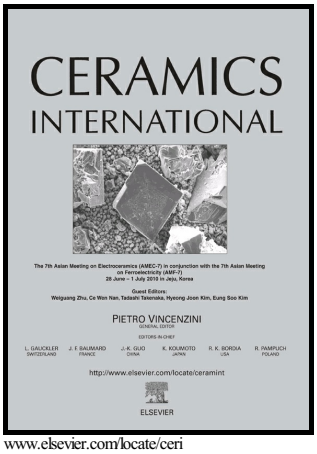

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Enhanced green upconversion luminescence properties of Er^{3+}/Yb^{3+} co-doped strontium gadolinium silicate oxyapatite phosphor

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Abstract

Upconversion $Sr_2(Gd_{0.98-x}Er_{0.02}Yb_x)_8Si_6O_{26}$ (SGSO:$2Er^{3+}/xYb^{3+}$) 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:$2Er^{3+}/xYb^{3+}$ phosphors depicted submicron particles. The enhanced upconversion luminescence properties of SGSO:$2Er^{3+}/xYb^{3+}$ phosphors were analysed as a function of Yb^{3+} ion concentration and laser power. The energy transfer induced enhanced emission of the Er^{3+}/ Yb^{3+} ions co-doped SGSO phosphors was ascribed to multi-phonon relaxation. The