

EB04

Thermodynamic Properties of Multiferroic $\text{Eu}_{1-x}\text{Sr}_x\text{MnO}_3$ Compounds

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We have described the thermodynamic properties of Multiferroic $\text{Eu}_{1-x}\text{Sr}_x\text{MnO}_3$ compounds using the Modified Rigid Ion Model (MRIM) in the temperature range $2\text{K} \leq T \leq 300\text{K}$. The trends of variation of the computed specific heat with temperature are similar to those exhibited by the experimental results. In addition, we have computed the cohesive energy, molecular force constant, compressibility, Restrahlen frequency, Debye temperature, and Grüneisen parameter of these compounds. The results obtained on them from MRIM have been discussed in detail.

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EB05

Magnetodielectric Effect Induced by a Non-collinear to Collinear Spin Structure Transition

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The Correlation between the magnetodielectric effect and the magnetic structure in $\text{RE}_3\text{Fe}_5\text{O}_{12}$ ($\text{RE}=\text{Tb, Dy}$) single crystals will be discussed in this presentation. We have investigated the magnetic transitions and their effects on the magnetodielectric effect in $\text{RE}_3\text{Fe}_5\text{O}_{12}$ single crystals. It has been suggested that the magnetodielectric effect is mainly related to magnetostriction in the case of $\text{Tb}_3\text{Fe}_5\text{O}_{12}$ [1]. However the magnetodielectric effect in other iron garnets with different rare earth has not been investigated. Possible origins of the magnetodielectric effect will be discussed in connection with the magnetic structure transition as well as magnetostriction.

REFERENCES

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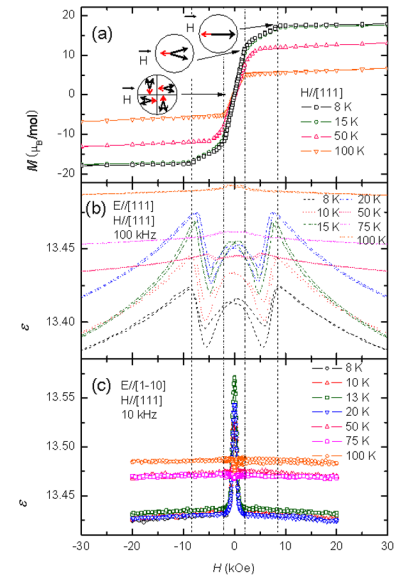


Fig. 1. Correlation between the magnetization and the magnetodielectric effect in $\text{Dy}_3\text{Fe}_5\text{O}_{12}$.