Electronic Supplementary Material (ESI) for Journal of Materials Chemistry A.

Electronic Supplementary Information

Facile fabrication of graphene-polypyrrole-Mn composites as high performance electrodes for capacitive deionization

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Table S1 – BET results of samples.

Samples	Specific surface area (m^2/g)	Average pore diameter (nm)	Total pore volume (cm^3/g)
RGO	120	8.6	0.31
PPy	63	10.8	0.21
RGO-$PPy_{0.5}$-$Mn_{0.4}$	331	8.6	1.07
RGO-$PPy_{0.5}$-Cu_1	144	8.8	0.33

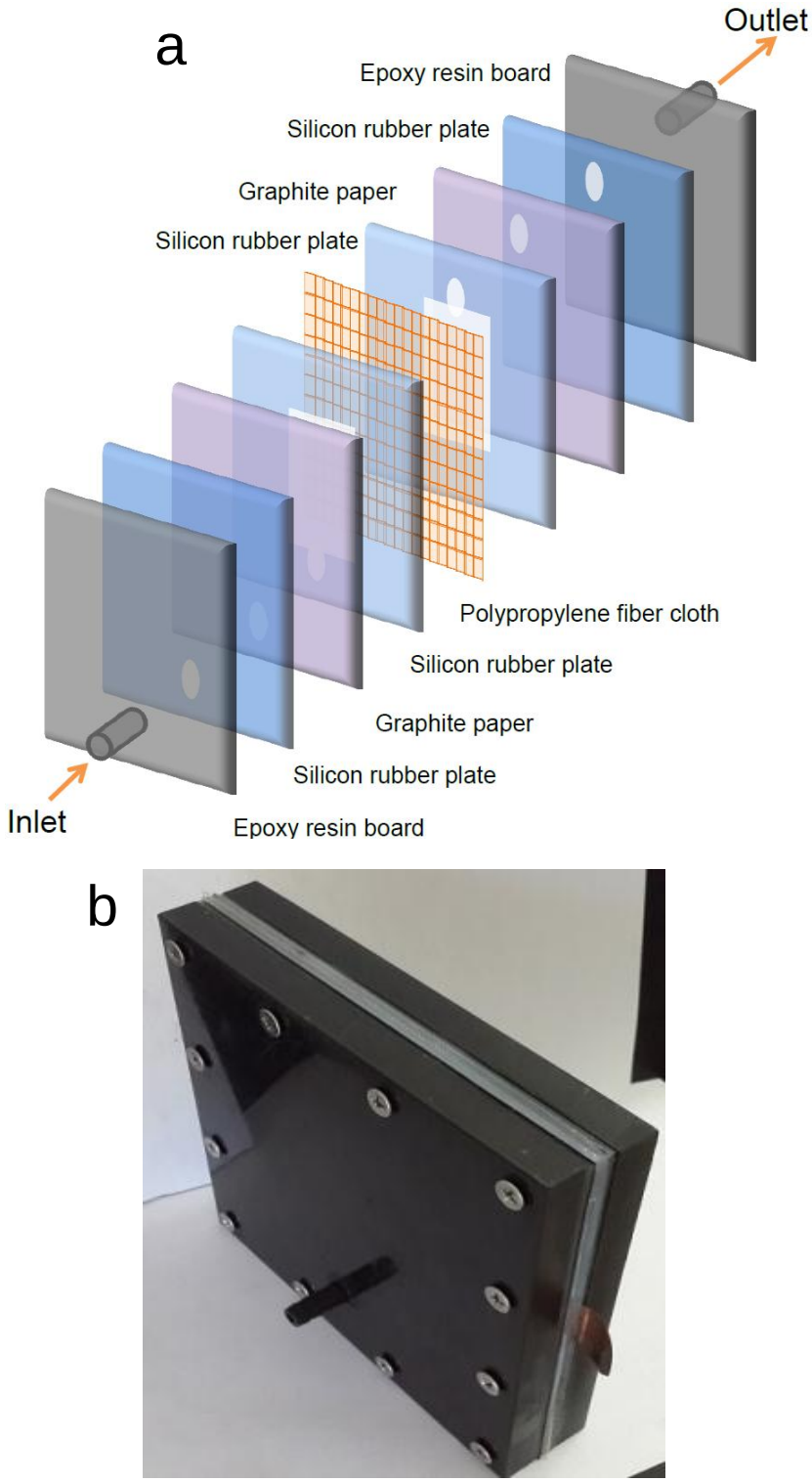

Fig. S1 - (a) Schematic illustration of single CDI device and (b) photo of the combined CDI device.

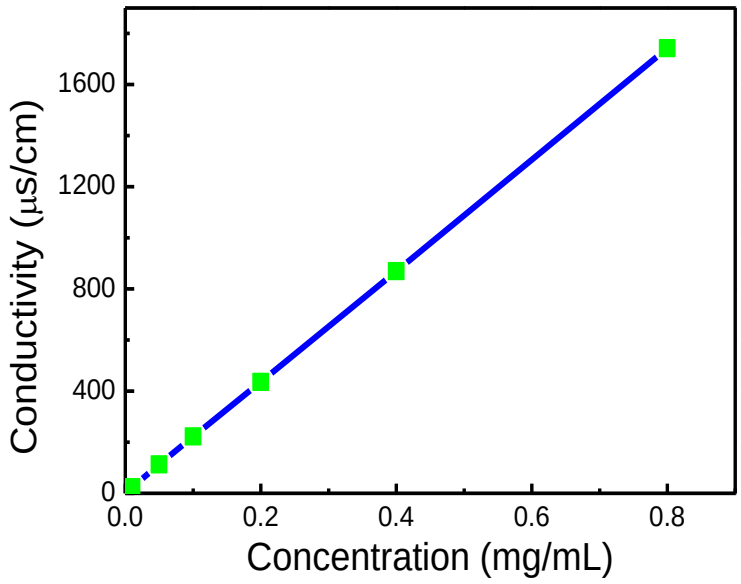

Fig. S2 - Relationship between conductivity and concentration of NaCl solutions.

