

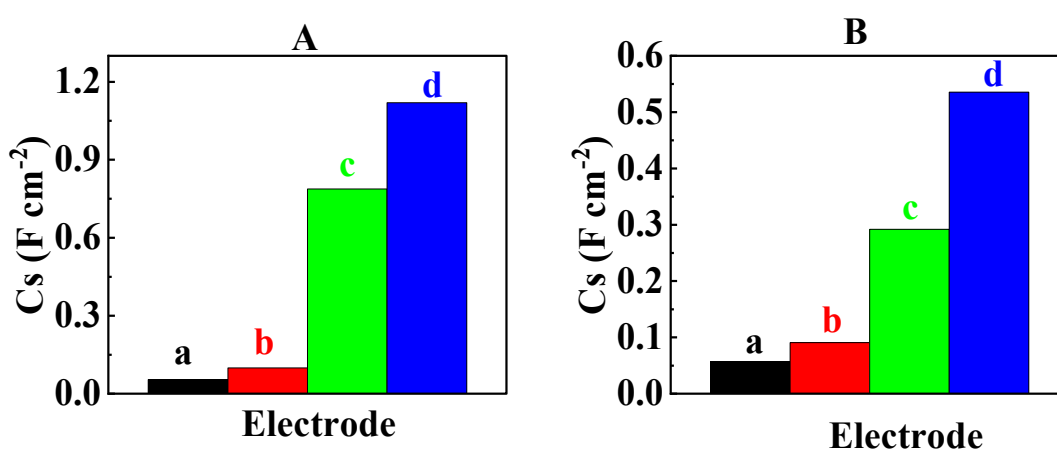
Supplementary Information

# Pseudocapacitive and Magnetic Properties of SrFe<sub>12</sub>O<sub>19</sub>-Polypyrrole Composites

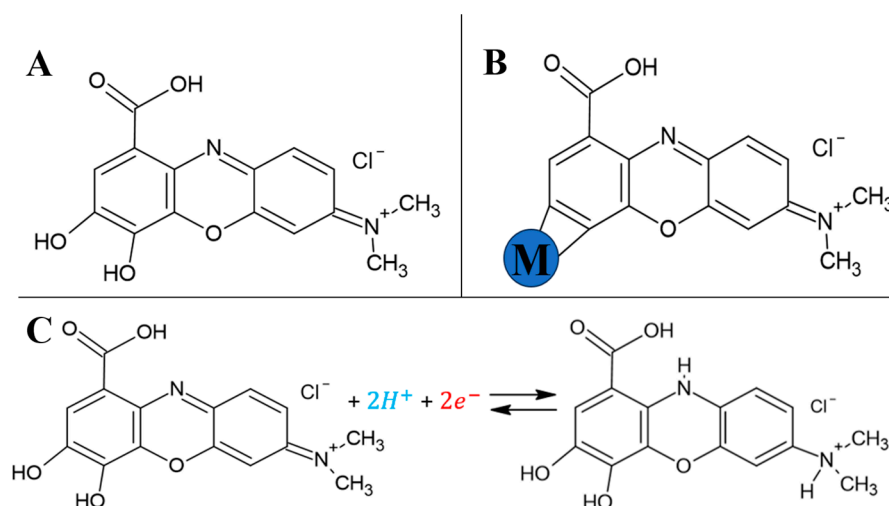
Michael MacDonald and Igor Zhitomirsky \*

Department of Materials Science and Engineering, McMaster University, Hamilton, ON L8S 4L7, Canada; macdom45@mcmaster.ca

