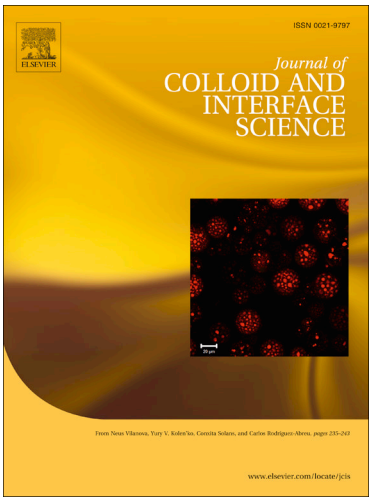

Facile synthesis of Bi_2MoO_6/reduced graphene oxide composites as anode materials towards enhanced lithium storage performance

Xiangang Zhai, Jianping Gao, Ruinan Xue, Xiaoyang Xu, Luyao Wang, Qiang Tian, Yu Liu

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Facile synthesis of Bi_2MoO_6/reduced graphene oxide composites as anode materials towards enhanced lithium storage performance

Xiangang Zhai,[a] Jianping Gao,*[,a] Ruinan Xue,[a] Xiaoyang Xu,[b] Luyao Wang,[a] Qiang Tian,[a] Yu Liu*[,a]

[a]Department of Chemistry, School of Science, Tianjin University, Tianjin 300072, P. R. China

[b]School of Chemical and Pharmaceutical Engineering, Hebei University of Science and Technology

Abstract

Bi_2MoO_6/reduced graphene oxide (Bi_2MoO_6/rGO) composites were fabricated by a facile one-pot hydrothermal approach, in which Bi_2MoO_6 nanosheets and rGO were simultaneously obtained. The structure and composition of the as-synthesized Bi_2MoO_6 and Bi_2MoO_6/rGO materials were characterized via FT-IR, BET, TGA, XRD, TEM, SEM and XPS analyses, and the electrochemical performance of Bi_2MoO_6/rGO as an anode in a lithium-ion battery was investigated. Compared with pristine Bi_2MoO_6, the Bi_2MoO_6/rGO composites have higher capacities, better cycle stability and higher rates. For a current density of 100 mA g^{-1}, the initial discharge capacities of the Bi_2MoO_6/rGO-20 and pristine Bi_2MoO_6 were 1049.6 mAh g^{-1} and 528.5 mAh g^{-1}, respectively. After 100 cycles, the capacity retention for the Bi_2MoO_6/rGO-20 and pristine Bi_2MoO_6 were respectively 80.4% and 30.7% using the 2 nd cycle capacities (895.8 and 402.4 mAh g^{-1}) as references. The enhanced