Investigation of the EPR Parameters and Defect Structure of Ni^{2+} Ions in $RbMgF_3$ Crystals

Tai-Hong Chen[a], Wen-Lin Feng[b,c], and Jin-Ping Zhang[a]

[a] Department of Physics and Electronic Information, China West Normal University, Nanchong 637002, P. R. China
[b] Department of Applied Physics, Chongqing Institute of Technology, Chongqing 400050, P. R. China
[c] Department of Material Science, Sichuan University, Chengdu 610064, P. R. China

Reprint requests to W.-L. F.; E-mail: wenlinfeng@126.com

Z. Naturforsch. **62a,** 221 – 223 (2007);
received October 20, 2006

By means of the complete energy matrix diagonalization procedure of $3d^2/3d^8$ ions in trigonal symmetry and using the superposition model, the electron paramagnetic resonance (EPR) parameters for Ni^{2+} ions in $RbMgF_3$ crystals with C_{3v} and D_{3d} symmetry are studied. From the investigation, the defect structures of these paramagnetic impurity centers are obtained and the EPR parameters are explained reasonably. – PACS numbers: 76.30.Fc, 61.72.Bb, 71.70.Ch

Key words: EPR Parameters; Defect Structure; Crystal-Field Theory; $RbMgF_3$:Ni^{2+} Crystals.