SPONTANEOUS AND MAGNETIC FIELD INDUCED PHASE TRANSITIONS IN FERROELECTRIC YMn_2O_5

Yu.F. Popov[a], A.M. Kadomtseva[a], G.P.Vorob'ev[a], K.I. Kamilov[a], M.M. Lukina[a], Mahov P.N.[a] and M.M. Tegranchi[b]

[a]Moscow State University, 119992 Moscow, Russian Federation

[b]Department of Physics, Shahid Beheshti University, Evin, 19839 Tehran

9.7 cm

Magnetic, magnetoelectric and magnetoelastic properties of YMn_2O_5 single crystals were investigated in static (up to 12 kOe) and pulse (up to 250 kOe) magnetic fields. Exsitance in YMn_2O_5 below $T_N = 42K$ of the spontaneous weak ferromagnetic moment along a- axis of rhombic crystal that determined by magnetoelectric interaction was experimentally found and theoretically approved. At $T_C = 20K$ in YMn_2O_5 ferroelectric transition has been observed with emerge of spontaneous electric polarization along b- axis of crystal[1] . It was shown that at T=25 K magnetic field along a- axis of crystal at $H_C = 100kOe$ call sharp jump of electrical polarization along b- axis that can be explained by increasing of temperature of ferroelectric transitin. It was found that at strong enough magnetic field H——b in $P_b(H_b)$ dependence jumps of polarization have been emerged. It explained by electric polazition sign changing at reorientation of magnetic moment. Reorientation of spins accompanied by magnetostriction deformities.

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1. A. Ikeda, K. Kohn, Ferroelectrics, 169 (1995) 75.

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Corresponding author :
K.I. Kamilov

Address for correspondence :
Department of Physics
Moscow State University
Leninskie Gori,
119992 Moscow, Russian Federation

Email address :
kamilov@plms.phys.msu.su