

电化学电容器复合电极材料铜氧化物/多孔炭的制备及电化学性能

李强<sup>1,2</sup>, 李开喜<sup>1</sup>, 谷建宇<sup>1</sup>, 范慧<sup>1</sup>, 吕春祥<sup>1</sup>

1. 中国科学院炭材料重点实验室, 山西煤炭化学研究所, 太原 030001; 2. 中国科学院研究生院, 北京 100049

收稿日期 2006-10-18 修回日期 2006-12-4 网络版发布日期 2007-8-25 接受日期

**摘要** 通过化学沉积法制备了金属铜氧化物/多孔炭复合电极材料, 观察了热处理温度及金属铜氧化物负载量对其理化性能的影响. 测试结果表明, 热处理过程能有效改变铜氧化物的形态, 而铜氧化物的形态影响着复合电极材料的电化学行为. 当多孔炭电极负载20wt%铜氧化物时, 其循环伏安曲线出现较强的峰值电流, 但其电化学性能不稳定, 这种情况随着负载量的减少而有所改善. 当负载3wt%金属铜氧化物时, 其单电极比电容达到325F/g, 高于空白多孔炭的比电容(256F/g).

**关键词** [电化学电容器](#) [铜氧化物/多孔炭](#) [复合电极材料](#) [化学沉积](#)

分类号 [TB333](#)

## Preparation and Electrochemical Performance of Copper Oxide/Porous Carbon Composites as Electrode Materials for Electrochemical Capacitors

LI Qiang<sup>1,2</sup>, LI Kai-Xi<sup>1</sup>, GU Jian-Yu<sup>1</sup>, FAN Hui<sup>1</sup>, LU Chun-Xiang<sup>1</sup>

1. Key Laboratory of Carbon Materials, Institute of Coal Chemistry, Chinese Academy of Sciences, Taiyuan 030001, China; 2. Graduate University of the Chinese Academy of Sciences, Beijing 100049, China

**Abstract** Copper oxide/porous carbon composite materials were prepared by a chemical deposition method. The effects of heat treatment temperature and copper oxide loading amount on the physical and chemical properties of the composites were investigated. The results show that heat treatment can change species of copper oxide, and these species can influence the electrochemical performance of the composite electrode materials. After loading 20wt% copper oxide, a relatively strong peak current appears in the cyclic voltammograms of copper oxide/porous carbon composite electrode, but its electrochemical capability is unstable. The decrease of the loading amount of copper oxide is responsible for the improvement of electrochemical stability. When 3wt% of copper oxide materials is loaded, the single-electrode specific capacitance of the composite electrode reaches 325F/g, which is higher than that of pure porous carbons (256F/g).

**Key words** [electrochemical capacitors](#) [copper oxide/porous carbon](#) [composite electrode materials](#) [chemical deposition](#)

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通讯作者 李开喜 [likx99@yahoo.com](mailto:likx99@yahoo.com)

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