

Supplementary information

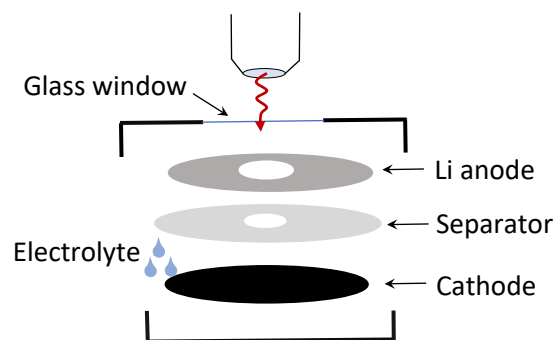


Figure S1: The scheme of the coin cell assembly for Raman spectroelectrochemistry.

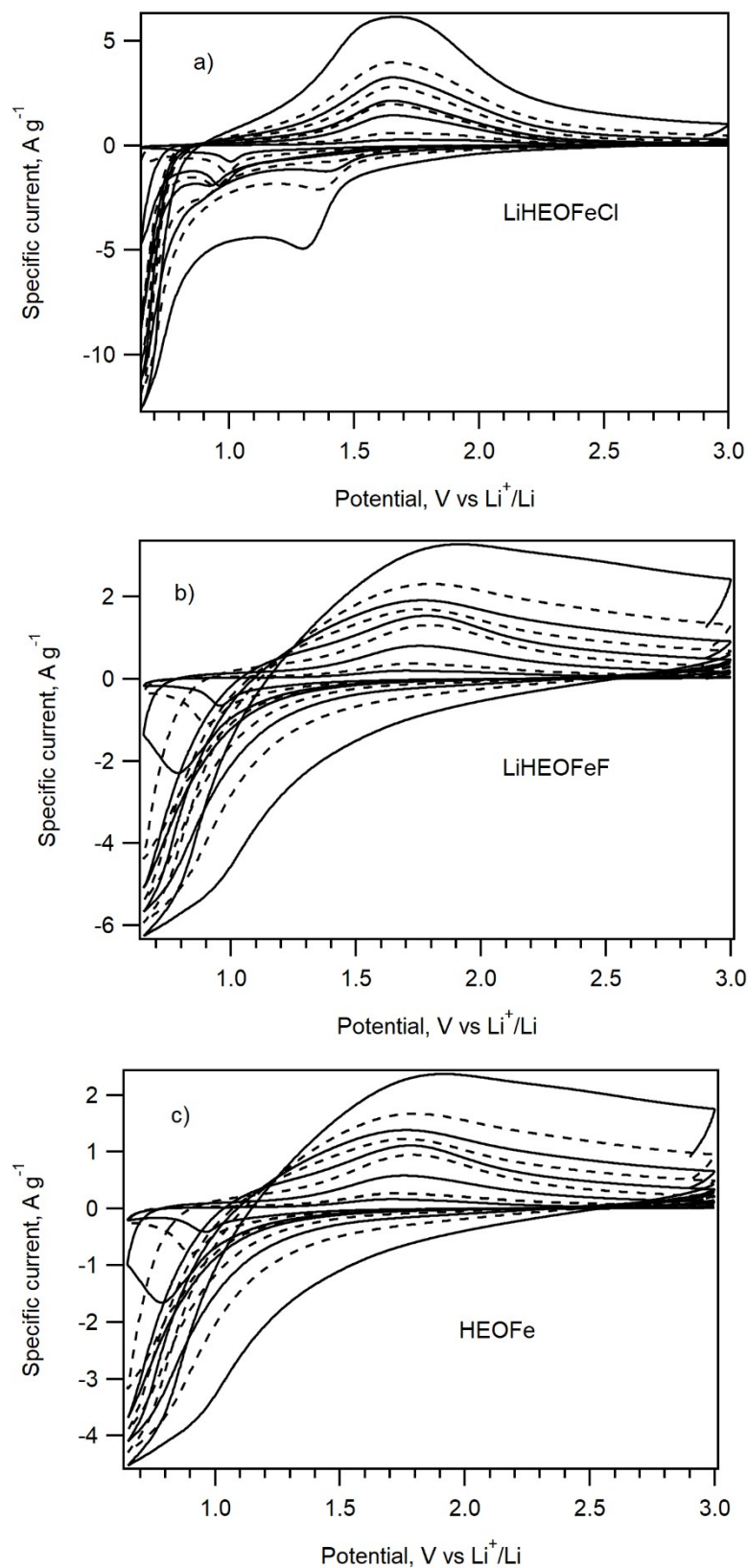


Figure S2: Cyclic voltammograms measured with the scan rate of 50, 20, 10, 5, 2, 1, 0.5, 0.2, 0.1 mV s⁻¹ (from the bottom to the top) on the coin cells containing a) LiHEOFeCl, b) LiHEOFeF and c) HEOFe electrodes.

