

Laser performance of in-band pumped Er : LiYF₄ and Er : LiLuF₄ crystals

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Abstract

© 2016 Kvantovaya Elektronika and Turpion Ltd. Spectroscopic properties of Er : LiLuF₄ and Er : LiYF₄ crystals in the spectral region near 1.5 μm and the lasing characteristics of these crystals under in-band pumping at a wavelength of 1522 nm are studied. With the Er : LiLuF₄ crystal, the maximum slope efficiency with respect to the absorbed pump power was 44 % at a wavelength of 1609 nm. Continuous-wave operation of an in-band pumped Er : LiYF₄ laser is obtained for the first time. The output power at a wavelength of 1606 nm was 58 mW with a slope efficiency of 21%.

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Keywords

Erbium ions, Fluoride crystals, In-band pumping., Lasing, Spectroscopy