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ARTICLE TYPE

Bio-inspired High Performance Electrochemical Supercapacitor based on Conducting Polymer modified Coral-like Monolithic Carbon

Yuchao Wang, Shengyang Tao*, Yonglin An, Shuo Wu and Changgong Meng

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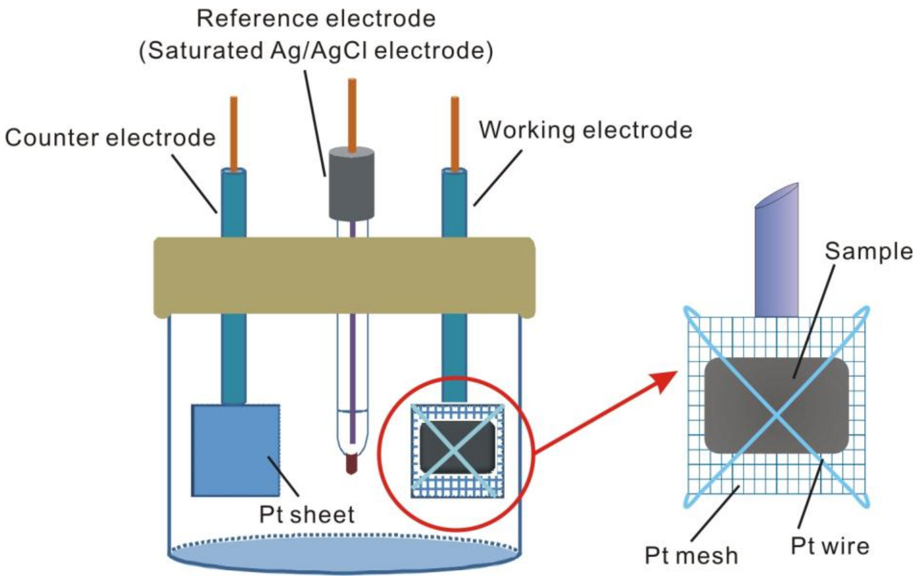

Figure S1. The illustration of three-electrode cell system.

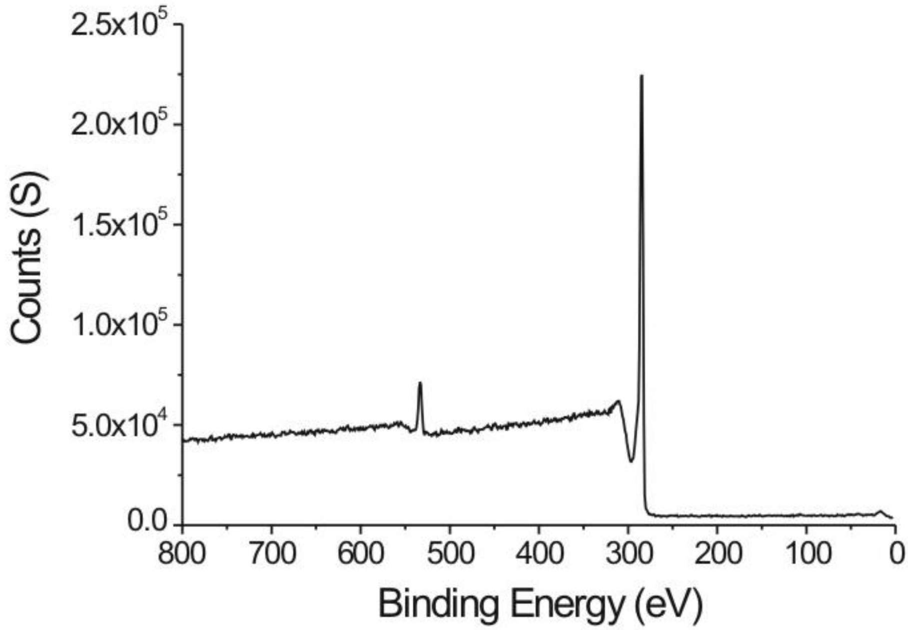

Figure S2. The X-ray photoelectron spectroscopy (XPS) curve of coral-like carbon.

