## Electronic Supplementary Information (ESI)

# In-situ preparation of $SnO_2$@polyaniline nanocomposite and the synergetic structure for high-performance supercapacitors

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**Table S1** Summary of electrochemical measurements reported in recent papers for $SnO_2$@PANI nanocomposite supercapacitor electrodes.

| Preparation method | Nature of composite | Content of $SnO_2$ in composite | Current collector | Electrolyte | The Potential window | Current density[a] | Maximum specific capacitance | Capacitance retention after cycle test | Ref (year) |
|---|---|---|---|---|---|---|---|---|---|
| Sol-gel method | Powder | - | Graphite sheet | 1M $H_2SO_4$ | -0.2-0.8V | $i_s$ = 5 mA cm$^{-2}$ | 305 F g$^{-1}$ | | [14] (2009) |
| | | | | | | I = 5 mA | | 95.5% after 500 cycles | |
| Wet chemical method | Powder | 29.1% | Pt foil | 1M $HClO_4$ | 0- 0.75V | $i_s$ = 1 mA cm$^{-2}$ | 219 F g$^{-1}$ | 72.1% after 100 cycles | [16] (2012) |
| Wet chemical method | Powder | - | Carbon paper | 1M $H_2SO_4$ | -0.2-0.7V | $i_m$ = 1 A g$^{-1}$ | 542 F g$^{-1}$ | - | [7] (2012) |
| Ultrasonication | Powder | 81.3% | Graphite sheet | 1M $H_2SO_4$ | 0-1V | $i_m$ = 0.1 A g$^{-1}$ | 335 F g$^{-1}$ | | This work |
| | | | | | | $i_m$ = 15 A g$^{-1}$ | 125 F g$^{-1}$ | 100% after 10000 cycles | |

[a] i = current density, $i_s$ (mA cm$^{-2}$), $i_m$ (A g$^{-1}$), I = Current value.

The transformation from $i_s$ (mA cm$^{-2}$) to $i_m$ (A g$^{-1}$): $i_s = 1000 \times m \times i_m / S$, m (mg) and S (cm$^2$) are the weight and the area of the active electrode, respectively.
In this work, m = 1.04 mg, S = 1×2 cm$^2$, and 0.1 A g$^{-1}$ = 52 mA cm$^{-2}$.

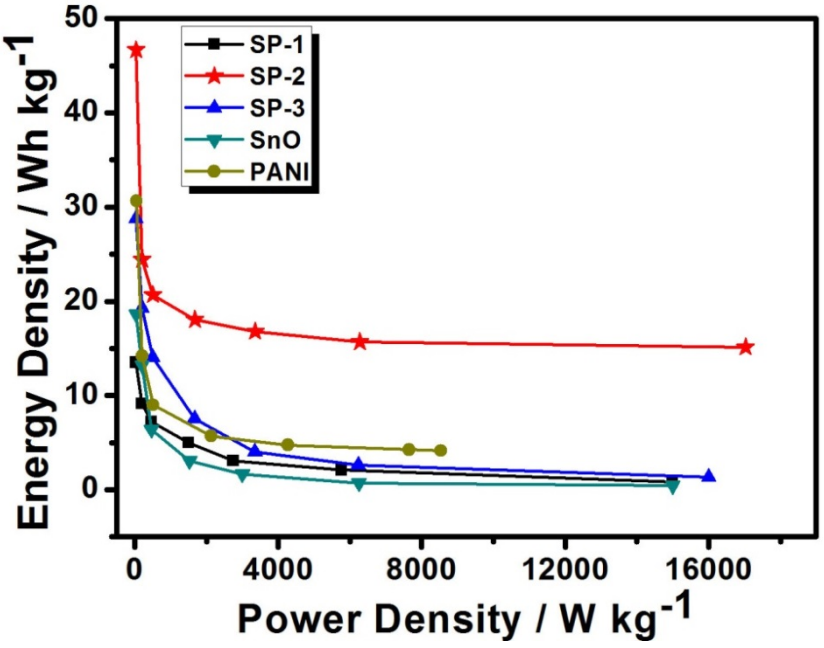


**Fig. S1** Ragone plots of SP-1, SP-2, SP-3, SnO and PANI. The energy density and the power density are derived from the charge/discharge curves at various current densities from 0.1 A $g^{-1}$ to 40 A $g^{-1}$.