

EPR of rare-earth ion clusters in mixed crystals Ba_{1-x}La_xF_{2+x} doped with Yb³⁺ ion

Aminov L., Abdulsabirov R., Korableva S., Kurkin I., Kurzin S., Ziganshin A., Orlinskii S.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

Electron paramagnetic resonance (EPR) spectra of Yb³⁺ ions in the mixed crystals (BaF₂)_{1-x}(LaF₃)_x with $x \approx 0.01$ have been investigated by the electron spin echo method at a frequency of 94.9 GHz and compared with the spectra obtained by the continuous-wave EPR at a frequency of 9.5 GHz. Some spectral lines were identified within the framework of the simple cluster model proposed in our previous work (L. K. Aminov, R. Yu. Abdulsabirov, M. R. Gafurov, S. L. Korableva, I. N. Kurkin, S. P. Kurzin, R. M. Rakhmatullin, A. G. Ziganshin: Appl. Magn. Reson. 28, 41-53, 2005). Clusters consist of trigonal dipoles La-F and Yb-F (a rare-earth ion with a charge compensator) and are formed beginning with small concentrations $x \approx 0.001$. The lines identified in the present work were attributed to the clusters with configurations Yb-F-La-F and La-F-Yb-F-La-F. © Springer-Verlag 2005.