Table S1. The abbreviations of hybrid materials by oxidative polymerization

Sample		The amount of aniline (μL)	Conducting polymer
C-CA1	C-CA (Carbon composited with PANi by Chemical oxidative polymerization)	20	PANi (Polyaniline)
C-CA2		60	PANi
C-CA3		100	PANi
C-CA4		140	PANi

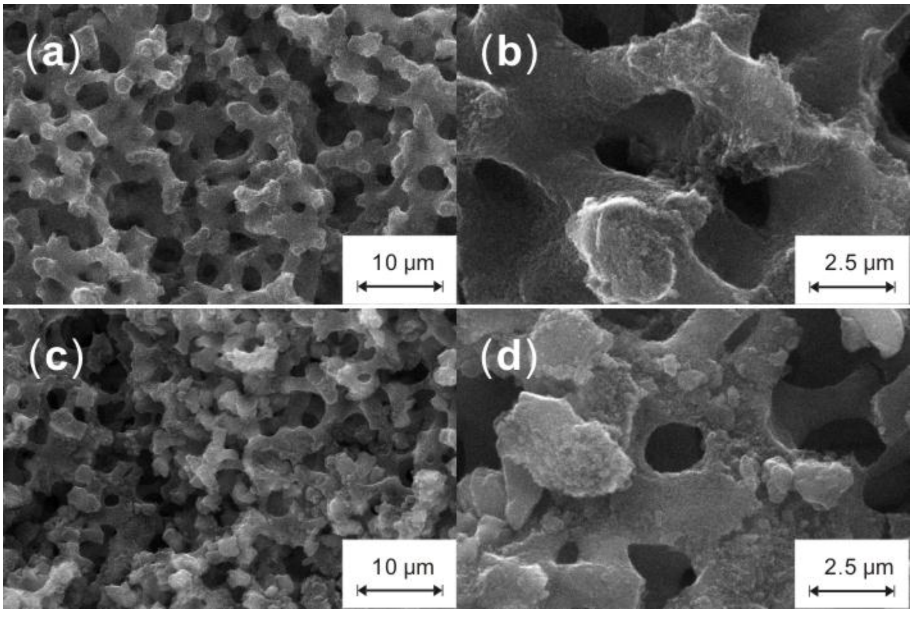

Figure S3. SEM images of C-CA1 (a, b) and C-CA3 (c, d)

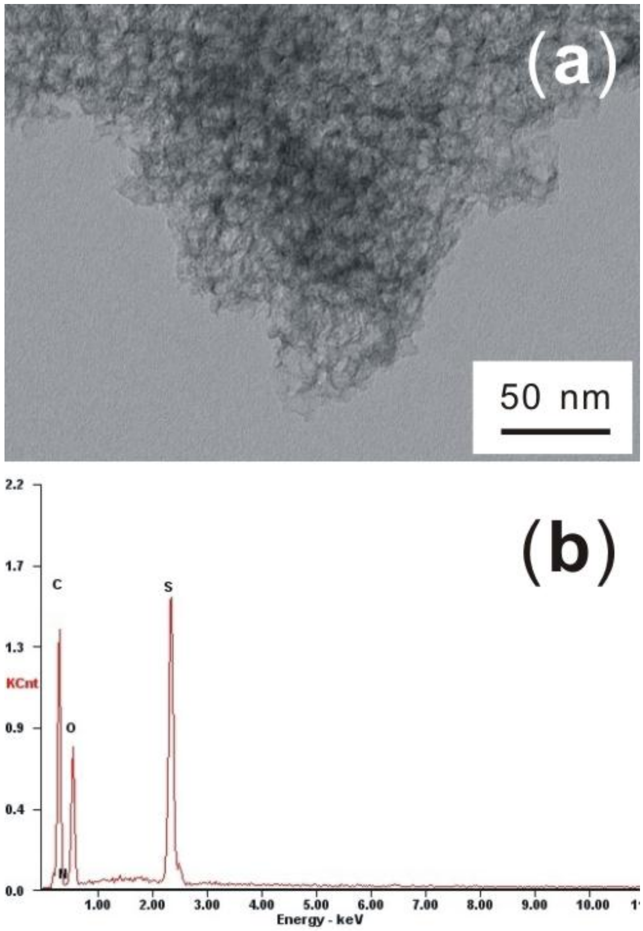

Figure S4. TEM image (a) and the energy dispersive X-ray (EDX) spectra (b) of C-ET3

