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Lei Pan, Xinxin Li, Yixian Wang, Jialiang Liu, Wei Tian, Hui Ning, Mingbo Wu

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**3D interconnected honeycomb-like and high rate performance porous carbons  
from petroleum asphalt for supercapacitors**

Lei Pan, Xinxin Li, Yixian Wang, Jialiang Liu, Wei Tian, Hui Ning, Mingbo Wu\*

State Key Laboratory of Heavy Oil Processing, College of Chemical Engineering,  
China University of Petroleum, Qingdao 266580, People's Republic of China

**Abstract**

In this paper, 3D interconnected honeycomb-like hierarchical porous carbons (HPCs) are prepared from petroleum asphalt via in-situ KOH activation in a molten salt medium. As symmetry two electrodes for supercapacitors, HPCs with high specific surface area of  $2227 \text{ m}^2 \text{ g}^{-1}$  show high rate performance, i.e.  $265 \text{ F g}^{-1}$  at  $0.05 \text{ A g}^{-1}$ ,  $221 \text{ F g}^{-1}$  at  $20 \text{ A g}^{-1}$ , and superior cycle stability with 91.1% capacitance retention at  $5 \text{ A g}^{-1}$  after 10000 cycles in 6 M KOH electrolyte. This facile strategy to prepare massive HPCs from cheap petroleum asphalt can provide high performance electrode materials for energy storage devices.

**Keywords:** hierarchical porous carbon; petroleum asphalt; molten salt medium; supercapacitors

**Introduction**

The increasing consumption of fossil fuels has caused serious concerns about the fast depletion of existing fossil fuel reserves and the associated alarming greenhouse gas emissions and pollutions. It is urgent to find renewable environmental friendly

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\* Corresponding author. Phone: +86 532 8698 3452 Email: [wumb@upc.edu.cn](mailto:wumb@upc.edu.cn)

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