

Cu₃SbS₃ as Anode Material for Sodium Batteries

Authors : Atef Y. Shenouda, Fei Xu

Abstract : Cu₃SbS₃ (CAS) was synthesized by direct solid-state reaction from elementary Cu, Sb, & S and hydrothermal reaction using thioacetamide (TAM). Crystal structure and morphology for the prepared phases of Cu₃SbS₃ were studied via X-ray diffraction (XRD) and field emission scanning electron microscope (FESEM). The band gap energies are 2 and 2.2 eV for the prepared samples. The two samples are as anode for Na ion storage. They show high initial capacity to 490 mAh/g. Na cell prepared from TAM sample shows 280 mAh/g after 25 cycles vs. 60 mAh/g for elemental sample.

Keywords : Cu₃SbS₃, sodium batteries, thioacetamide, sulphur sources

Conference Title : ICEEP 2024 : International Conference on Electrochemistry and Electrochemical Processes

Conference Location : Paris, France

Conference Dates : September 16-17, 2024