MnSe₂/Se Composite Nanobelts as an Improved Performance Anode for Lithium Storage

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MnSe₂/Se composite nanobelts which are used as a kind of the anode electrode material in lithium-ion batteries have been prepared by a straightforward method of the hydrothermal synthesis, and their morphologies, structures and electrochemical performances have been investigated. The prepared nanocomposition exhibits the excellent rate performance and the excellent electrochemical performance, such as the good cycling stability (572 mAh g⁻¹ at current density of 200 mA g⁻¹ after 200 cycles). The improved performance of the electrochemical lithium storage should be attributed to the architecture and the component of composite nanobelts, which could depress the pulverization and enhance the electrical conductivity. Our results indicate that the MnSe₂/Se composite nanobelts have potential applications prospect in high-performance lithium-ion batteries.

Keywords: Lithium-ion batteries; Anode; MnSe₂/Se composite; Hydrothermal synthesis

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