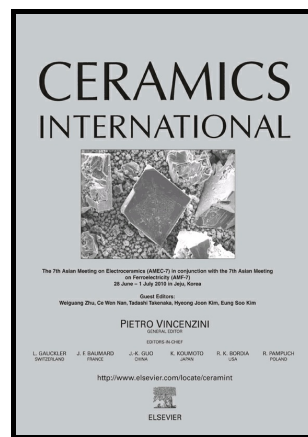


# Author's Accepted Manuscript

Facile synthesis of flexible and free-standing cotton covered by graphene/MoO<sub>2</sub> for lithium-ions batteries

Xueqian Zhang, Xiaoxiao Huang, Long Xia, Bo Zhong, Xiaodong Zhang, Tao Zhang, Guangwu Wen



[www.elsevier.com/locate/ceri](http://www.elsevier.com/locate/ceri)

PII: S0272-8842(16)32114-9  
DOI: <http://dx.doi.org/10.1016/j.ceramint.2016.11.117>  
Reference: CER114205

To appear in: *Ceramics International*

Received date: 16 September 2016  
Revised date: 27 October 2016  
Accepted date: 16 November 2016

Cite this article as: Xueqian Zhang, Xiaoxiao Huang, Long Xia, Bo Zhong, Xiaodong Zhang, Tao Zhang and Guangwu Wen, Facile synthesis of flexible and free-standing cotton covered by graphene/MoO<sub>2</sub> for lithium-ions batteries *Ceramics International*, <http://dx.doi.org/10.1016/j.ceramint.2016.11.117>

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.

## Facile synthesis of flexible and free-standing cotton covered by graphene/MoO<sub>2</sub> for lithium-ions batteries

Xueqian Zhang <sup>a</sup>, Xiaoxiao Huang <sup>a,\*</sup>, Long Xia <sup>b</sup>, Bo Zhong <sup>b</sup>, Xiaodong Zhang <sup>a,\*</sup>,  
Tao Zhang <sup>b</sup>, Guangwu Wen <sup>a,b</sup>

<sup>a</sup> School of Materials Science and Engineering, Harbin Institute of Technology, Harbin, 150001, China

<sup>b</sup> School of Materials Science and Engineering, Harbin Institute of Technology at Weihai, WeiHai, 264209, China

### Abstract

It's necessary to build flexible and free-standing materials for flexible/wearable electronics in high-performance lithium-ions batteries. Herein, we design and fabricate a flexible and free-standing 3 D carbon/MoO<sub>2</sub> composite through a facile immersing method followed by an annealing process. The carbon framework is supported by non-woven cotton totally covered by graphene sheets. The nanosized MoO<sub>2</sub> particles were uniformly anchored on cotton fibers and graphene sheets. The structure has several advantages, such as an interconnected 3D electronically conductive network, plenty of channels for electrolyte solution cross, and more active points for the electrode reaction. Compared with cotton/MoO<sub>2</sub> (C/MoO<sub>2</sub>) without graphene sheets, the CGN/MoO<sub>2</sub> composite (cotton covered by graphene/MoO<sub>2</sub>) showed much better thermal stability and excellent cycling performance. The proposed synthesis process paves a new way as promising electrode materials for high power battery applications such as roll-up displays and wearable devices.

Download English Version:

<https://daneshyari.com/en/article/5438598>

Download Persian Version:

<https://daneshyari.com/article/5438598>

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