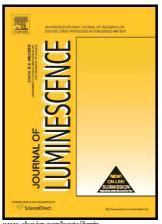
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Effect of Synthesis Parameters of Polyol technique on Photoluminescence

Properties of ZnSe Nanoparticulates

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Abstract:

The physical and chemical properties of nanomaterials significantly depend upon the

morphological factors such as size and shape. In this work, the mono-dispersed ZnSe

nanoparticulates have been prepared by polyol method at different synthesis conditions. The

XRD and Raman results showed that the reaction time is the key parameter in the formation of

phase pure ZnSe nanoparticulates. The ZnSe nanoparticulates prepared for 3 h reaction time have

Se impurity even at higher concentration of hydrazine whereas the samples prepared for 5 h and

above have pure phase. The FESEM images of nanoparticulates showed that all the samples have

spherical morphology and HRTEM images evidently confirmed that, as reaction time increased

the particles size increased gradually. Optical studies illustrate that the band gap value of the

nanoparticulates prepared at 10 h has lowest value and the photoluminescence intensity of these

nanoparticulates is decreased significantly. The possible reasons for this behavior have been

detailed.

Keywords: Zinc Selenide; Polyol; Photoluminescence; Nanoparticulates.

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