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# Optical behaviour of samarium doped potassium yttrium double phosphates.

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Among a wide variety of solid state materials, alkali lanthanide double phosphates are the subject of extensive spectroscopic investigations for their application as laser active materials. The edge of absorption in this compound is at rather high energies, which makes them suitable as efficient host for luminescent materials. Spectroscopic properties of $Sm^{3+}$-doped $K_3Y(PO_4)_2$ are reported basing on the high resolution absorption and emission spectra for various temperatures mainly at 4, 10, and 293 K from UV to IR range. The effects of concentration and temperature on intensities and shape of the observed bands were studied. Radiative transition probabilities were calculated from absorption spectra and Judd–Ofelt parameters evaluated. The excited state dynamics will be discussed based on the decay time measurement.

Słowa kluczowe

sm3+, Phosphates, absorption and emission spectra, Judd–Ofelt parameters, Cross-relaxation

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