

## Pressure Effect in Multiferroic Phase Transition of Perovskite Ferrite Crystals $\text{NdFeO}_3$ and $\text{ErFeO}_3$

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$R\text{FeO}_3$  ( $R$  is rare earth elements) is considered to be one of the ideal candidate of ferroelectric or multiferroic materials because of its magnetic properties, such as spin reorientation, coexistence of magnetic interactions, magnetic excitation, etc.

High quality single crystals were grown by the floating zone method. The pressure effect of the samples in the temperature range of 10~300K and under pressure up to 1.2GPa has been measured by commercial SQUID magnetometer with the micro high pressure cell which is designed in our laboratory. We show that the variation of magnetic properties including the Spin Reorientation Transitions (SRT) of the  $R\text{FeO}_3$  ( $R$ : Nd and Er) under pressure. In both materials, SRT temperatures increase with increasing applied pressures. The values of  $\Delta T_c/\Delta P$  are 59.99K/GPa and 15.73K/GPa, respectively. We have also measured heat capacity of those materials by means of the modulated temperature method under pressure up to 2GPa. The result claims that evidence of SRT has not been observed in heat capacity measurement. We will discuss the relationship between magnetic interaction and magnetization under pressure in those materials.