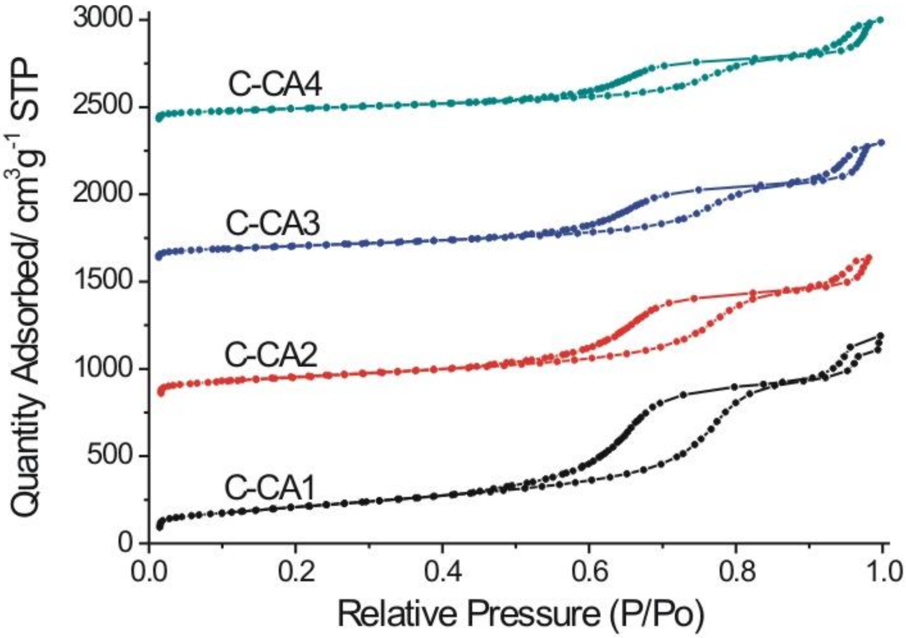

Figure S5. N_2 adsorption-desorption isotherms of hybrid materials. The data are shifted by 800 cm^3 g^{-1} STP relative to each other for clarity.

Table S2. Structural Properties of the hybrid materials

Sample	S_{BET} (m^2 g^{-1})	V_p (cm^3 g^{-1})	D_p (nm)	Content of conducting polymer (wt %)[a]
C-CA1	715	1.89	6.51	21
C-CA2	527	1.35	6.48	32
C-CA3	367	1.19	6.28	39
C-CA4	322	0.82	6.09	42

[a] Content of conducting polymer calculated from the formula: $c(wt\%) = 1 - m_{\mathrm{MC}} / m_{total}$

All the results above are the average values of three sets of test data.

