

PTH-55

ENERGY TRANSFER INFLUENCE ON THE OPTICAL PROPERTIES OF Er^{3+} -
 Yb^{3+} CODOPED $\alpha\text{-Al}_2\text{O}_3$ THIN FILMS

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In this work, we have studied the photoluminescence (PL) at 1.5 μm under direct excitation of the Er^{3+} ions at 800 nm ($4I_{15/2} \rightarrow 4I_{9/2}$ ground state absorption). The influence of the $\text{Er}^{3+} \rightarrow \text{Yb}^{3+}$ energy transfer and $\text{Yb}^{3+} \rightarrow \text{Er}^{3+}$ backtransfer on the PL and lifetime of the $4I_{13/2}$ level have analyzed as a function of Er^{3+} doped- Yb^{3+} doped layers separation. Upconversion emission at about 545 nm ($4S_{3/2,2}H_{11/2} \rightarrow 4I_{15/2}$) has been observed under 800 nm excitation. The dependence of this upconversion intensity on the layer separation shows a similar trend than that observed for the 1.5 μm luminescence.