

## Submillimeter electron-nuclear excitation spectra in CsCdBr<sub>3</sub>:Ln<sup>3+</sup> (Ln=Tm, Ho) crystals

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### Abstract

The ESR spectra of single and pair impurity centers of thulium and holmium ions in CsCdBr<sub>3</sub>:Tm<sup>3+</sup> and CsCdBr<sub>3</sub>:Ho<sup>3+</sup> crystals are measured in the frequency range 160-400 GHz. Analysis of the characteristic features of the hyperfine structure of the ESR lines and analysis of the variations in the spectra as a function of the temperature and external magnetic field shows that the Ln<sup>3+</sup> ions substitute for Cd<sup>2+</sup> ions and predominantly form symmetric pair centers of the type Ln<sup>3+</sup>-(vacancy at a neighboring Cd<sup>2+</sup> site)-Ln<sup>3+</sup>. The ESR spectra of CsCdBr<sub>3</sub>:Ln<sup>3+</sup> crystals are used to make a positive identification of the optical spectra of selective laser excitation. © 1997 American Institute of Physics.

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