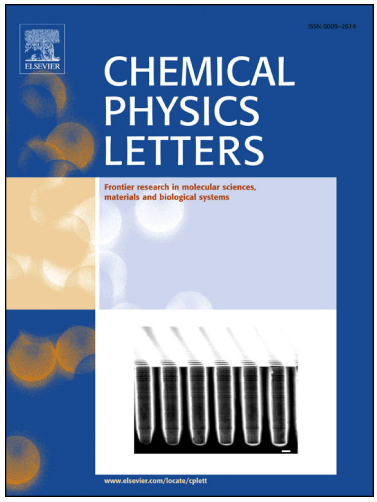

Research paper

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Synthesis of flower-like copper sulfides microspheres as electrode materials for sodium secondary batteries

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Abstract

Flower-like copper sulfides (CuS) microspheres, with a diameter of about 10 μm, are synthesized via a facile hydrothermal method and employed to sodium secondary batteries for the first time. The complex structure of CuS is composed by nanosheets with thickness around 50 nm. Na/CuS cell delivers an initial discharge capacity of 348.6 mAh/g. However, half of initial specific capacity maintains after 4 cycles, accompany with the structure degradation. Despite all that, CuS is a promising cathode material due to its high specific capacity for sodium batteries, which needs much more efforts to improve the cycle stability.

Keywords: copper sulfides; flower-like structure; sodium secondary batteries; structure degradation