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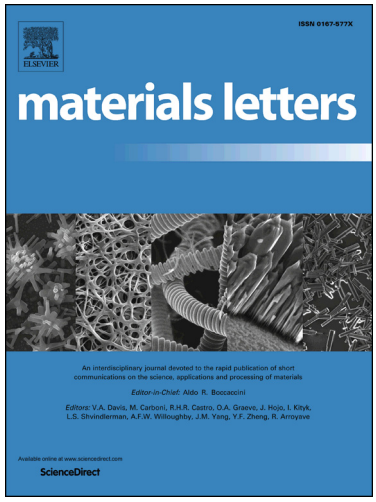

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Hongyu Chen, Xianfeng Zhu, Yi Chang, Junchao Cai, Ruirui Zhao

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3D flower-like CoS hierarchitectures recycled from spent $LiCoO_2$ batteries and its application in electrochemical capacitor

Hongyu Chen[a], Xianfeng Zhu[a], Yi Chang[b], Junchao Cai[b], Ruirui Zhao[a*]

[a] School of Chemistry and Environment, South China Normal University, Guangzhou, Guangdong 510006, China

[b] Guangzhou Institute of Energy Testing, Guangzhou, Guangdong 511447, China

Abstract

As more and more lithium ion batteries are scrap to recycle in recent years, developing high-efficient recycling method is crucial and urgent. In this paper, $LiCoO_2$ wastes are employed and the cobalt source is recycled as an active material for supercapacitor, while the lithium source can be recycled as Li_2CO_3. The recycled CoS exhibits a 3D flower-like morphology and superb electrochemical capacity can be obtained due to the unique structure. This method can provide a new thinking to battery recycling, which can be also applied to other battery wastes.

Keywords: CoS; battery wastes; recycling; lithium ion battery; composite materials; energy storage and conversion

1. Introduction

The demand for lithium ion batteries (LIBs) in the fields such as portable electronic devices and electric vehicles has increased quickly over the past several years. It's predictable that the exhausted batteries will be a focus issue in the near

* Corresponding Author. E-mail address: zhaoruirui@m.scnu.edu.cn (R. Zhao)