

In the present work we studied the dependence on concentration gallium ion in single crystal LGAG: Pr a LuAG: Pr, prepared by „micro-pulling down,, method (-PD) at Tohoku University in Sendai, Japan. -PD method allows growing a single crystal using small amount of raw material, typically less than 1 g, in time period of one day because of very high growth speed up to 20mm/min. Scintillation materials are necessary for a number of applications (e.g. medicine), in which high spatial resolution is required. The aim of this work was to measure luminescence and scintillation characteristics of the Pr³⁺ doped -PD grown Lu₃Al₅O₁₂ single crystal host. The absorption, photo- and radioluminescence spectra and both photoluminescence and scintillation decay curves were measured. The photoluminescence decay curves was single-exponential characterized by a lifetime around 17ns. Slow components were present in the scintillation decay curves. This is a consequence of retrapping of the charge carriers on electron traps connected with the anti-site defects, which are generally present in Czochralski od -PD grown aluminium garnets. On the other hand, they are completely suppressed in the liquid-phase-epitaxy grown single crystalline films due to lower growth temperature. Excitation spectra of the 5d-4f luminescence completely match the absorption ones.