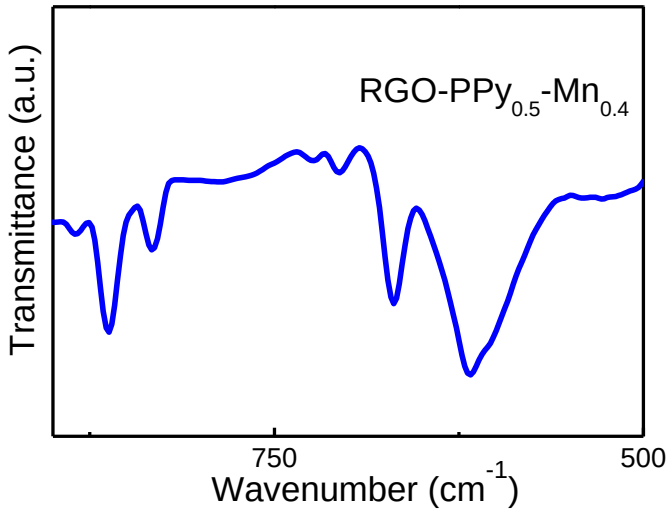

Fig. S3 - FT-IR spectra of RGO-PPy-Mn composites from 900 to 500 cm^{-1}

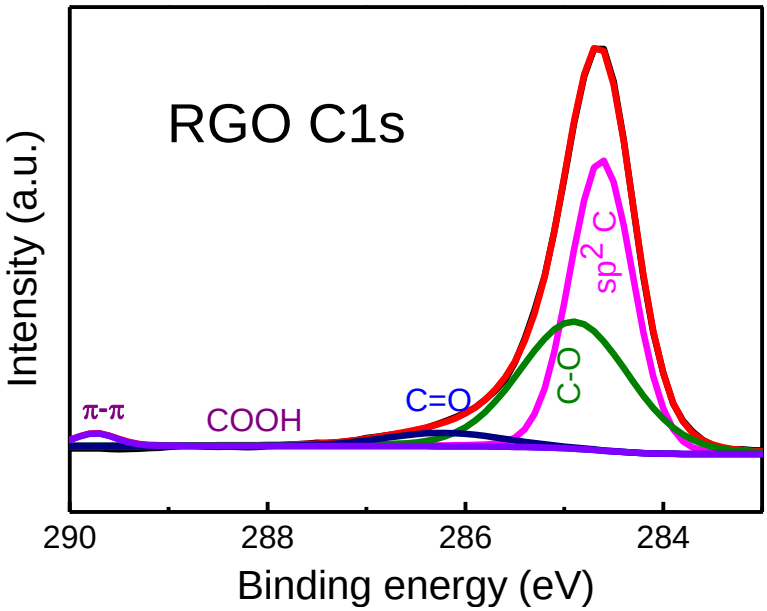

Fig. S4 - XPS C1s spectra of RGO.

