MAGNETIC SUSCEPTIBILITY OF SINGLE CRYSTAL AND POWDER $TmFeO_3$

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9.7 cm

Low temperature and magnetic susceptibility of powder rare-earth orthoferrites depends essentially on technological history of compounds. Susceptibility in *ZFC* measurement differs from that received from *FC* one. Experiments show that temperature dependence of susceptibility difference $\chi_{FC} - \chi_{ZFC}$ has the same singularities and overall temperature behaviour as the single crystal susceptibility measured along a direction. This coincidence suggests that phase transition temperatures in rare earth orthoferrites can be determined not only from single crystal investigation but also from data obtained for powder samples. This circumstance for example may be important in cases when proper single crystals are not available or when too weak magnetisation of materials does not permit to produce magnetic oriented powder samples. The careful study has been performed for $TmFeO_3$ orthoferrites. The results of magnetic susceptibility investigation of powder samples (using Faraday method and DC magnetometer) are compared with the ones obtained for $TmFeO_3$ single crystal. It is shown that phase transition temperatures in this orthoferrite determined from both methods coincide.

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13.4 cm

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