

Synthesis and optical properties of powders of lutetium and yttrium double phosphates-doped by ytterbium.

Autorzy

Małgorzata Guzik

Janina Legendziewicz

W. Szuszkiewicz

Adam Walasek

Rok wydania

2007

Czasopismo

Optical Materials

Numer woluminu

29

Strony

1225-1230

DOI

10.1016/j.optmat.2006.04.021

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

This contribution is devoted to the new ytterbium-doped alkali metal lutetium double phosphates and their structural and spectroscopic characterisations. The absorption, emission and excitation spectra have been measured at 4, 10 and 293 K in the VUV to IR range. The results have been compared with the analogous yttrium phosphates. The luminescence spectra of the double phosphates have been recorded using various excitation lines, including the synchrotron radiation. The low temperature absorption and emission spectra in the region of the ${}^2F_{7/2} \rightarrow {}^2F_{5/2}$ transition together with the IR spectra have been used to assign the electronic and vibronic components. Detailed analysis of the Yb^{3+} -doped sodium lutetium double phosphates has been performed to determine the energy levels in these hosts and to compare their optical behaviour with analogous sodium yttrium double phosphates. The emission and excitation spectra have been investigated using synchrotron radiation and the origin of the emission has been analysed proving that the emission occurs from the charge transfer state.

Słowa kluczowe

Emission, Absorption, CT emission, Yttrium double phosphates, Lutetium double phosphates

Adres publiczny

<https://doi.org/10.1016/j.optmat.2006.04.021>

Strona internetowa wydawcy

<http://www.elsevier.com>