In this work Ni-doped ZnO nanocrystals were grown in a hot filament chemical vapor deposition (HFCVD) reactor. Solid sources in a pill shape were prepared mixing powders of ZnO and Ni during at different percentage in weight and reacted by atomic hydrogen to produce the precursors, in gas phase, to grow nanostructured films. Films of the material were deposited on either silicon or quartz substrates at temperatures that ranged from 400 to 1000 °C and their structural, morphological, optical and photoluminiscence properties measured by X-ray diffraction (XRD), scanning electron diffraction (SEM), XPS, high-resolution transmission electron microscopy (HRTEM), UV-Vis spectroscopy and photoluminescence (PL) techniques. The results are presented and analyzed. It was shown the niquel atoms are incorporated to the ZnO film and an enhanced emission in the visible region is observed at naked-eye when the sample is placed under an UV lamp. This result opens the possibility to use that material in an optoelectronic device. Authors want to thank to Tec. Francisco Ruiz and Dr. W. de la Cruz from CNYN UNAM for HRTEM measurements, Dr. Mariano Aceves M. from INAOE for PL Measurements and VIEP BUAP for support through the project #00353.

Keywords: Niquel doped ZnO, ZnO nanostructures, Photoluminiscence

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