



Roughness effect on photoluminescence of cerium doped zinc oxide thin films

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Résumé en anglais	Undoped and cerium doped zinc oxide thin films have been prepared by spray pyrolysis technique. The influence of Ce as doping agent on the optical and nonlinear optical properties was carefully investigated using transmission, X-ray diffraction, photoluminescence, atomic force microscopy (AFM), and third harmonic generation (THG). It has been found a deep correlation between the surface roughness and the optical properties. In fact the roughness deteriorates the luminescence and nonlinear response, in a sense that the highest luminescence intensity and nonlinear susceptibility $\chi(3)$ are obtained for the smoothest layer. Doped layers are characterized with a high visible luminescence, attributed to cerium transitions, and susceptibilities in the range of 6.38×10^{-13} esu.
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