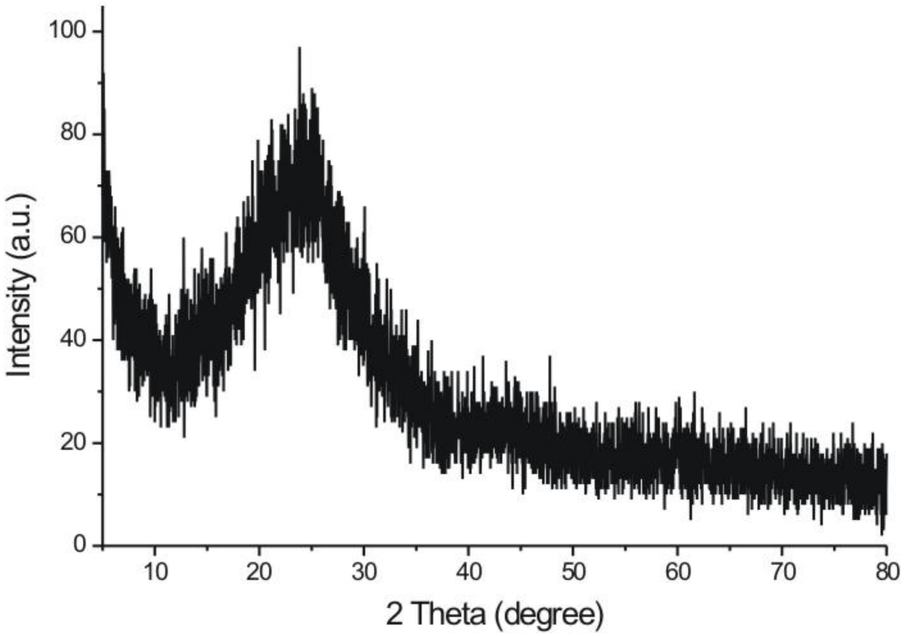

Figure S6. Wide-angle XRD patterns of C-CA3

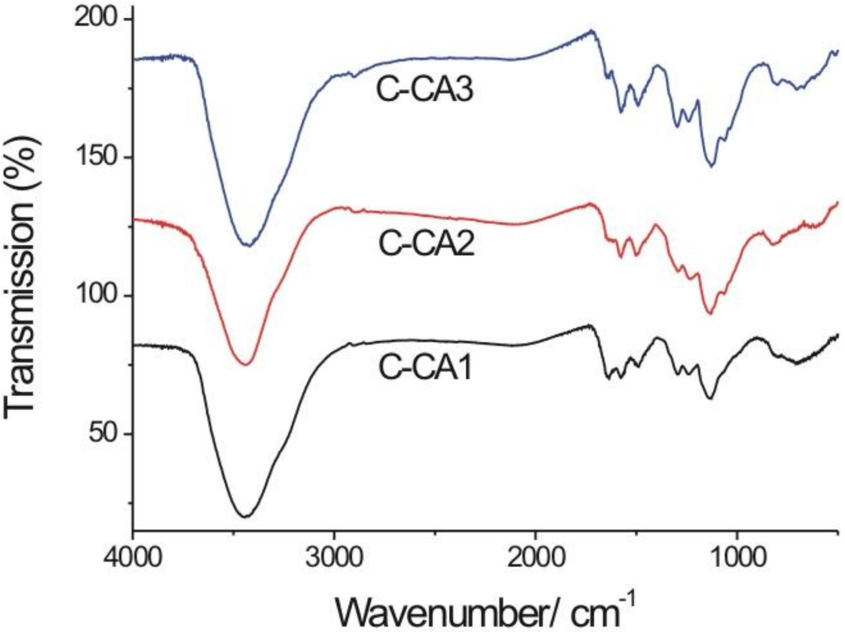

Figure S7. FTIR spectrum of PANi composites prepared by chemical oxidative polymerization. The data of FTIR are shifted by 50 relative to each other for clarity.

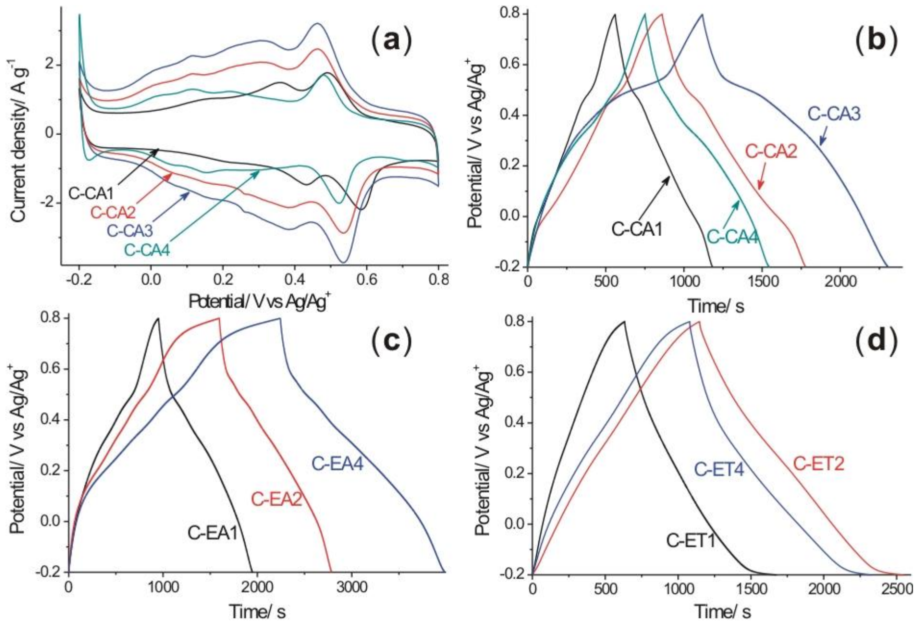

Figure S8. Cyclic voltammograms of C-CA at the scan rate of 5 mV s^{-1} (a) and galvanostatic charge-discharge curves of the hybrid materials (b-d) at the scan rate of 0.5 A g^{-1}.

Table S3. Capacitance performances of C-CA

Sample	Specific capacitance (F g^{-1})		
	2.0 A g^{-1}	1.0 A g^{-1}	0.5 A g^{-1}
C-CA1	285	295	313
C-CA2	384	425	459
C-CA3	511	575	595
C-CA4	338	360	397

The specific capacitances of as-prepared samples above were obtained at different current densities using 2 M H_2SO_4 as electrolyte.

