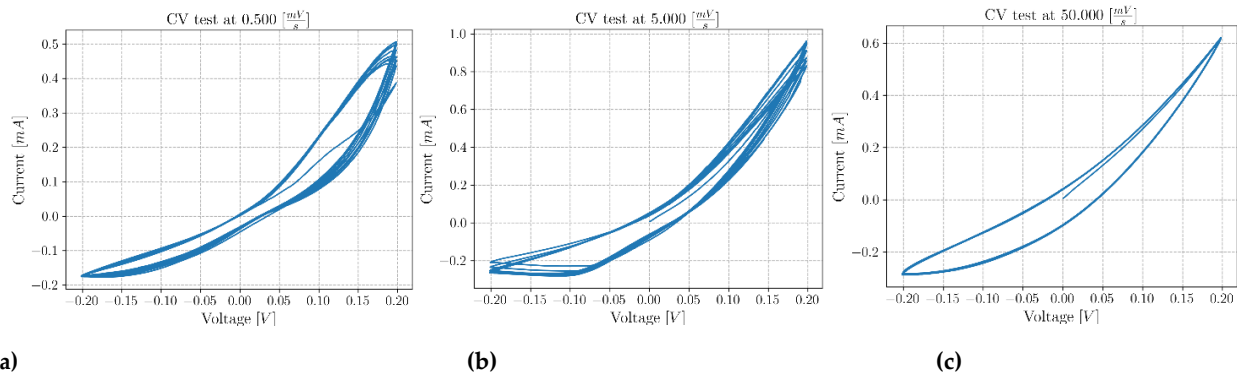


**Figure S1.** Polyvinyl acetate (PVAc – C<sub>4</sub>H<sub>6</sub>O<sub>2</sub>) composite on Cu substrate. XPS survey in full spectra.

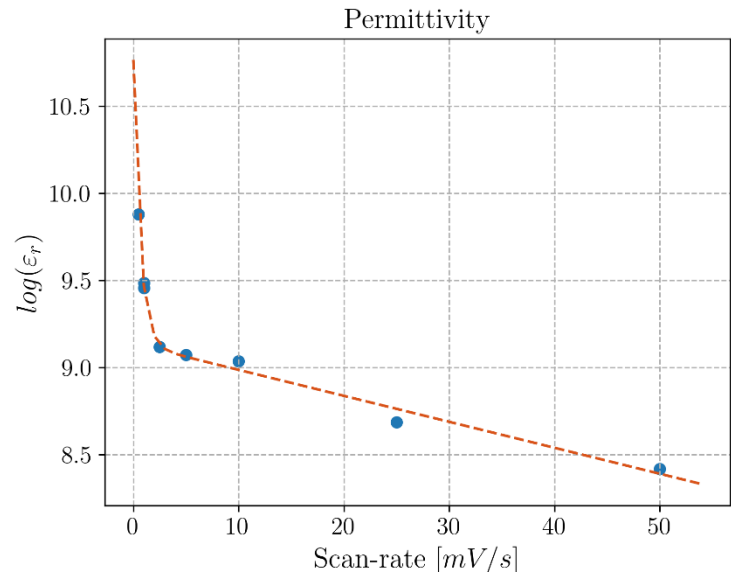
**Table S1.** The atomic percentage of the elements constituting the polymer used to prepare a composite with the ferroelectric Na-glass electrolyte constituted essentially by polyvinyl acetate (PVAc – C<sub>4</sub>H<sub>6</sub>O<sub>2</sub>) on Cu substrate (the polymer in this analysis contained no Na-glass).