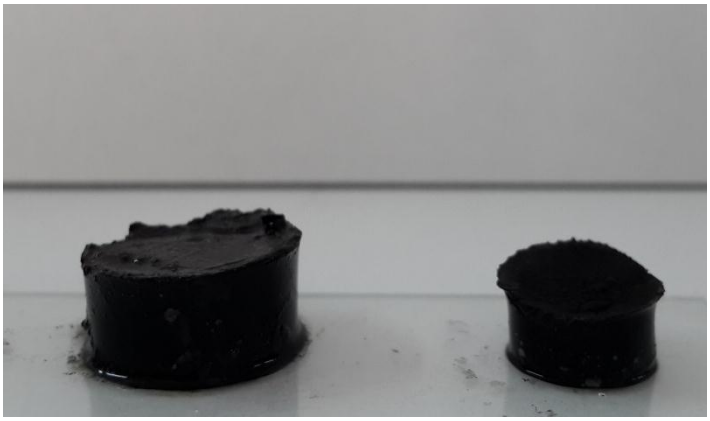

Fig. S5 - Photo of RGO-PPy and RGO hydrogels.

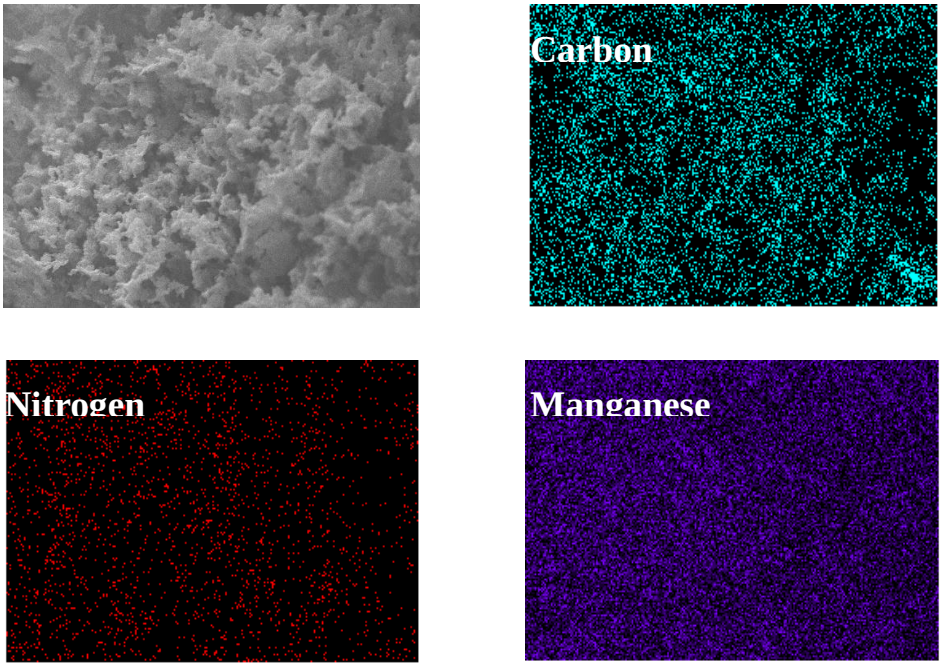

Fig. S6 - SEM image and C-, N- and Mn- elemental mappings for RGO-PPy-Mn composites.

