

## Interpretation of the optical and EPR spectra of the Cr<sup>3+</sup> ion in a lithium niobate crystal

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### Abstract

The optical and EPR spectra of the Cr<sup>3+</sup>  $\gamma$ -center in a lithium niobate crystal are interpreted, and the energy levels of the ground-state spin quadruplet and all the experimentally revealed doublet states are described. The parameters of the Coulomb Hamiltonian for the spin-orbit interaction of electrons and their interaction with an electrostatic field of the crystal are determined. It is found that the crystal field acting on the paramagnetic ion is relatively strong and has trigonal symmetry. The Cr<sup>3+</sup> ion embedded in the crystal is characterized by considerable changes in the interactions associated with the excited configurations. © 2005 Pleiades Publishing, Inc.

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