Short Communication

Hydrothermal Synthesis of MnO₂ with Different Morphological Characteristics as Electrode Material for High Electrochemical Performance Supercapacitors

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The morphology of the materials has a direct influence on the electrochemical performance of the electrode materials for the supercapacitors. Many works have been reported the improvement of electrochemical performance by designing different kinds of electrode materials for supercapacitors. However, the researchers have paid little attention about the influence of nanostructures of one material on the supercapacitors. Therefore, we developed morphology controlled MnO₂ nanostructures, including MnO₂ nanospheres (MN-NS) and MnO₂ nanocages (MN-NC), to modify the electrochemical performance of the supercapacitors. The electrochemical performance indicates that the as-prepared MN-NC electrodes exhibit higher specific capacity and superior cycle stability. This is ascribed to the hollow nanocages of MN-NC providing enough electrolyte to ensure the wettability of the whole electrode film.

Keywords: Supercapacitor, MnO₂, nanocages, nanostructures, Capacity, Energy density, New energy

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