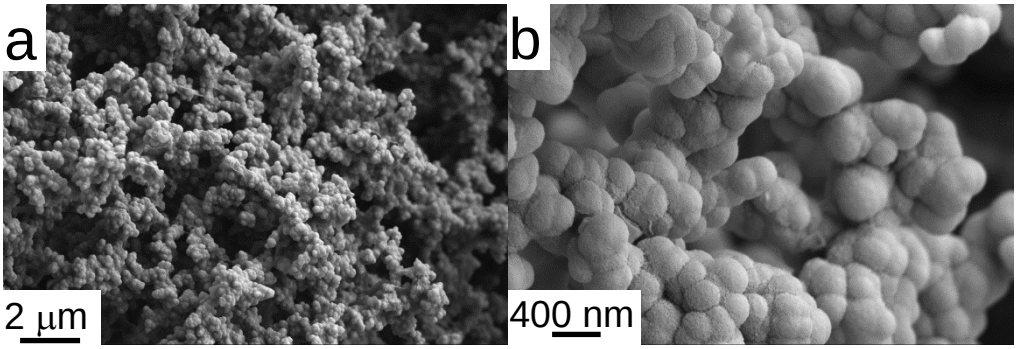

Fig. S7 - (a,b) SEM images of PPy nanoparticles with different magnifications.

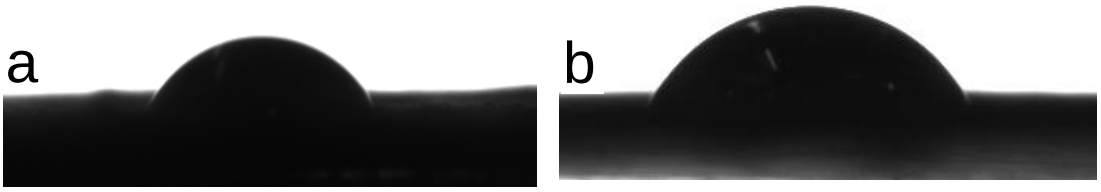

Fig. S8 - Contact angle images of water droplets on (a) RGO and (b) RGO-PPy-Mn electrodes

