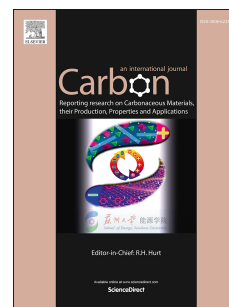


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Cellulose-derived hierarchical porous carbon for high-performance flexible supercapacitors

Chao Wang, Xianfen Wang, Hao Lu, Hongliang Li, X.S. Zhao



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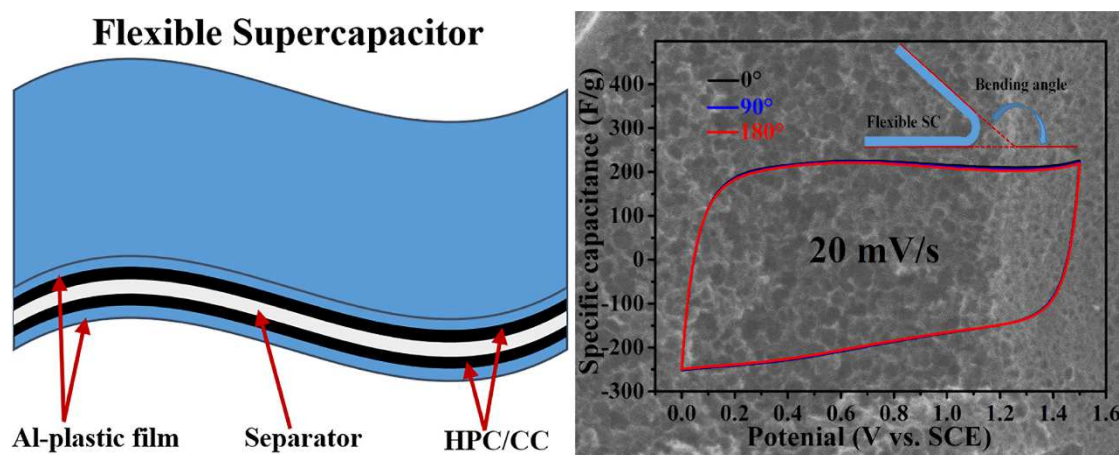
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A controllable synthetic route was designed for hierarchical porous carbons (HPCs) using a biomass cellulose as the low cost carbon precursor and zinc oxen as the in-situ templates for pores. HPCs exhibit controllable hierarchical porous structures with high specific surface area and suitable pore size distribution. Graphitization at tunable calcination temperatures greatly influences the pore size distribution. Compared with other biomass-derived PCs, HPCs obtained at 1000 °C demonstrate a high specific capacitance (194.2 F/g at the current density of 1 A/g), high rate capability and good cycling stability for supercapacitor in 1M NaCl solution. Flexible capacitors display a high energy density of 15.2 Wh/Kg at a power density of 751 W/Kg operated in the voltage of 0-1.5 V, maintaining a fairly good flexibility.

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