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Annealed Ce-doped ZnO nanoparticles synthesized by chemical bath deposition method

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The X-ray diffraction results showed that All the ZnO samples possess a typical wurtzite structure for non-annealed and annealed. It was observed that the XRD diffraction intensities decrease with annealing temperature as shown in Fig. 1. This behaviour may be due the estimated crystallite size that decreased with annealing temperature. In Fig. 2 The XRD spectra of the annealed ZnO:Ce3+ nanostructures correspond to the various planes of a single hexagonal ZnO phase for the lower and higher Ce concentration samples. At higher Ce molar concentration there is secondary phase. The estimated average crystallite sizes decay exponential with an increase in the amount of Ce. Scanning electron microscopy observations showed the presence of flower-like for non-annealed samples and spherical nanoparticles for annealed samples. Doping the annealed samples with Ce it was observed that the nanoparticles increase in size with an increase in the amount of Ce. At higher molar concentration of Ce there was a mixture of spherical and hexagonal particles. The UV-Vis spectra showed that the absorption edges red shift slightly with an increase in the molar concentration of Ce. The photoluminescence results showed that the maximum intensity is obtained for udoped ZnO nanoparticle and doping with Ce there was decrease in luminescence intensity.

Are you currently a postgraduate student? (Yes/No)

NO

Please provide the name and email address of your supervisor.

None

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