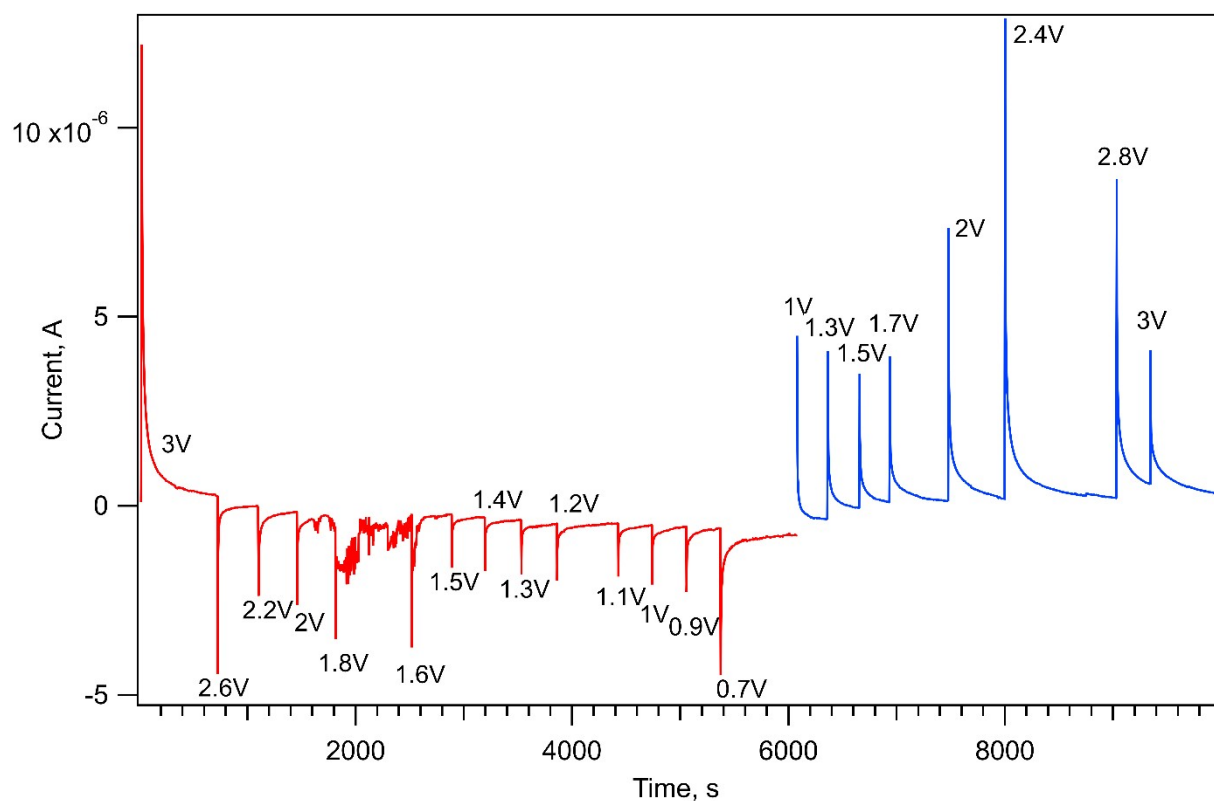


Figure S3: The current response of the coin cell employing the LiHFeOFeF electrode in 1M LiClO₄ (EC/DMC; 1/1) during chronoamperometry measurement. The chronoamperometry was applied to the freshly prepared coin cell in the potential range from 3 V to 0.7 V vs Li⁺/Li (red line) and back (blue line). The set potentials are marked. The coin cell open circuit potential (OCP) was 1.75 V before measurement.