

Optics and Spectroscopy (English translation of Optika i Spektroskopiya) 2016 vol.121 N4, pages 518-522

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## Two-step photoconductivity in $\text{LiY}_x\text{Lu}_{1-x}\text{F}_4:\text{Ce},\text{Yb}$ crystals

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### Abstract

© 2016, Pleiades Publishing, Ltd. Photoconductivity of  $\text{LiY}_x\text{Lu}_{1-x}\text{F}_4:\text{Ce},\text{Yb}$  ( $x = 0-1$ ) crystals is measured under one- and two-step excitation. It is established that the photoconductivity is due to intra-center transitions from excited states of  $\text{Ce}^{3+}$  ions. The position of the ground 4 f-state of  $\text{Ce}^{3+}$  ion relative to the bottom of the conduction band is determined. The choice of pumping conditions to obtain the lasing on the 5d-4f transitions of trivalent cerium in these active media is substantiated.

<http://dx.doi.org/10.1134/S0030400X16100180>

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