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Biomolecule-assisted synthesis of nickel sulfides/reduced graphene oxide nanocomposites as electrode materials for supercapacitors

By: Xing, ZC (Xing, Zhicai)^[1]; Chu, QX (Chu, Qingxin)^[1]; Ren, XB (Ren, Xinbang)^[1]; Tian, JQ (Tian, Jingqi)^[1]; Asiri, AM (Asiri, Abdullah M.)^[2,3]; Alamry, KA (Alamry, Khalid A.)^[2,3]; Al-Youbi, AO (Al-Youbi, Abdulrahman O.)^[2,3]; Sun, XP (Sun, Xuping)^[1,2,3]

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Abstract

The present communication demonstrates the first environmentally friendly hydrothermal synthesis of nickel sulfide nanospheres/reduced graphene oxide (nickel sulfides/rGO) nanocomposites with the use of L-cysteine as a reducing agent, sulfur donor, and linker. The nanosphere consists of ultrafine particles leading to textural pores. The resulting nickel sulfides/rGO nanocomposites were further used as an electrode material for supercapacitors and found to exhibit very high specific capacitances of 1169 F g⁻¹ and 761 F g⁻¹ at current rates of 5 A g⁻¹ and 50 A g⁻¹, respectively, with good cycling stability. (C) 2013 Elsevier B.V. All rights reserved.

Keywords

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Author Information

Reprint Address: Sun, XP (reprint author)

+ Chinese Acad Sci, Changchun Inst Appl Chem, State Key Lab Electroanal Chem, Changchun 130022, Jilin, Peoples R China.

Addresses:

+ [1] Chinese Acad Sci, Changchun Inst Appl Chem, State Key Lab Electroanal Chem, Changchun 130022, Jilin, Peoples R China

- [2] King Abdulaziz Univ, Fac Sci, Dept Chem, Jeddah 21589, Saudi Arabia
Organization-Enhanced Name(s)
 King Abdulaziz University

- [3] King Abdulaziz Univ, Ctr Excellence Adv Mat Res, Jeddah 21589, Saudi Arabia
Organization-Enhanced Name(s)
 King Abdulaziz University

E-mail Addresses: sunxp@ciac.jl.cn

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