

GROWTH OF $\text{LiY}_x\text{Lu}_{1-x}\text{F}_4$ CRYSTALS ($x=0, 25,$ and 50 mol%) UNDER CF_4 ATMOSPHERE.

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Crystals of $\text{LiY}_x\text{Lu}_{1-x}\text{F}_4$ ($x=0, 25, 50$ mol%) doped with neodymium were successfully grown by the Czochralski technique, under CF_4 atmosphere. The influence of the lutetium concentration in the YLF crystals was verified by measuring the melting temperature, the crystal lattice parameters and the spectroscopic properties. The segregation coefficients measured for yttrium and lutetium are close to one and for neodymium is 0.33, which remained by the Y/Lu ratio unchanged. It was found that a proportional increment in the emission bandwidth up to 24% (for $x=50$ mol%) when compared to only neodymium, doped YLF. This value is comparable to the bandwidth of the $\text{LiLuF}_4:\text{Nd}$. Good laser performance was obtained for the $\text{LiY}_{0,5}\text{Lu}_{0,473}\text{Nd}_{0,027}\text{F}_4$ crystal.