

Accepted Manuscript

Title: Fabrication and activation of carbon nanotube foam and its application in energy storage

Authors: Chunlei Wang, Yujie Feng, Xiaochen Sun, Haibin Sun, Tao Peng, Yang Lu, Junqi Xu, Yongsong Luo, Benhai Yu



PII: S0013-4686(17)30682-5
DOI: <http://dx.doi.org/doi:10.1016/j.electacta.2017.03.173>
Reference: EA 29207

To appear in: *Electrochimica Acta*

Received date: 15-2-2017
Revised date: 23-3-2017
Accepted date: 23-3-2017

Please cite this article as: Chunlei Wang, Yujie Feng, Xiaochen Sun, Haibin Sun, Tao Peng, Yang Lu, Junqi Xu, Yongsong Luo, Benhai Yu, Fabrication and activation of carbon nanotube foam and its application in energy storage, *Electrochimica Acta* <http://dx.doi.org/10.1016/j.electacta.2017.03.173>

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.

Fabrication and activation of carbon nanotube foam and its application in energy storage

Chunlei Wang, Yujie Feng, Xiaochen Sun, Haibin Sun, Tao Peng, Yang Lu, Junqi Xu, Yongsong Luo[†], Benhai Yu[†]

Key Laboratory of Advanced Micro/Nano Functional Materials of Henan Province, School of Physics and Electronic Engineering, Xinyang Normal University, Xinyang 464000, P. R. China

* Author to whom any correspondence should be addressed Y. Luo and B. Yu. Tel.: +86376 6391731

E-mail address: eysluo@163.com and hnyubenhai@163.com

Abstract: We have successfully prepared three dimensional carbon nanotube foams (CNTF) by a simple environmental-friendly method. However, the as-grown CNTF shows a high electrical conductivity but a reduced specific surface area which limits its application as electrode materials in energy storage devices. In this work, the as-grown CNTF has been activated by using certain concentration of KOH aqueous solution. The results indicate that activation can enlarge the specific surface area by producing new pores with sizes from micropore to macropore, but give no important change in shape and size of the CNTF. We take the activated CNTFs as electrodes for supercapacitors and lithium-ion batteries respectively, and find that activation can clearly enhance the specific capacities and rate properties due to the enhanced specific surface area and hierarchical porous structures. The activated three dimensional

Download English Version:

<https://daneshyari.com/en/article/4767259>

Download Persian Version:

<https://daneshyari.com/article/4767259>

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