Electronic Supplementary Information

Electrochemical Switching of Positronium Triplet Quenching

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1 Comparison of CVs

Fig. 1 shows the CV of 30 mmol/L $K_3[Fe(CN)_6]$ with 1 mmol/L KOH measured in a sub-cell compared to that taken in a beaker. Both CVs are in good accordance; minor differences may arise from the different electrolyte volume[1].

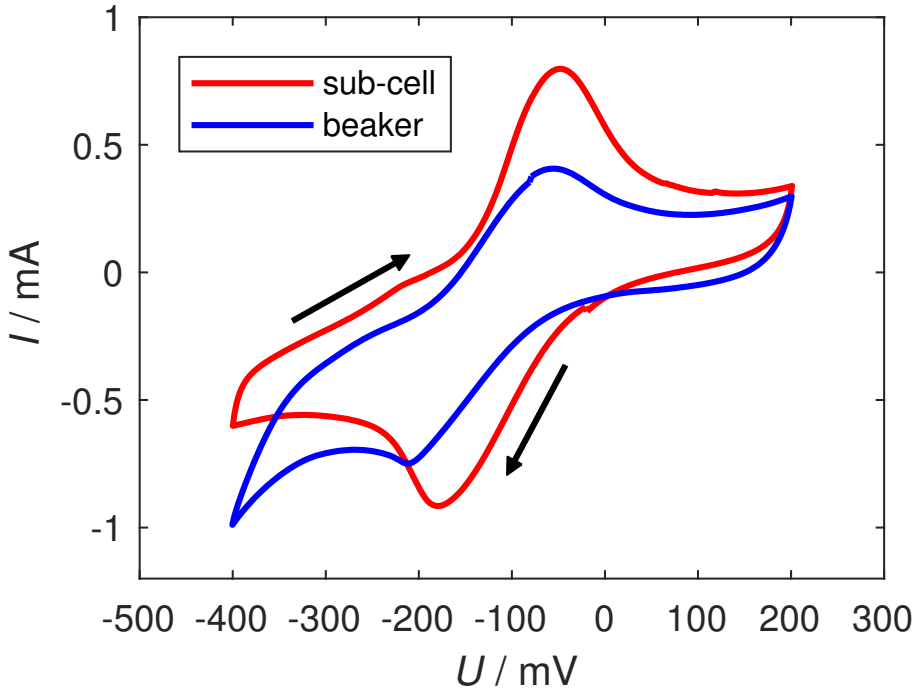

Figure 1 Cyclic voltammograms (CVs) of 30 mmol/L $K_3[Fe(CN)_6]$ with 1 mmol/L KOH between −400 and 200 mV with a scan rate of 2 mVs^{-1} in a sub-cell (red) and a beaker (blue). The arrows indicate the scan direction.

2 Static in-situ studies

A cutout of the measurement procedure for *static in-situ studies* as explained in the *main article* is given in Fig. 2. To avoid potential jumps, the potential was varied with a scan rate of 2 mVs^{-1} upon switching.

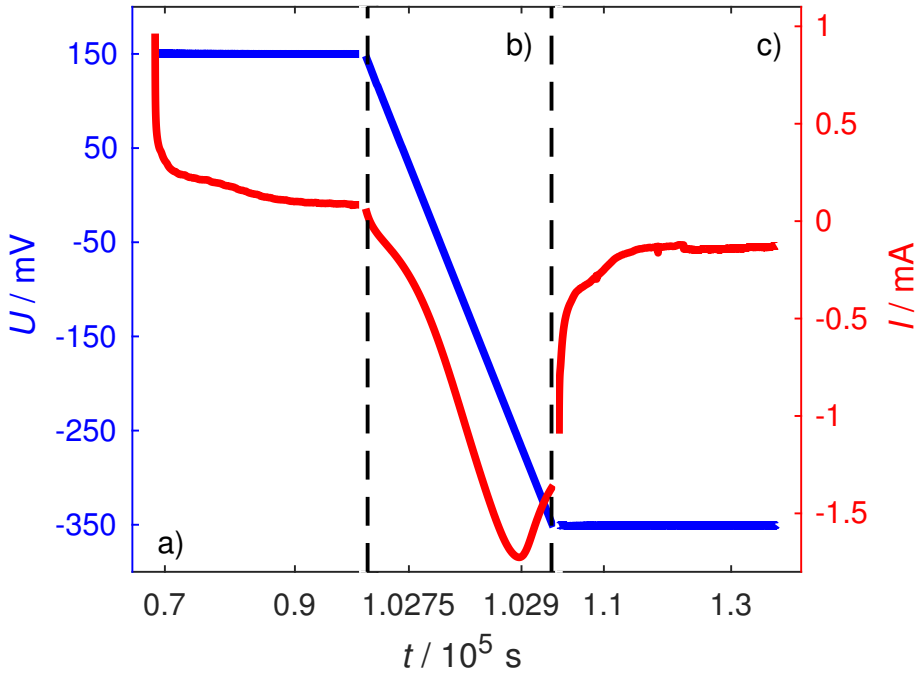

Figure 2 Cutout of the measurement sequence for *static in-situ switching*. At a potential of 150 mV (a) and −350 mV (c), the current is measured over the time. b) After 9.5 h (end of a)) the potential is varied with a scan rate of 2 mVs^{-1} from 150 mV to −350 mV. Note the different time scaling for the separated sections on the x-axes, the linear scan in b) takes only 250 s.

Notes and references

[1] W. C. Sim, N. Kutrakul, P. Khunkaewla and A. Schulte, *Sustain. Chem. Eng.*, 2020, **8**, 5082–5090.