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## ZnO nanocrystals with narrow-band blue emission

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### Abstract

In this study, high luminescent zinc oxide nanoparticles were prepared by a simple sol-gel route. X-ray diffraction pattern (XRD), scanning electron microscopy (SEM), EDX, Raman, UV-Vis absorption and photoluminescence spectroscopy were used to evaluate the structural and optical properties of ZnO nanopowders. To modify the surface properties and improve the emission band width, the prepared ZnO nanoparticles were embedded into epoxy matrix and the optical properties of ZnO-epoxy nanocomposite were investigated at room temperature. For the first time, it is found that the prepared ZnO-epoxy nanocomposite has a narrow band blue emission with an FWHM of 20 nm. Experimental results revealed that the prepared ZnO-epoxy nanocomposite can probably provide good capability for use in optoelectronic and light emitting diodes.

**Keywords:** ZnO, epoxy nanocomposite, blue emission, FWHM.

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