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Effect of Ag doping on the luminescence of ZnO and ZnO:Tb

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ZnO has attracted considerable attention as a photonic material and ZnO:Tb is a promising material for phosphor converted white light emitting diodes. It has been reported that metallic Ag nanoparticles will precipitate if an excessive amount of Ag is doped into ZnO and localized surface plasmon resonance effects associated with metallic nanoparticles are of great interest because they have the potential to significantly enhance the luminescence properties of phosphors. In this study we investigated the effect of doping ZnO and ZnO:Tb with Ag on their luminescence properties. The addition of Ag caused more than a twofold increase the near band edge recombination peak of ZnO near 390 nm. However, the addition of Ag to ZnO:Tb reduced the characteristic green luminescence from the Tb ions. Possible mechanisms for this and the influence of intrinsic defects in the ZnO are discussed.

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

Yes

At what level of studies are you currently? (Hons/MSc/PhD)

PhD

Please provide the name and email address of your supervisor.

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