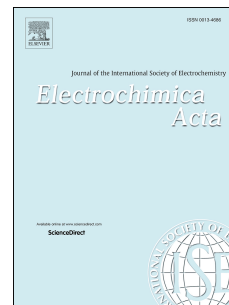


# Accepted Manuscript

Enhanced electrochemical kinetics in lithium-sulfur batteries by using carbon nanofibers/manganese dioxide composite as a bifunctional coating on sulfur cathode

Zhengjiao Liu, Boli Liu, Pengqian Guo, Xiaonan Shang, Mingzhi Lv, Dequan Liu, Deyan He



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**ABSTRACT**

Lithium-sulfur (Li-S) batteries have attracted extensive interest due to their higher theoretical energy density than the current commercial lithium-ion batteries. However, their practical application is largely hindered by the low sulfur utilization and poor cycling stability. Restraining the shuttle effect and enhancing the electrochemical kinetics are important for developing high-performance Li-S batteries. Here we use carbon nanofibers (CNFs) supported manganese dioxide (MnO<sub>2</sub>) composite as a bifunctional coating on sulfur cathode for anchoring polysulfides and accelerating their redox reactions simultaneously. The CNFs/MnO<sub>2</sub> composite supplies fast paths for electron transfer and ion diffusion, and greatly promotes the transformation

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