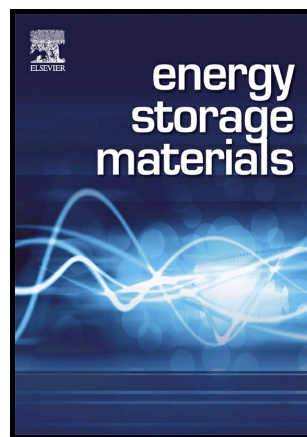


Author's Accepted Manuscript

NiS₂@CoS₂ nanocrystals encapsulated in N-doped carbon nanocubes for high performance lithium/sodium ion batteries

Yemao Lin, Zhaozheng Qiu, Dongzhi Li, Shahid Ullah, Hai Yang, Hailin Xin, Weidong Liao, Bo Yang, Haosen Fan, Jian Xu, Caizhen Zhu



PII: S2405-8297(17)30190-3
DOI: <http://dx.doi.org/10.1016/j.ensm.2017.06.001>
Reference: ENSM160

To appear in: *Energy Storage Materials*

Received date: 18 May 2017
Revised date: 2 June 2017
Accepted date: 2 June 2017

Cite this article as: Yemao Lin, Zhaozheng Qiu, Dongzhi Li, Shahid Ullah, Hai Yang, Hailin Xin, Weidong Liao, Bo Yang, Haosen Fan, Jian Xu and Caizhen Zhu, NiS₂@CoS₂ nanocrystals encapsulated in N-doped carbon nanocubes for high performance lithium/sodium ion batteries, *Energy Storage Materials* <http://dx.doi.org/10.1016/j.ensm.2017.06.001>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and a review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

NiS₂@CoS₂ nanocrystals encapsulated in N-doped carbon nanocubes for high performance lithium/sodium ion batteries

Yemao Lin^{a#}, Zhaozheng Qiu^{a#}, Dongzhi Li^a, Shahid Ullah^a, Hai Yang^a, Hailin Xin^a,

Weidong Liao^a, Bo Yang^a, Haosen Fan^{b*}, Jian Xu^b, Caizhen Zhu^{a*}

^aCollege of Chemistry and Environmental Engineering, Shenzhen University, Shenzhen 518060, China

^bBeijing National Laboratory for Molecular Sciences, Institute of Chemistry, Chinese Academy of Sciences, Beijing 100190, PR China

fhs@iccas.ac.cn

czzhu@szu.edu.cn

Abstract:

A novel and bottom-up approach has been applied to synthesize bi-metal Ni-Co coordination polymer@polydopamine (NiCoCP@PDA) core-shell nanocubes by polymerization of PDA layer on the surface of NiCoCP nanocubes. After thermally induced sulfurization processes, biactive NiS₂@CoS₂ hetero-nanocrystals encapsulated into N-doped carbon core-shell nanocubes has been successfully prepared. When used as anodes materials for lithium ion batteries (LIBs) and sodium ion batteries (SIBs), the novel bicontinuous carbon wrapped NiS₂@CoS₂ nanocrystals hierarchical structures show excellent lithium/sodium ion storage capacities with high specific capacities, good rate capabilities and stable cycling stability. The enhanced electrochemical performance is attributed to the interconnected porous structures and large amount of mesoporous structures, which effectively reduce the diffusion length for lithium ions and electrons, buffer volume expansion during the lithium/sodium ion

Download English Version:

<https://daneshyari.com/en/article/5453653>

Download Persian Version:

<https://daneshyari.com/article/5453653>

[Daneshyari.com](https://daneshyari.com)