

Improved Li-storage performance of CNTs-decorated $\text{LiVPO}_4\text{F/C}$ cathode material for electrochemical energy storage

Xujiao Yang, Xianli Wang, Kaiying Wang, Guangli Chang



www.elsevier.com/locate/ceri

PII: S0272-8842(17)32626-3
DOI: <https://doi.org/10.1016/j.ceramint.2017.11.168>
Reference: CERI16823

To appear in: *Ceramics International*

Received date: 6 November 2017
Revised date: 20 November 2017
Accepted date: 23 November 2017

Cite this article as: Xujiao Yang, Xianli Wang, Kaiying Wang and Guangli Chang, Improved Li-storage performance of CNTs-decorated $\text{LiVPO}_4\text{F/C}$ cathode material for electrochemical energy storage, *Ceramics International*, <https://doi.org/10.1016/j.ceramint.2017.11.168>

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 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.

**Improved Li-storage performance of CNTs-decorated LiVPO₄F/C cathode
material for electrochemical energy storage**

Xujiao Yang, Xianli Wang^{*}, Kaiying Wang, Guangli Chang

College of Automobile & Civil Engineering, Beihua University, Jilin 132013, PR China

*** Corresponding author**

E-mail: wangxianli_bhu@sina.com

Abstract

Lithium vanadium fluorophosphate (LiVPO₄F) has been attracted increasing attention as an advanced cathode for Li-ion batteries because of its excellent thermal stability and high operating voltage. Nevertheless, the pure LiVPO₄F possesses a low electrical conductivity which prevents its usage for practical application in energy storage. In this work, the CNTs-decorated LiVPO₄F/C (CNTs@LiVPO₄F/C) nanocomposite has been prepared via a conventional sol-gel approach. The XRD results reveal that all the diffraction peaks obtained for CNTs@LiVPO₄F/C are indexed to the triclinic structure. TEM images show that the conductive CNTs are distributed homogeneously over the LiVPO₄F/C particles. Benefiting from the enhanced conductivity, the as-prepared CNTs@LiVPO₄F/C electrode exhibits outstanding electrochemical performance with high reversible capacity of 121.1 mAh g⁻¹ at a high current rate of 10 C. Therefore, the novel CNTs@LiVPO₄F/C cathode material developed from this investigation with superior Li-storage performance has promising practical applications in electrochemical energy storage systems.

Download English Version:

<https://daneshyari.com/en/article/7888243>

Download Persian Version:

<https://daneshyari.com/article/7888243>

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