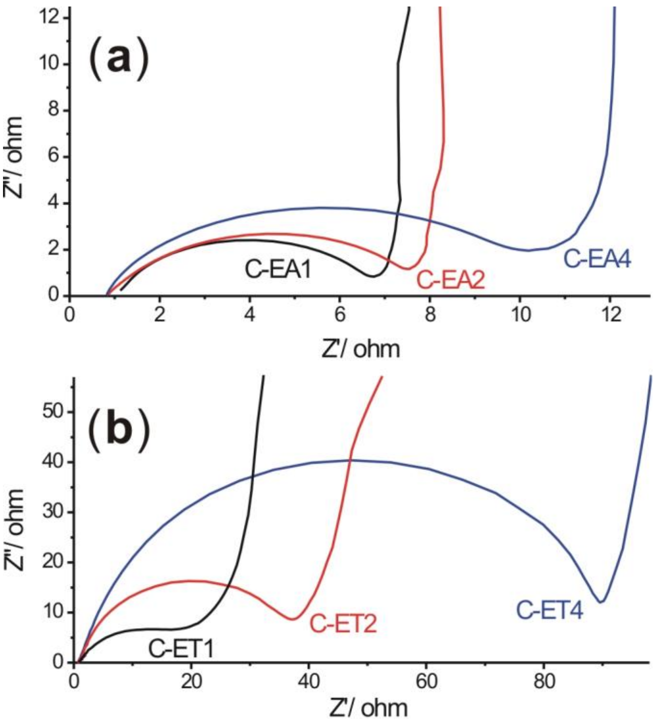

Figure S9. The Nyquist plots in the range of 10 kHz to 10 mHz for C-EA and C-ET.

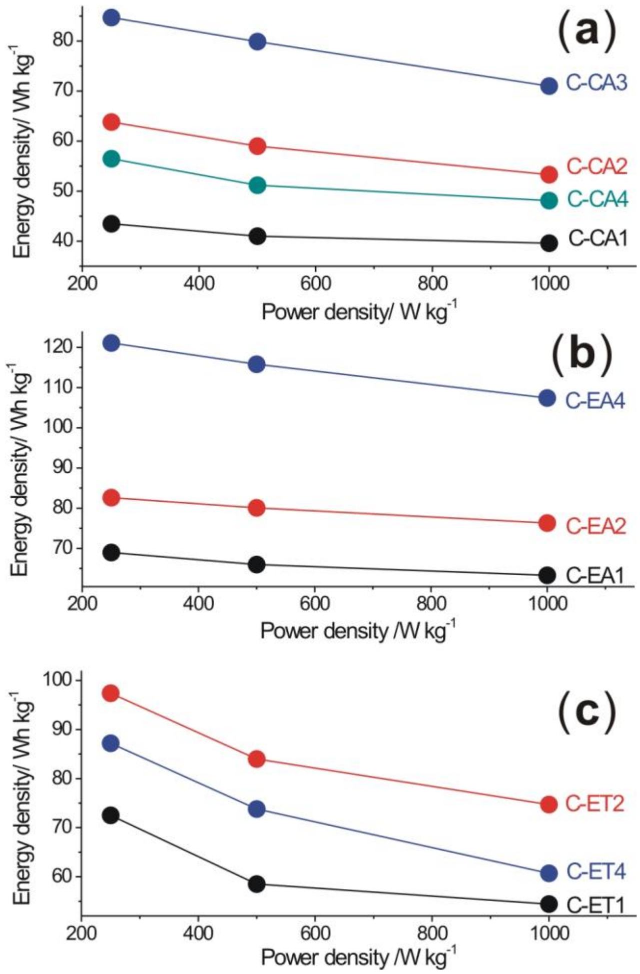

Figure S10. Ragone plots of the hybrid materials.

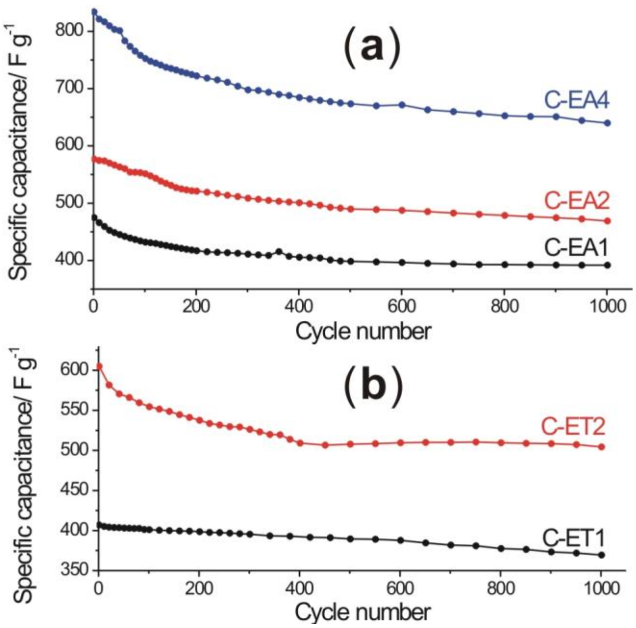

Figure S11. Cycling performance at 1.0 A g^{-1} of C-EA and C-ET.