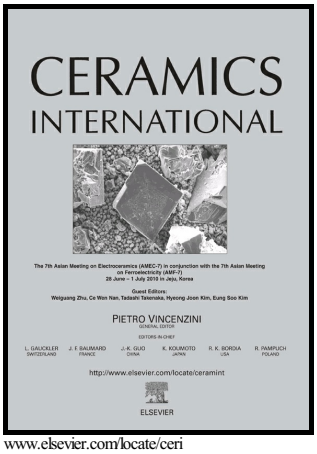

www.elsevier.com/locate/ceri

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

T. Manimozhi, J. Archana, K. Ramamurthi

PII: S0272-8842(18)31335-X
DOI: https://doi.org/10.1016/j.ceramint.2018.05.190
Reference: CERI18365

To appear in: *Ceramics International*

Received date: 23 April 2018
Revised date: 19 May 2018
Accepted date: 21 May 2018

Cite this article as: T. Manimozhi, J. Archana and K. Ramamurthi, Shape Controlled synthesis of Cu_3BiS_3 Nano- and microstructures by PEG assisted solvothermal method and functional properties, *Ceramics International,* https://doi.org/10.1016/j.ceramint.2018.05.190

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

T. Manimozhi[a], J. Archana[b], K. Ramamurthi[a*]

[a]*Crystal Growth and Thin Film Laboratory, Department of Physics and Nanotechnology, SRM Institute of Science and Technology, Kattankulathur 603203, Tamil Nadu, India.*

[b]*Center for Materials Science and Nano Devices, Department of Physics, SRM Institute of Science and Technology, Kattankulathur 603203, Tamil Nadu, India.*

krmurthin@yahoo.co.in;

manimozhi.t@ktr.srmuniv.ac.in

***Corresponding Author. Dr. K. Ramamurthi;** Tel.: +91 9499009516

Abstract

One-dimentional 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