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Shape Controlled synthesis of Cu_3BiS_3 Nano- and microstructures by PEG assisted solvothermal method and functional properties

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Abstract

One-dimensional Cu_3BiS_3 nano- and microstructures were synthesized by solvothermal route using structural directing agent poly ethylene glycol (PEG) as soft template. The effects of thiourea concentration on the morphological, structural and optical properties of Cu_3BiS_3 nano- and microstructures were investigated. X-ray diffraction study revealed that the synthesized Cu_3BiS_3 belongs to orthorhombic structure. Raman spectrum of the Cu_3BiS_3 exhibited its functional groups. The chemical bonding of the ions was examined by X-ray photoelectron spectroscopy. Field emission scanning electron microscope and transmission electron microscope analyses evidently showed that thiourea concentration acts as a crucial factor in tuning the morphology of Cu_3BiS_3 nano- and microstructures. The presence of

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