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UV Emission In Li2CaMg(SO4)3:Ce Phosphor For Phototherapy

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Abstract

A series of Li2Ca(SO4)2 and Li2CaMg(SO4)3 phosphors doped with Ce3+ ions were prepared using the wet chemical method. X-Ray diffraction and SEM micrographs studies were used to determine their phase formation, purity and morphology. The photoluminescence (PL) excitation spectra indicate that the Li2CaMg(SO4)3:Ce3+ phosphors can be effectively excited by ultraviolet (293nm) light. The photoluminescence (PL) properties of the as-prepared phosphors were investigated. Two strong resolved peaks in emission spectra are observed at 309 and 329 nm in the UV range, which are assigned to the

5d-4f transition of Ce3+ ions. The concentration quenching effect for Ce3+ was found at the optimum doping concentration of 2 mol%. The presence of Mg in the host affects the photoluminescence characteristics of Li2Ca(2-x)Mgx(SO4)3:Ce (2m%) were observed.

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