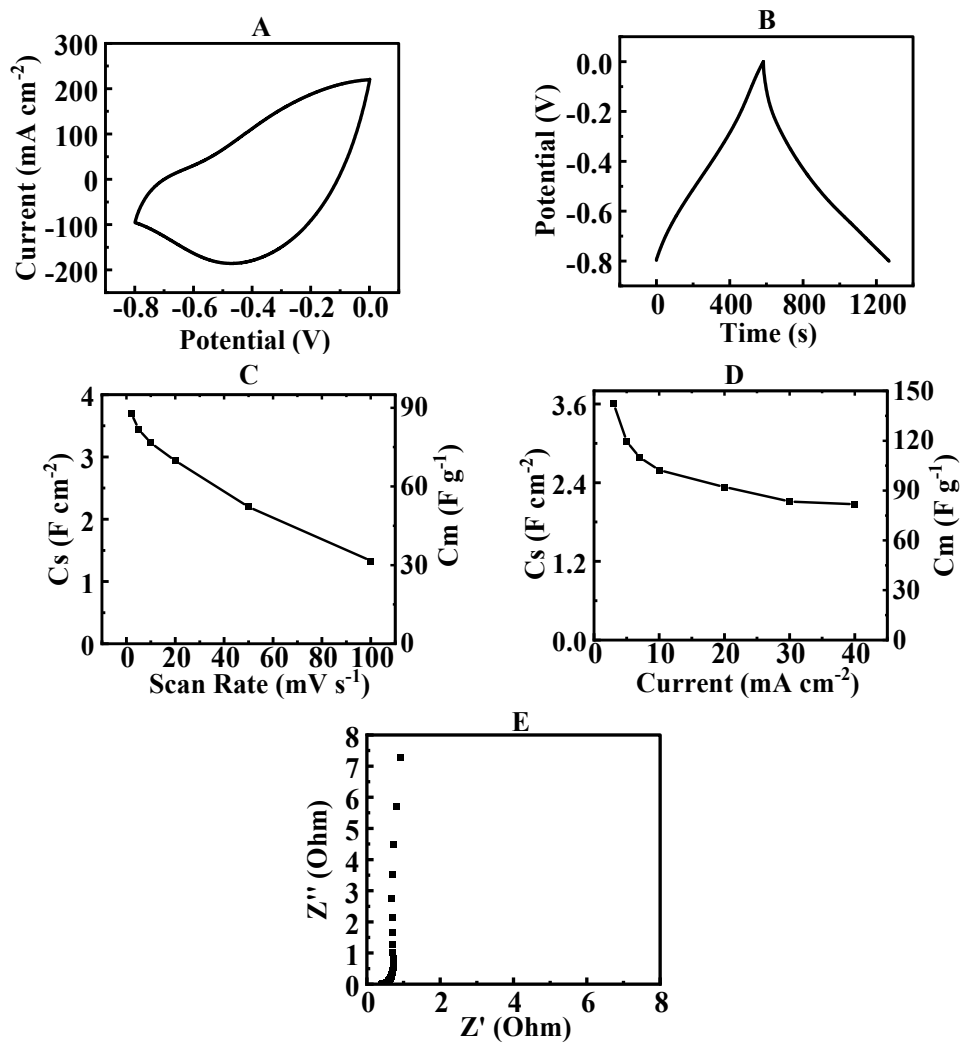
\* Correspondence: zhitom@mcmaster.ca



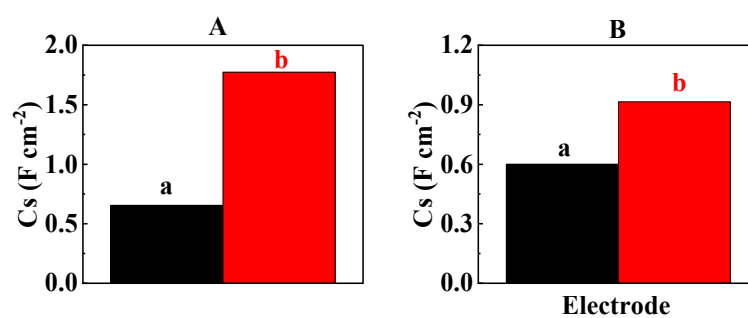
**Figure S1.** Areal capacitances at (A) 2 and (B) 100 mV s<sup>-1</sup> for different electrodes: (a) ARSFO prepared without GD, (b) ARSFO prepared using GD, (c) HEBMSFO prepared without GD and (d) HEBMSFO prepared using GD.



