Electronic Supplementary Material (ESI) for RSC Advances

Manipulating Charge Carrier Interactions at Solid Electrolyte Interfaces for Enhanced Micro-supercapacitor Performance

Abhirami Sukumaran, Premkumar Jayaraman and Helen Annal Therese

Futuristic Energy Storage Technology Lab (FESTL),

Department of Chemistry, SRM Institute of Science &Technology, Chennai

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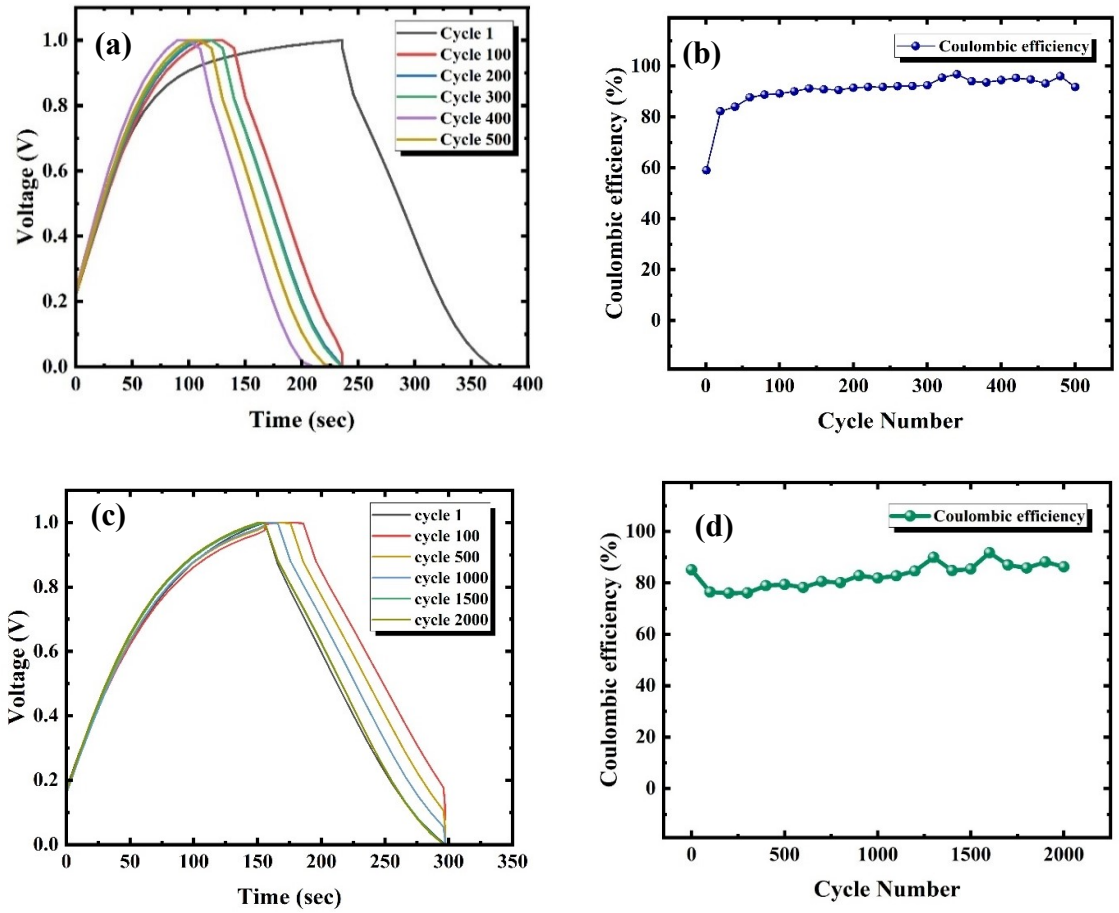

Fig S1 a & b) GCD profile and Coulombic efficiency of device of SS/PVA-$LiClO_4$/SS

c & d) GCD profile and Coulombic efficiency of device SS/PVA-$LiClO_4$+Li_2SO_4/SS

Despite exhibiting a slightly lower coulombic efficiency than SS/PVA-$LiClO_4$ /SS (**Fig S1**(b,d)), the inclusion of Li_2SO_4 is advantageous overall, since it promotes

pseudocapacitive redox reactions at the electrode/electrolyte interface, enhancing specific capacitance and cycling stability, hence enabling the device to maintain its performance over a greater number of cycles. Although these faradaic processes may induce minor side reactions that reduce coulombic efficiency per cycle [39][43][44], the overall energy storage and long-term dependability are significantly enhanced, making the Li_2SO_4 based device the superior option for high-performance supercapacitors.