

Fabrication of Electrospun LiFePO_4 /Carbon Composite Fibers as a Cathode Material for Lithium-ion Batteries

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LiFePO_4 /Carbon composite fibers were synthesized by using a combination of electrospinning and sol-gel techniques with $\text{LiOH}\cdot\text{H}_2\text{O}$, $\text{FeSO}_4\cdot 7\text{H}_2\text{O}$, H_3PO_4 and citric acid. Polyvinylpyrrolidone (PVP: $1,300,000 \text{ g}\cdot\text{mol}^{-1}$) was used as the fiber-forming agent in the electrospinning method and a carbon source for improving electronic conductivity of LiFePO_4 . Surface morphology and carbon coating features of the composite nanofibers were investigated by scanning electron microscopy (SEM), transmission electron microscopy (TEM), and X-ray energy dispersive spectroscopy microanalysis (EDS). The electrochemical performance of LiFePO_4 /carbon composite fibers were evaluated using galvanostatic charge- discharge method.

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