INDUCED BY MAGNETIC FIELD PHASE TRANSITIONS IN NEODYMIUM MANGANETES MONOCRYSTALS

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9.7 cm

Magnetic, anisotropic and magnetoelastic properties have been investigated for $NdMnO_3$ and $Nd_{0.5}Sr_{0.5}MnO_3$ monocrystals. in pulsed magnetic fields up to 250 kOe in temperature range 10-300 K. Phase transitions induced by strong magnetic fields H_C= 100 kOe have been discovered. These transitions have been accompanied by sharp anomalies of magnetization and magnetostriction and linked with reorientation of magnetic moment from c to b axis of rhombic crystal. Critical fields that induce spin reorientation decreased with temperature decreasing because of magnetization increasing accords to Nd-Mn exchange. Corresponding H-T phase diagrams were obtained. Also induced by magnetic field phase transitions in monocrystal $Nd_{0.5}Sr_{0.5}MnO_3$ have been investigated. $Nd_{0.5}Sr_{0.5}MnO_3$ have ferromagnetic metallic state under T_C=250 K at T¡T_{CO}=140 K antiferromagnetic charge ordering state. For $Nd_{0.5}Sr_{0.5}MnO_3$ monocrystals jumps, linked with suppression of charge ordering, of magnetization and magnetostriction have been observed in temperature range 10 -140K. Phase H-T diagrams have been obtained. This work is support by RFBR (00-15-96695 and 00-02-16500).

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