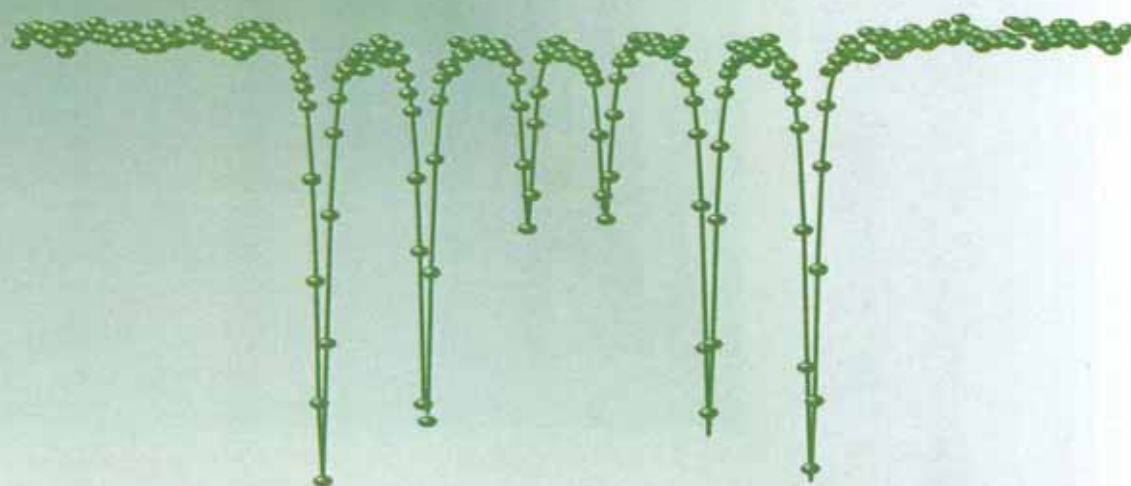


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Mössbauer Studies of GaFeO₃

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Gallium iron oxide (GaFeO₃) has been of much interest due to the correlation phenomenon of ferrimagnetism and the piezoelectricity. To know the magnetic structure and correct cation distribution of Fe in each magnetic sublattice is inevitable to understand the origin of magnetoelectric effect. In this work, we have investigated the magnetic hyperfine structure of GaFeO₃ by Mössbauer spectroscopy and cation distribution of Ga, Fe on each crystallographic site by x-ray and neutron diffraction. Also, we studied the change of cation distribution and structural deformation around cation by different heat treatment method. We suggest that the change of magnetic transition originates from various distributions of magnetic Fe ion at four cation sites and strength of exchange interaction between magnetic ions.