

A Photocapacitor with High Working Voltage and Energy Density

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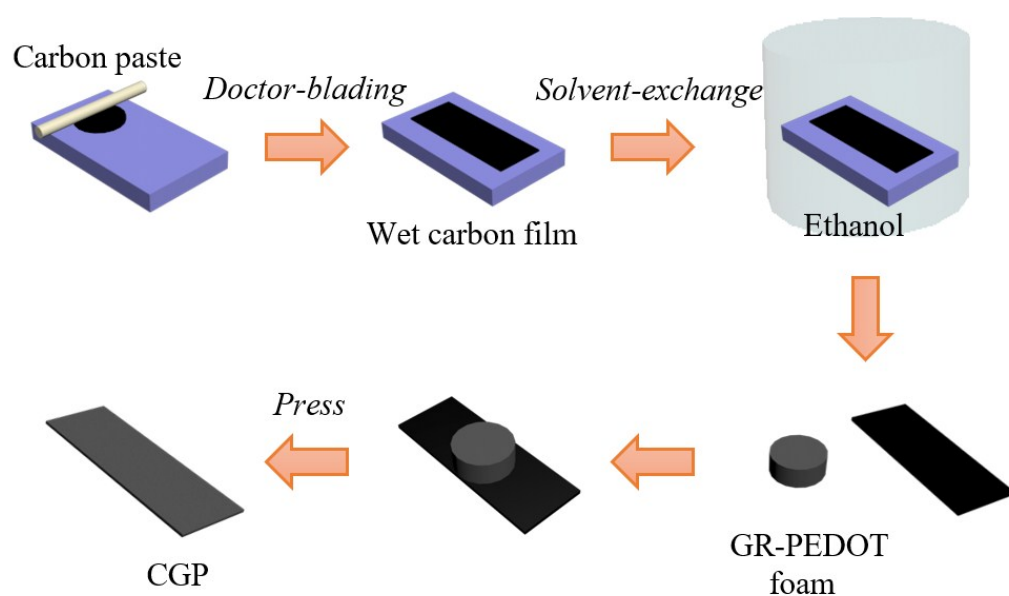


Fig. S1 Flow chart of preparing CGP films.



Fig. S2 (a) SEM image of the carbon film; (b) Photograph of the GR-PEDOT film; (c) Photograph of the CGP.

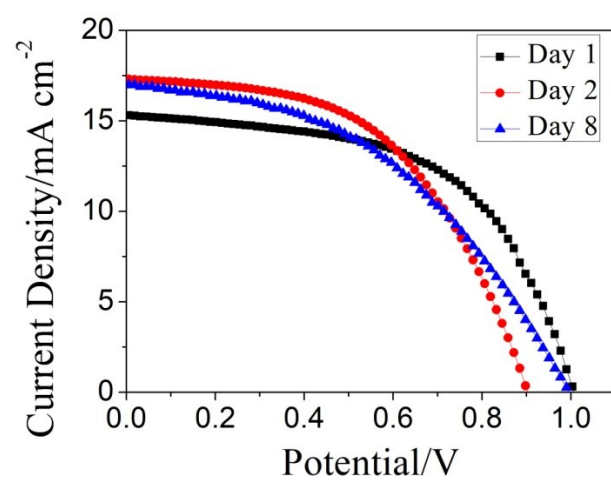


Fig. S3 J – V curves of the PSC exposed in ambient condition for different days (1 day, 2 days and 8 days).

Table S1 Performance of PSC exposed in ambient condition for different days.

