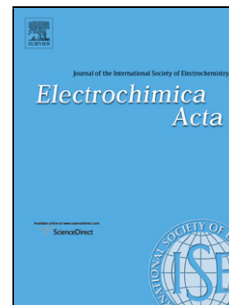


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Authors: Qiang Zhang, Jian Pei, Gang Chen, Changfeng Bie, Dahong Chen, Yang Jiao, Jiansun Rao



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Co₃V₂O₈ Hexagonal Pyramid with Tunable Inner Structure as High Performance Anode Materials for Lithium Ion Battery

Qiang Zhang,[†] Jian Pei,^{*†} Gang Chen,[†] Changfeng Bie,[†] Dahong Chen,^{*†} Yang Jiao[†] and Jiancun Rao^{*‡}

[†] *MIIT Key Laboratory of Critical Materials Technology for New Energy Conversion and Storage, School of Chemistry and Chemical Engineering, Harbin Institute of Technology, Harbin, 150001, P. R. China*

[‡] *Institute for Advanced Ceramics, School of Materials Science and Engineering, Harbin Institute of Technology, Harbin 150001, P. R. China*

ABSTRACT: Co₃V₂O₈ hexagonal pyramid was successfully fabricated via a simple hydrothermal process and subsequent heat treatment. The inner structure of the hexagonal pyramid was further adjusted by controlling the size of Co₇V₄O₁₆(OH)₂(H₂O) precursors. Hierarchical Co₃V₂O₈ hexagonal pyramid with height of 1 μm were orderly constructed from 60-80 nm inter-connected particles, showing numerous interval voids. Benefiting from its unique structure, the as-prepared sample showed higher electrochemical performance as an anode material for lithium-ion batteries than that of another bulk sample with height of 5 μm and adhesive inner structure. When tested at a current density of 500 mA g⁻¹, the hierarchical Co₃V₂O₈ hexagonal pyramid exhibited good rate capacity, high cycling stability, and excellent discharge capacity up to 712 mA h g⁻¹, making it promising electrode materials for lithium-ion batteries.

Keywords: Co₃V₂O₈; ; ; , hexagonal pyramid, hierarchical architecture, anode material, lithium-ion batteries

1. Introduction

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