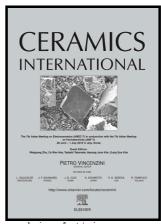
Author's Accepted Manuscript

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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 LiVPO₄F/C cathode material for electrochemical energy storage, *Ceramics International*, https://doi.org/10.1016/j.ceramint.2017.11.168

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ACCEPTED MANUSCRIPT

Improved Li-storage performance of CNTs-decorated LiVPO₄F/C cathode

material for electrochemical energy storage

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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.

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