	V_{oc}/V	$J_{sc}/mA\ cm^{-2}$	FF	PCE/%
Day 1	1.00	15.32	0.56	8.65
Day 2	0.90	17.31	0.52	8.15
Day 3	1.00	17.04	0.42	7.73

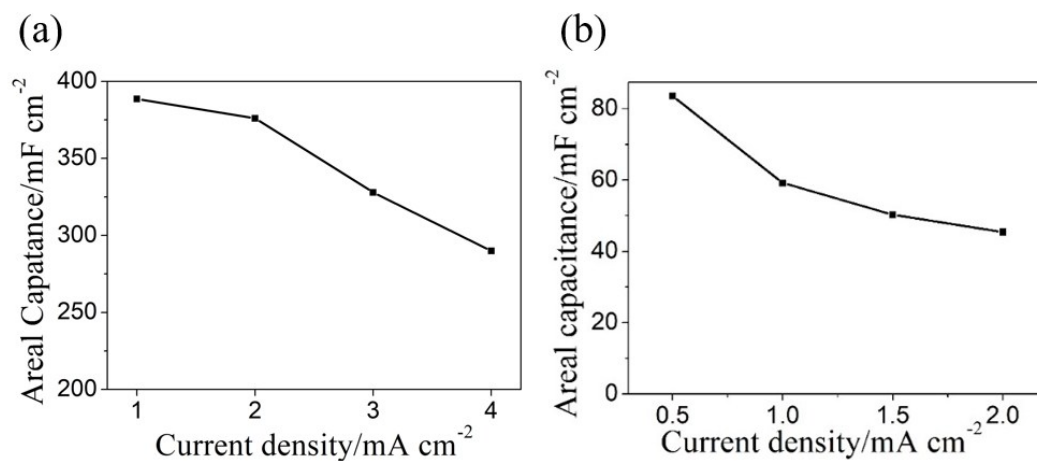


Fig. S4 (a) Plot of areal-specific capacitance versus discharge current density (SC with PVA/LiCl electrolyte); (b) Plot of areal-specific capacitance versus discharge current density (SC with EMIBF₄-based ionic electrolyte).