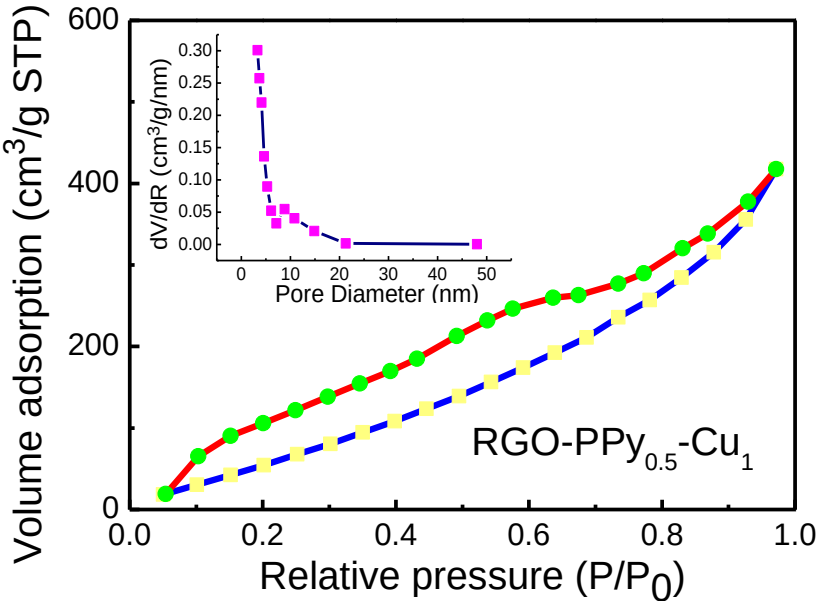

Fig. S9 - Nitrogen sorption isotherm and pore size distribution (inset) of RGO-$PPy_{0.5}$-Cu_1.

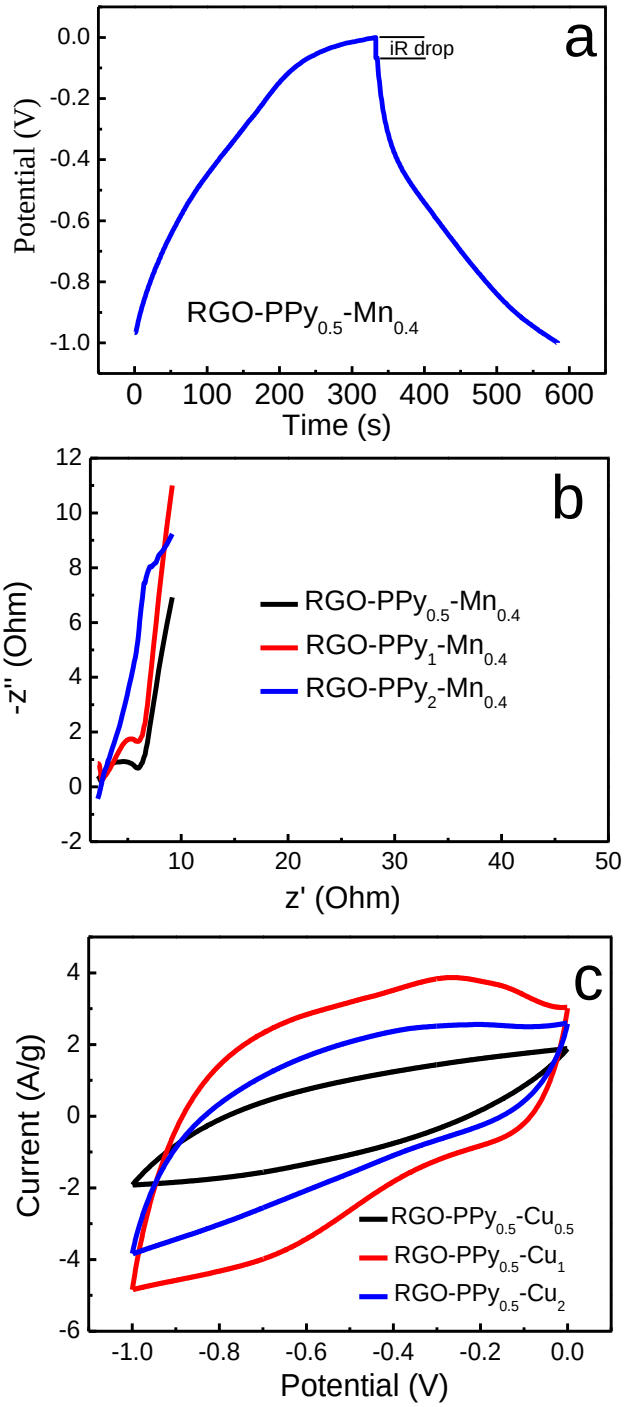

Fig. S10 - (a) GC curves at a current of 1 A/g of RGO-PPy$_{0.5}$-Mn$_{0.4}$ electrodes, iR drop was about 0.06 V. (b) Nyquist plots of the EIS for RGO-PPy-Mn electrodes and (c) CV curves of RGO-PPy-Cu electrodes at a scan rate of 10 mV/s.