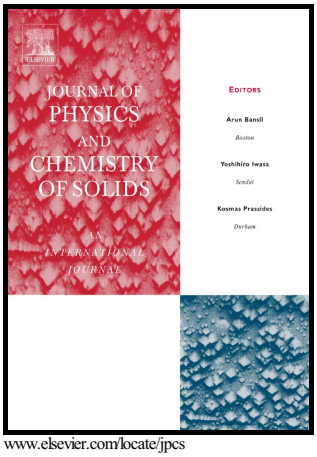
Preparation of flower-like CuS/reduced graphene oxide(RGO) photocatalysts for enhanced photocatalytic activity

Xiao-Sai Hu, Yong Shen, Ya-Ting Zhang, Jing-Jing Nie



www.elsevier.com/locate/jpcs

PII: S0022-3697(16)30520-0
DOI: http://dx.doi.org/10.1016/j.jpcs.2016.12.021
Reference: PCS7940

To appear in: *Journal of Physical and Chemistry of Solids*

Received date: 19 August 2016
Revised date: 11 November 2016
Accepted date: 19 December 2016

Cite this article as: Xiao-Sai Hu, Yong Shen, Ya-Ting Zhang and Jing-Jing Nie, Preparation of flower-like CuS/reduced graphene oxide(RGO) photocatalysts fo enhanced photocatalytic activity, *Journal of Physical and Chemistry of Solids* http://dx.doi.org/10.1016/j.jpcs.2016.12.021

Preparation of flower-like CuS/reduced graphene oxide(RGO) photocatalysts for enhanced photocatalytic activity

Xiao-Sai Hu, Yong Shen*, Ya-Ting Zhang, Jing-Jing Nie

College of Fashion, Shanghai University of Engineering Science, Shanghai 201620,**PR** China

shenyong@sues.edu.cn

*Corresponding author: Tel.: +86 021 6779 1242; fax: +86 021 6779 1242.

Abstract

The flower-like CuS/RGO composites were synthesized via a facile one-pot solvothermal method, which displayed outstanding photocatalytic activity for Methylene blue(MB) degradation under Xenon lamp irradiation . The as-prepared samples were e examined by X-ray diffraction (XRD), X-ray photoelectron spectroscopy (XPS), photoluminescence(PL) spectra, scanning electron microscopy (SEM) , transmission scanning electron microscopy (TEM) and UV-vis optical absorption spectroscopy to determine the properties of the samples, respectively. The results illustrated that RGO had an important effect on the photocatalytic performance of CuS/RGO for dyes. The flower-like CuS/RGO composites exhibited better photocatalytic activity and excellent recyclability in degrading Methylene blue(MB) solution in comparison with pure CuS. The photocatalytic degradation efficiency of MB reached up to nearly 80% after 140 min irradiation, which was more than four times higher than that of CuS, indicating that CuS/RGO composites could have a great potential application in organic pollutants removal.