**Analysis of ROI (normalized to 100%)**

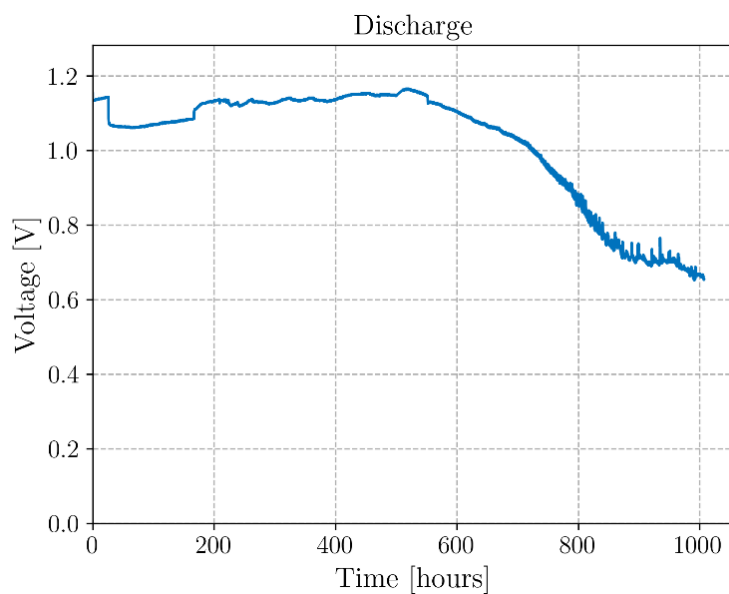
Element	Sensitivity Factor	At % Pol_Cu
C 1s	0.278	68.8
O 1s	0.78	30.9
Cu 2p3	3.547	0.3



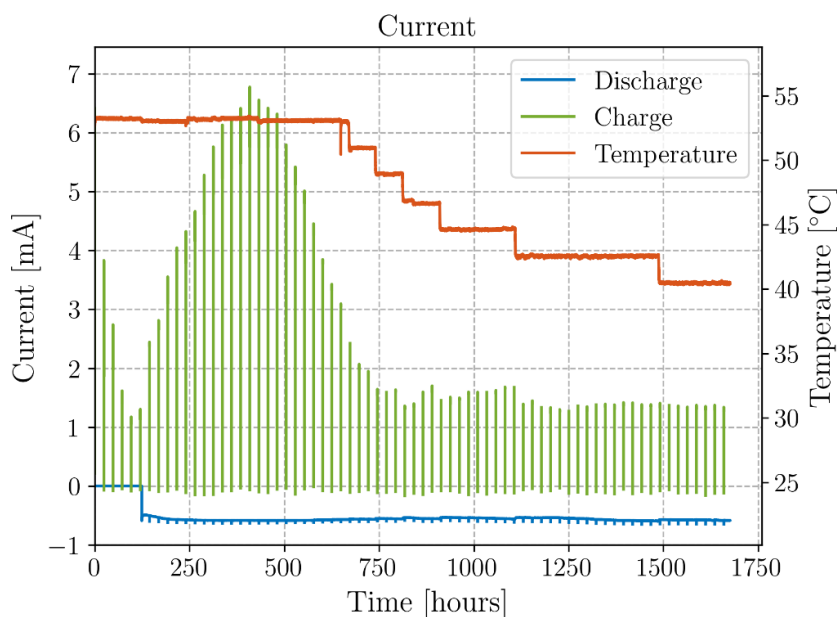
**Figure S2.** Typical cyclic voltammetry curves for a coaxial structural battery at different scan-rates at 40°C (OCV set to 0 V); (a) 0.5 mV/s, (b) 5.0 mV/s and 50 mV/s.



**Figure S3.** All-solid-state structural coaxial battery cell permittivity was obtained by cyclic voltammetry for different scan-rates at 40 °C with two-phase exponential decay curve fitting.



**Figure S4.** Discharge curves of all-solid-state structural coaxial batteries with 1.8 k $\Omega$  material resistors at 40°C (the external resistor was connected to the cell after 25 h).



**Figure S5.** Charge and discharge currents corresponding to the flexural bending post-mortem electrochemical cycling in Figure 9 in which charge is performed at a constant voltage of 1.3 V for 3 min and discharge performed with a material resistor of 1.8 k $\Omega$  for 24 h. The temperature varied from ~53 to 40°C.