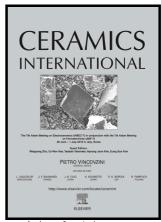
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ACCEPTED MANUSCRIPT

Enhanced green upconversion luminescence properties of ${\rm Er}^{3+}/{\rm Yb}^{3+}$ co-doped strontium gadolinium silicate oxyapatite phosphor

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Abstract

Upconversion Sr₂(Gd_{0.98-x}Er_{0.02}Yb_x)₈Si₆O₂₆ (SGSO:2Er³⁺/xYb³⁺) phosphor materials were synthesized using a citrate sol-gel process. X-ray diffraction patterns confirmed their hexagonal structures. Field emission scanning electron microscopy images of SGSO:2Er³⁺/xYb³⁺ phosphors depicted submicron particles. The enhanced upconversion luminescence properties of SGSO:2Er³⁺/xYb³⁺ phosphors were analysed as a function of Yb³⁺ ion concentration and laser power. The energy transfer induced enhanced emission of the Er³⁺/ Yb³⁺ ions co-doped SGSO phosphors was ascribed to multi-phonon relaxation. The

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