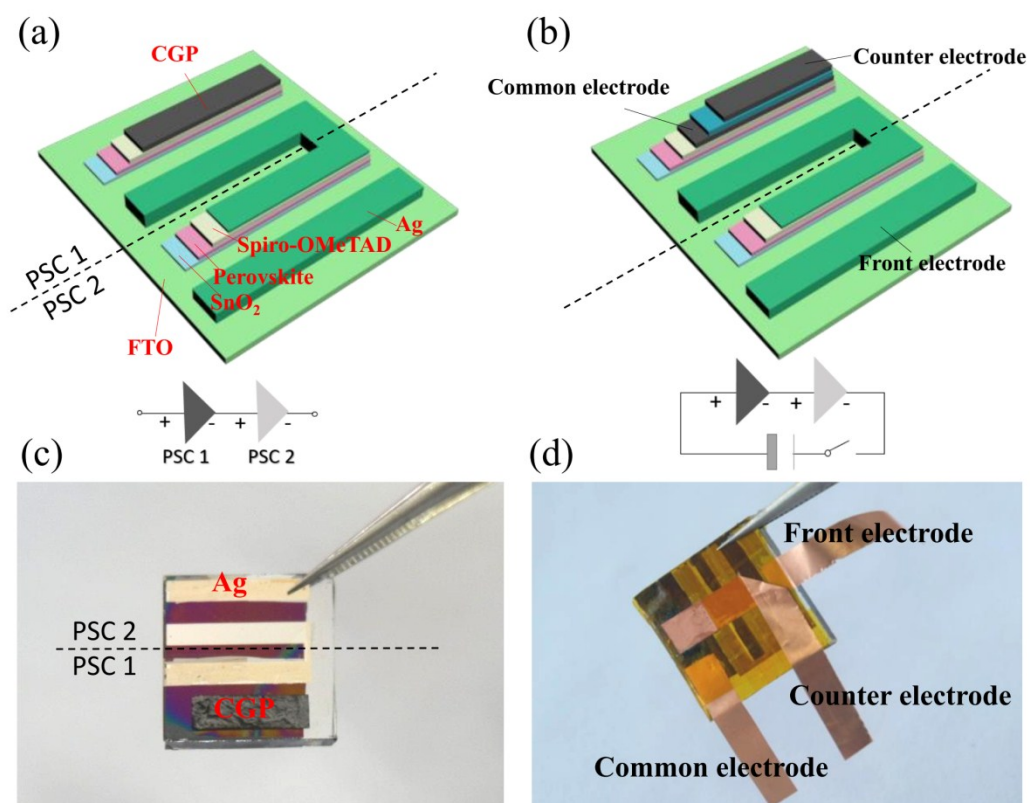


Fig. S5 (a, b) Schematic and circuit diagram of the PSC pack and photocapacitor with the EMIBF₄-based ionic electrolyte, respectively; (c, d) Corresponding photographs of the PSC pack and photocapacitor with the EMIBF₄-based ionic electrolyte, respectively.

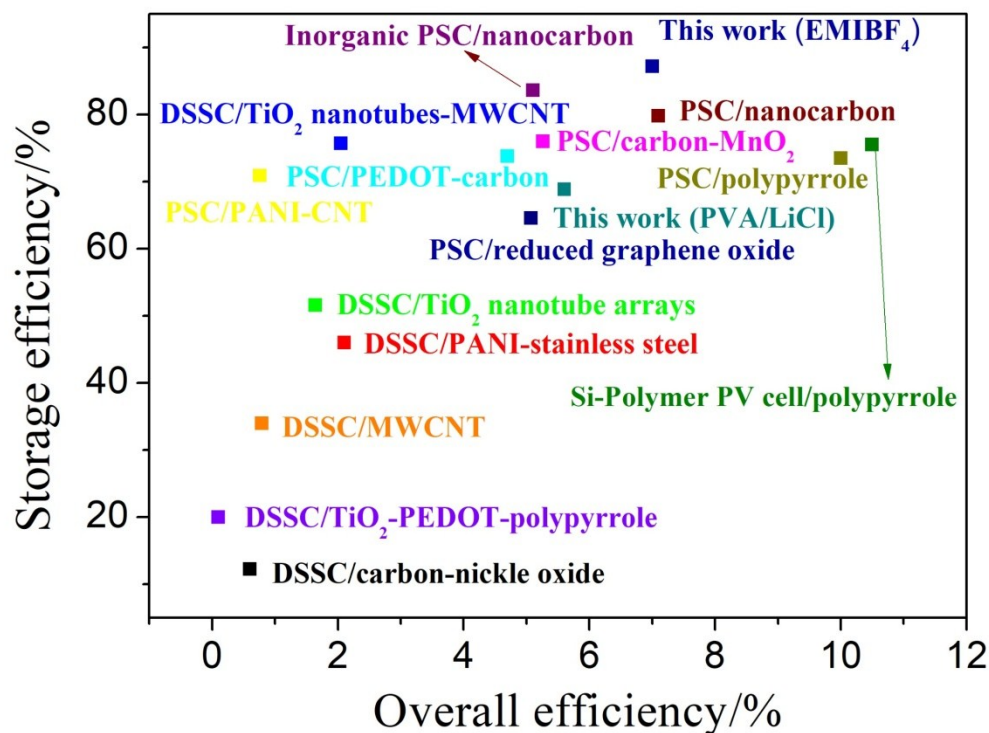


Fig. S6 Performance of earlier reported photocapacitors. (The DSSC/MWCNT, DSSC/TiO₂-PEDOT-polypyrrole, DSSC/carbon-nickel oxide, DSSC/PANI-stainless steel, DSSC/TiO₂ nanotube arrays, DSSC/TiO₂ nanotubes-MWCNT, PSC/PEDOT-carbon, PSC/carbon-MnO₂, PSC/PANI-CNT, PSC/polypyrrole, PSC/reduced graphene oxide, Inorganic PSC/nanocarbon, PSC/nanocarbon, Si-Polymer PV cell/polypyrrole are corresponding to [1], [2], [3], [4], [5], [6], [7], [8], [9], [10], [11], [12], [13], [14].)

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