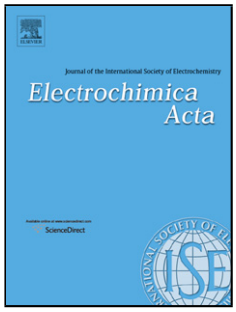

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PII: S0013-4686(16)30003-2
DOI: http://dx.doi.org/doi:10.1016/j.electacta.2016.01.008
Reference: EA 26386

To appear in: *Electrochimica Acta*

Received date: 10-12-2015
Revised date: 30-12-2015
Accepted date: 2-1-2016

Please cite this article as: Baoqin Guan, Weiwei Sun, Yong Wang, Carbon-Coated MnMoO4 Nanorod for High-Performance Lithium-Ion Batteries, Electrochimica Acta http://dx.doi.org/10.1016/j.electacta.2016.01.008

Carbon-Coated $MnMoO_4$ Nanorod for High-Performance Lithium-Ion Batteries

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Graphical abstract

Abstract

Molybdenum oxysalt is a promising electrode candidate for lithium ion battery due to its flexible composition structure and large Li-storage capacity. An unprecedented $MnMoO_4$ with a carbon overlayer is synthesized by room-temperature reaction of manganese salt and molybdate, followed hydrothermal treatment with glucose. The rod-like $MnMoO_4$@C exhibits excellent electrochemical performance as an anode for rechargeable lithium ion batteries. A large reversible capacity of 1050 mAh g^{-1} can be retained after 200 cycles at a current density of 100 mA g^{-1}. The improved lithium storage performance is attributed to the presence of electrically-conductive carbon coating, which can improve the lithium transportation and alleviate the large volume change of ternary metal oxide during repetitive cycling.

Keywords: $MnMoO_4$, nanorod, carbon coating, anode, lithium ion batteries