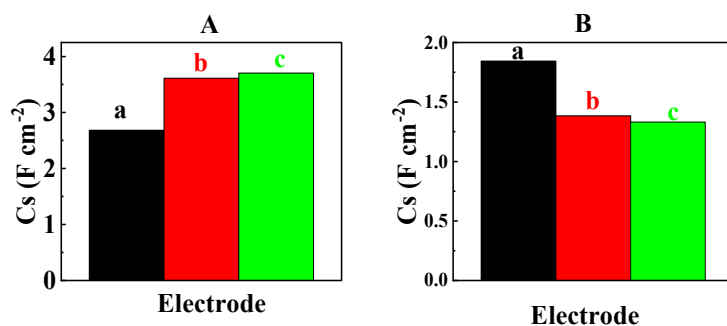
**Figure S2.** (A) Chemical structure of GD, (B) adsorption of GD on SFO involving chemical bonding to metal atoms (M=Fe, Sr) on the particle surface, (C) redox reaction of SFO.



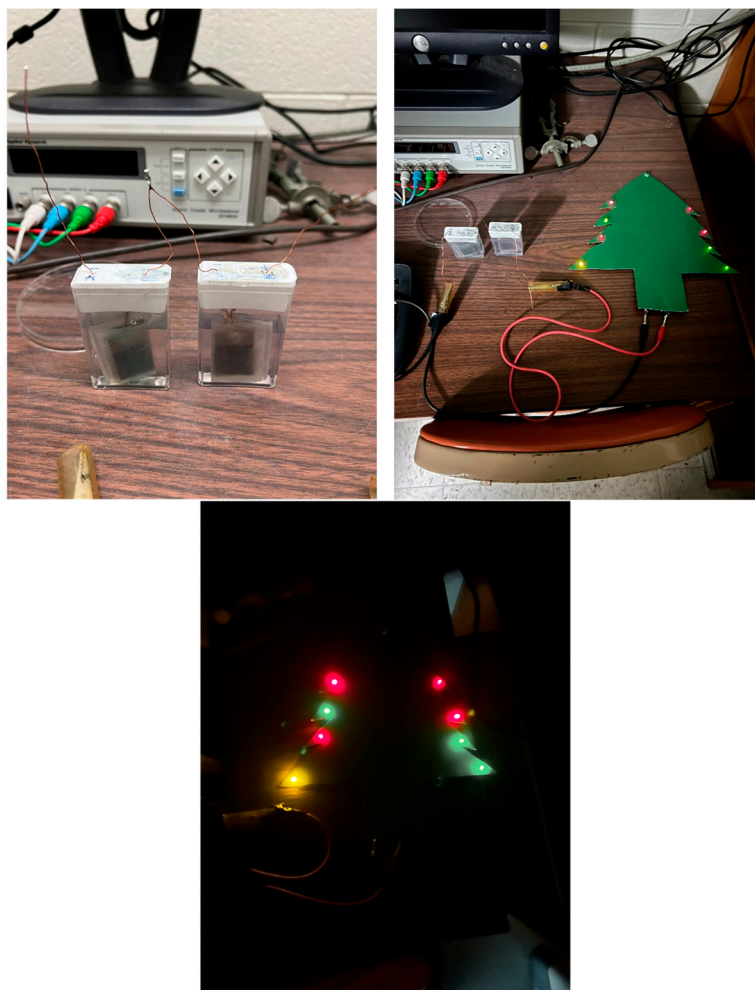
**Figure S3.** (A) CV at a scan rate of  $50 \text{ mV s}^{-1}$ , (B) CP at a current density of  $5 \text{ mA cm}^{-2}$ , (C) capacitance obtained from CV data at different scan rates, (D) capacitance obtained for CP data at different current densities, (E) Nyquist plot of complex impedance for Composite 4.



**Figure S4.** Areal capacitances at (A) 2 and (B) 100  $mV\ s^{-1}$  for Composite 1: prepared using (a) ARSFO and (b) HEBMSFO.



**Figure S5.** Areal capacitances at (A) 2 and (B) 100  $mV\ s^{-1}$  for (a) Composite 2, (b) Composite 3, (c) Composite 4, prepared using HEBMSFO.



**Figure S6.** LED display being powered by two asymmetric electrochemical capacitor cells connected in series.