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Fiber Network Composed of Interconnected Yolk-Shell Carbon Nanospheres for High-Performance Lithium-Sulfur Batteries

Lele Lin ^{a,1}, Fei Pei ^{b,1}, Jian Peng ^b, Ang Fu ^a, Jingqin Cui ^a, Xiaoliang Fang ^{a,*},
Nanfeng Zheng ^b

^a Pen-Tung Sah Institute of Micro-Nano Science and Technology, Xiamen University, Xiamen Fujian 361005, China.

^b State Key Laboratory for Physical Chemistry of Solid Surfaces, Collaborative Innovation Center of Chemistry for Energy Materials, National & Local Joint Engineering Research Center for Preparation Technology of Nanomaterials, and College of Chemistry and Chemical Engineering, Xiamen University, Xiamen, Fujian 361005, China.

* Corresponding author. *E-mail addresses:* x.l.fang@xmu.edu.cn (X.L. Fang)

Abstract

Lithium-sulfur (Li-S) batteries are a promising candidate for next-generation energy storage devices. However, rapid performance decay at high-sulfur-loading condition is emerged as one of the main obstacles restricting the practical application of Li-S batteries. Here we develop a facile electrospinning method for synthesizing the interconnected yolk-shell carbon nanospheres assembled fiber network to construct self-supporting sulfur cathodes. Benefiting from high surface area, nitrogen atom doping, and synergetic effect between yolk and shell, the yolk-shell carbon fiber network is a promising sulfur hosting material for high-sulfur-loading Li-S batteries. With 70 wt% and 4 mg cm⁻² of sulfur, the yolk-shell carbon fiber network derived

¹ These two authors contributed equally to this work.

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