

Solution combustion derived $Zn_2SiO_4 : Mn$ green phosphors - A photo luminescence study

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Abstract

$Zn_2SiO_4 : Mn$ green phosphor have been synthesized in aqueous medium by combustion process . The microstructures of crystalline products was characterized by XRD, SEM, TG-DTA and fluorescence spectroscopies. The luminescence of Mn^{2+} ion in Zn_2SiO_4 shows a green emission peak around 517-520 nm from the synthesized phosphor particles under UV excitation (247 nm). The luminescence is assigned to a transition from the upper ${}^4T_1 \rightarrow {}^6A_1$ ground state. The mechanism involved in the generation of a green emission have been explained in detail. The effect of Mn content on luminescence have also been studied.

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