Influence of Nd^{3+} concentration on up-conversion fluorescence colour in YVO_4 co-doped with Ho^{3+}, Yb^{3+} and Nd^{3+} ions.

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Rok wydania

2012

Czasopismo

Materials Letters

Numer woluminu

88

Strony

86-88

DOI

10.1016/j.matlet.2012.08.026

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

Influence of Nd^{3+} concentration on up-conversion fluorescence colour in YVO_4 triple doped with Ho^{3+}, Yb^{3+} and Nd^{3+} ions excited by 980 nm laser diode was investigated. A serials of $Nd_xHo_{0.02}Yb_{0.05}Y_{0.93-x}VO_4$ (where x=0, 0.25, 0.5, 0.75 and 1 at%) crystalline materials were synthesised by a solid state reaction. Excitation in the $^2F_{5/2}$ bands of Yb^{3+} produced a strong red and a weaker green emissions at 300 K for Ho^{3+},Yb^{3+}:YVO_4 whereas for Ho^{3+},Yb^{3+},Nd^{3+}:YVO_4 a strong green emission was observed. Concentration dependence studies indicated that Nd^{3+} concentrations had significant influences on up-conversion mechanisms and emission colour.

Słowa kluczowe

Up-conversion fluorescence, Nd3+/Ho3+/Yb3+ co-doped YVO4, Vanadates, Emission colour

Adres publiczny

https://doi.org/10.1016/j.matlet.2012.08.026

Strona internetowa wydawcy

http://www.elsevier.com