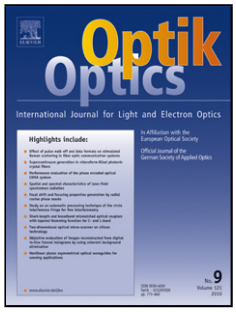

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N-doped graphene: a trustful additive concerning to the photocatalytic properties of ZnO

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Abstract

The bare and N-doped graphene (NrGO) incorporated ZnO samples were prepared by using hydrothermal method. The SEM images show the nearly homogenous dispersion of NrGO among ZnO nanoparticles. This coexistence of ZnO and NrGO was confirmed by Raman spectroscopy. The near-band-edge photoluminescence emissions of the samples are all started at about 380 nm (at 3.26 eV). Interestingly, we observed a slight improvement of electron capturing effect of graphene by doping of nitrogen in its infrastructure. This behavior can be appropriately used for the savior of photogenerated electrons on the surface of ZnO, as observed by the PL and photocatalytic results.

Keywords: ZnO, N-doped Graphene, Photocatalytic materials

- Introduction

Photocatalytic materials are severely under studying concerning eco-friendly purification methods. In fact, it has been proved that the formation of a series of unwanted species with unclassified side-effects relating to chlorine-based disinfectant is inevitable [1]. Thus, after