

### Electronic Supplementary Information

Coated electrode for liquid thermoelectric conversion device to enhance  $\text{Fe}^{2+}/\text{Fe}^{3+}$  redox kinetics

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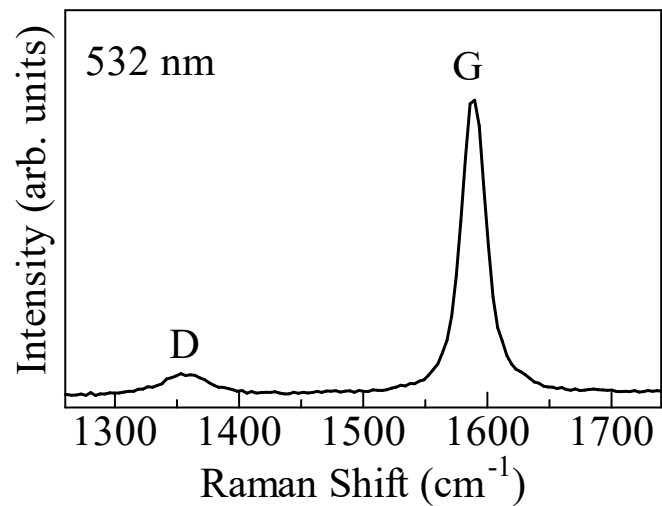


Fig. S1 Raman spectra of graphite powder at room temperature. D and G represent for disorder and graphite bands, respectively. Excitation wavelength was 532 nm.

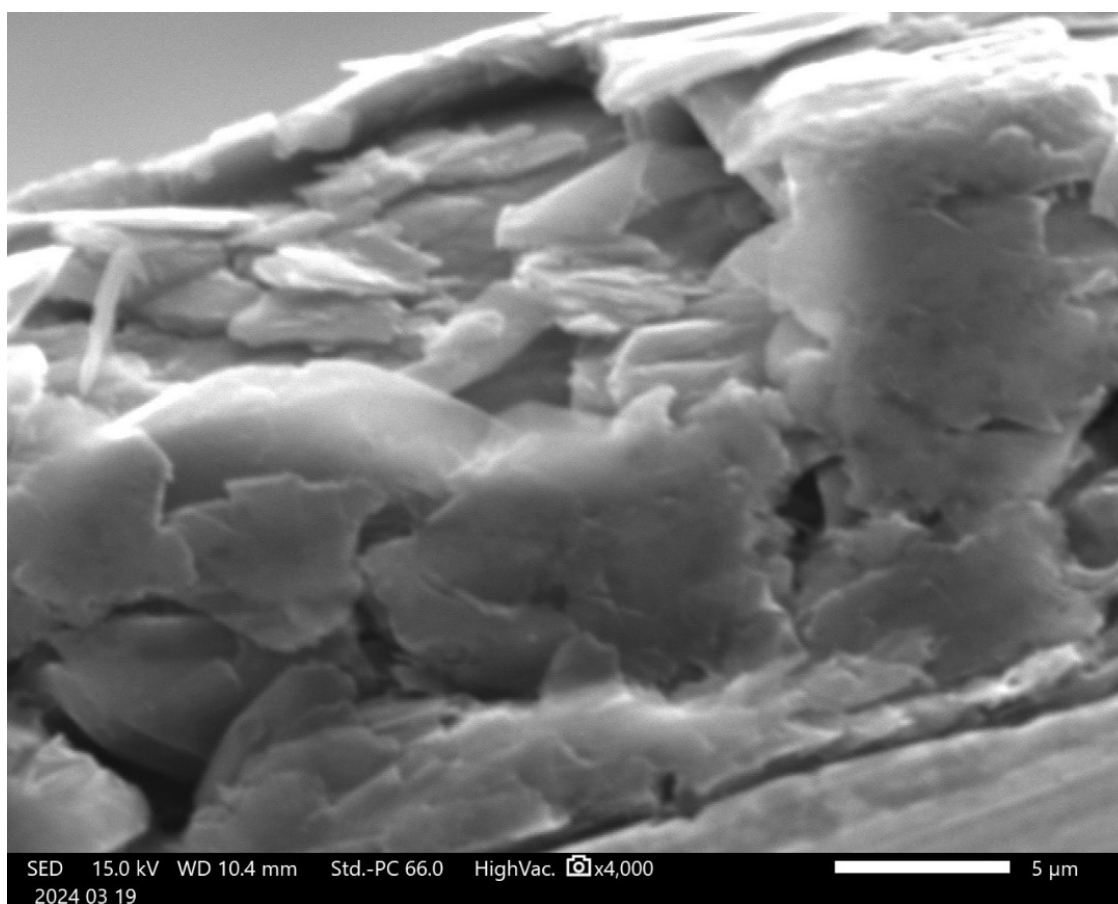


Fig. S2 Magnified cross sectional SEM image of graphite-dispersing coated electrode ( $t = 25 \mu\text{m}$ ).

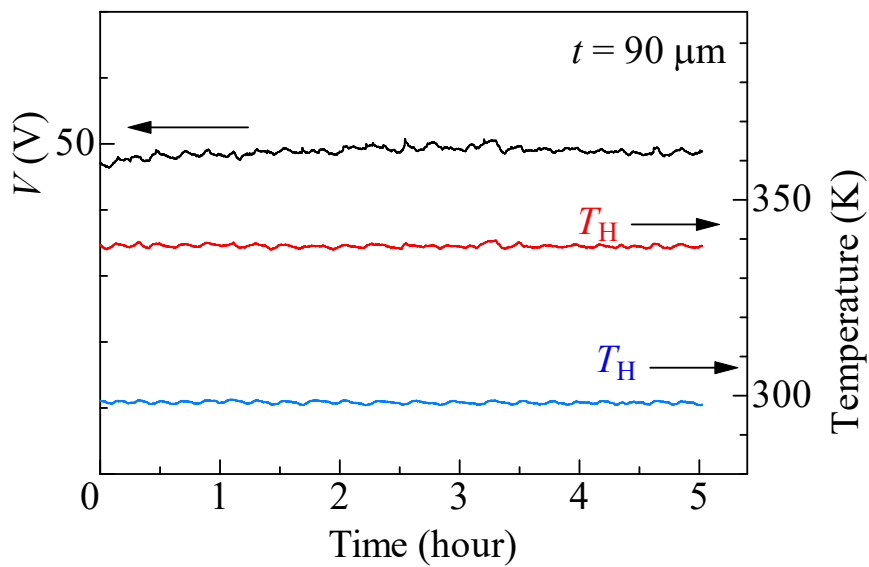


Fig. S3 Thermal voltage  $V$  and temperature ( $T_H$  and  $T_L$ ) of electrodes of LTE composed of graphite-dispersing coated electrodes against time. Electrode distance  $d$  was 10 mm and electrode thickness  $t$  was  $90 \mu\text{m}$ . The electrolyte is  $0.8 \text{ M Fe}(\text{ClO}_4)_2/\text{Fe}(\text{ClO}_4)_3$  aqueous solution.