

Accepted Manuscript

Electrochemical synthesis of a ternary transition metal sulfide nanosheets on nickel foam and energy storage application

Surjit Sahoo, Kusha Kumar Naik, Dattatray J. Late, Chandra Sekhar Rout



PII: S0925-8388(16)33284-4

DOI: [10.1016/j.jallcom.2016.10.163](https://doi.org/10.1016/j.jallcom.2016.10.163)

Reference: JALCOM 39330

To appear in: *Journal of Alloys and Compounds*

Received Date: 5 July 2016

Revised Date: 29 August 2016

Accepted Date: 16 October 2016

Please cite this article as: S. Sahoo, K.K. Naik, D.J. Late, C.S. Rout, Electrochemical synthesis of a ternary transition metal sulfide nanosheets on nickel foam and energy storage application, *Journal of Alloys and Compounds* (2016), doi: 10.1016/j.jallcom.2016.10.163.

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 review of the resulting proof before it is published in its final 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.

Electrochemical Synthesis of a Ternary Transition Metal Sulfide Nanosheets on Nickel Foam and Energy Storage Application

Surjit Sahoo,¹ Kusha Kumar Naik,¹ Dattatray J. Late² and Chandra Sekhar Rout^{1,*}

¹ School of Basic Sciences, Indian Institute of Technology, Bhubaneswar 751013, Odisha, India

E-mail: csrout@iitbbs.ac.in

²Physical and Material Chemistry Division, CSIR – National Chemical Laboratory, Pune, 411008, Maharashtra, India.

ABSTRACT

We report growth of nickel cobalt sulfide (NCS) ultrathin nanosheets directly on Ni foam substrate by a facile and novel electrodeposition method. The as-prepared NCS sample is used as an electrode material for supercapacitor application due to their large electrochemically active surface area and interconnected nanosheet channels for the facilitation of ion transportation. The NCS nanosheets possess enhanced electrochemical performance in terms of fast and high reversible faradaic reactions characterized by prominent oxidation and reduction peaks. NCS nanosheets showed an ultrahigh specific capacitance of 1712 Fg^{-1} at a current density of 1 Ag^{-1} with excellent cyclic stability. The excellent supercapacitor performance of NCS nanosheets can be attributed to its rich redox reactions as well as high transport rate for both electrolyte ions and electrons.

Download English Version:

<https://daneshyari.com/en/article/5461383>

Download Persian Version:

<https://daneshyari.com/article/5461383>

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