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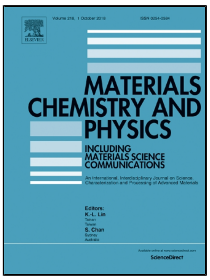

EPR study of RE^{3+} (RE = Nd, Gd, Dy) doped $CdMoO_4$ single crystal

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EPR study of RE^{3+} (RE = Nd, Gd, Dy) doped $CdMoO_4$ single crystal

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Abstract

The electron paramagnetic resonance (EPR) studies of RE^{3+} (RE = Nd, Gd, Dy) doped $CdMoO_4$ single crystals grown by Czochralski method were carried out in 4 – 300 K temperature range. Analysis of EPR spectra lineshapes and resonance field dependence on crystal orientation in an external magnetic field allowed allocate the RE^{3+} ions to the low symmetry site of Cd^{2+} in $CdMoO_4$ crystal. Additionally, RE^{3+} complex magnetic entities created due to charge compensation, were registered. In the case of Nd^{3+} doped $CdMoO_4$ crystal the values of $\boldsymbol{g}$ spectroscopic matrix were calculated and the influence of the excited states via the Orbach process was observed.

Keywords: Scheelites; EPR; RE; Magnetic dimers; Orbach process