

Abstract Submitted
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Upconversion White, Blue and Red Emission from $\text{Yb}^{3+}/\text{Er}^{3+}/\text{Tm}^{3+}$: Y_2SiO_5 nanocrystalline powders¹ OLGUN ERGUZEL, Istanbul Technical University, MURAT ERDEM, METE KAAAN EKMEKCI, Marmara University, GONUL ERYUREK, Istanbul Technical University, BALDASSARE DI BARTOLO, Boston College — The generation of white light through up conversion under the excitation of infrared laser radiation may play an important role due to its potential application in the lighting and display applications. Bright white up converted emission has been observed in sol-gel derived $\text{Yb}^{3+}/\text{Er}^{3+}/\text{Tm}^{3+}$: Y_2SiO_5 nano-crystalline powders when excited with the 950 nm emission of a laser diode. The International Commission on Illumination (CIE) chromaticity coordinates (x, y) for YET1, YET2, and YET3 nano-powders in $\text{X}_2\text{-Y}_2\text{SiO}_5$ crystalline form were found to be (0.334, 0.332), (0.283, 0.292), (0.353, 0.345) for white, blue and red emission under 950nm laser diode excitation with the power of 1.5W, respectively. Interestingly, the color coordinates observed change with the doping concentration of Er^{3+} ; hence the UC emission color can be adjusted by changing the doping concentration of Er^{3+} .

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Olgun Erguzel
Istanbul Technical University

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