Spectroscopic reflects of structural disorder in Eu^{3+}/Pr^{3+} -doped $La_{0.4}Gd_{1.6}Zr_2O_7$ transparent ceramics.

Autorzy

Joanna Trojan-Piegza

Zhengjuan Wang

Vasyl V. Kinzhybalo

Guohong Zhou

Shiwei Wang

Eugeniusz Zych

Rok wydania

2018

Czasopismo

Journal of Alloys and Compounds

Numer woluminu

769

Strony

18-26

DOI

10.1016/j.jallcom.2018.07.233

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

Perfectly transparent ceramics of $La_{0.4}Gd_{1.6}Zr_2O_7$ doped with either Eu^{3+} or Pr^{3+} ions were prepared by high-temperature vacuum sintering. Results of the Rietveld structure refinement and spectroscopic properties of the ceramics are presented and discussed in details. Photoluminescence characteristics support the non-uniformity in the crystal structure of ceramics. X-ray excited luminescence of $La_{0.4}Gd_{1.6}Zr_2O_7$:Eu was rather inefficient and the Pr-doped ceramics showed no Pr-related radioluminescence. Instead they produced Eu^{3+}emission characteristic for Gd_2O_3:Eu phase not detected in X-ray diffraction patterns.

Słowa kluczowe

Ceramics, Optical materials, Order-disorder effect, Rare earth alloys and compounds

Adres publiczny

http://dx.doi.org/10.1016/j.jallcom.2018.07.233

Strona internetowa wydawcy

http://www.elsevier.com