

## OPTICAL SPECTROSCOPY OF Er<sup>3+</sup>-DOPED KY(WO<sub>4</sub>)<sub>2</sub> SINGLE CRYSTALS

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This paper presents results of the spectroscopic investigations of crystalline potassium yttrium-erbium double tungstate KEr<sub>x</sub>Y<sub>1-x</sub>(WO<sub>4</sub>)<sub>2</sub>, where x= 0.01, 0.1, 0.3, 0.7, 1.0 [1]. The single crystals, grown by High Temperature Solution Growth (HTSG) and Top Seeded Solution Growth (TSSG) (for x=1.0 only) technique, crystallize in α-KY(WO<sub>4</sub>)<sub>2</sub> structure with C<sub>2h</sub><sup>6</sup>(C2/c) monoclinic symmetry [for example 2].

The unpolarized luminescence properties of Er<sup>3+</sup> are investigated at 300K. The luminescence spectra are attributed to the electronic transitions between excited and ground states of Er<sup>3+</sup> ions. For different concentrations of the erbium in the KY(WO<sub>4</sub>)<sub>2</sub> single crystal the emission and excitation spectra are measured. The dependence of luminescence spectra on concentration of Er<sup>3+</sup> ions has been studied. Differences of luminescence and excitation spectra of crystals with different dopant concentrations were established.

[1] M.T.Borowiec, A.A.Prokhorov, A.D.Prokhorov, V.P.Dyakonov, H.Szymczak, “*Electron Paramagnetic Resonance spectra of Er<sup>3+</sup> in the KY(WO<sub>4</sub>)<sub>2</sub> monoclinic crystal*”, **J.Phys.: Cond.Matter** 15, 5113-5120, 2003

[2] Y.Huang, Z.Luo, G.Wang, “*Optical transition probabilities for Er<sup>3+</sup> in KY(WO<sub>4</sub>)<sub>2</sub> crystal*”, **Optics Communications** 88, 42-46, 1992.