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Synthesized in Acetone-Based Solvent

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# Strong Blue Emission from ZnO Nanocrystals Synthesized in Acetone-Based Solvent

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## Abstract:

In this research, ZnO nanocrystals were synthesized by an improved sol-gel method. UV-VIS, FTIR and photoluminescence spectra of the ZnO solution synthesized by this route indicated different properties compared to the other preparation methods. It was observed from FTIR that the sol (prepared using Acetone) with the low concentration contains a noticeable amount of the Zn–O bond. The PL spectrum with a strong blue emission confirmed that these nanocrystals are good candidate for use in applications where a monochromatic emission is required. To the best of our knowledge, monochromatic emission ZnO devices have been fabricated through high technology instruments but this paper introduces a simple method for preparation of ZnO with the high intensity blue peak. The size and morphology of ZnO nanocrystals have been studied using FESEM. The nanocrystal size was estimated about 70nm which was in good agreement with XRD data.

Keywords: ZnO nanocrystals; sol-gel; Photoluminescence emission; solvent effects.

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