

Accepted Manuscript

A self-sacrificed template synthesis of porous N doped carbon nanosheets and their electrochemical properties

You Chen, Song He, Yuexin Liu, Donghua Wang, Yanzhong Wang

PII: S0167-577X(18)31115-7
DOI: <https://doi.org/10.1016/j.matlet.2018.07.074>
Reference: MLBLUE 24640

To appear in: *Materials Letters*

Received Date: 9 June 2018
Revised Date: 9 July 2018
Accepted Date: 17 July 2018

Please cite this article as: Y. Chen, S. He, Y. Liu, D. Wang, Y. Wang, A self-sacrificed template synthesis of porous N doped carbon nanosheets and their electrochemical properties, *Materials Letters* (2018), doi: <https://doi.org/10.1016/j.matlet.2018.07.074>

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.



A self-sacrificed template synthesis of porous N doped carbon nanosheets and their electrochemical properties

You Chen, Song He, Yuexin Liu, Donghua Wang, Yanzhong Wang*

School of Materials Science and Engineering, North University of China, Taiyuan 030051, P.R.

China

Abstract:

N-doped porous carbon nanosheets were prepared from glucose with g-C₃N₄ derived from dicyandiamide as a self-sacrificed template, which have a high nitrogen content of 12.01 at. % and a specific surface area of 492.7 m² g⁻¹. The unique structure allows for exhibiting high specific capacitance of 250.64 F g⁻¹ and excellent rate capability.

Keywords: Carbon materials; Porous materials; Supercapacitor; Energy storage.

1 Introduction

Supercapacitors, also known as ultracapacitors have attracted intensive attention in energy storage application owing to their high power density and superior cycling stability [1, 2]. Among different electrode materials, two-dimensional (2D) nanomaterials, such as graphene and graphene-like carbon nanosheets, have been considered to be a promising candidate as a electrical double layer capacitors (EDLCs) electrode due to their high surface area and shortened diffusion paths of electrolyte ions [3].

A typical 2D structure material, graphene, is widely used as supercapacitor electrodes due to its high surface area and superior conductivity [4]. However, graphene is irreversibly agglomerated by van der Waals forces during the preparation procedure [5]. Moreover, the preparation process of graphene is

* Corresponding author: Tel. / Fax: +86-351-3557519. E-mail: wyzletter@nuc.edu.cn (Y. Z. Wang).

Download English Version:

<https://daneshyari.com/en/article/8012337>

Download Persian Version:

<https://daneshyari.com/article/8012337>

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