

## Influence of order-disorder structural transition on the magnetic and transport properties of FeAl alloy films

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FeAl alloy films have been a focus of many investigations due to their interesting physical properties. The influence of the structural order-disorder phase transition in FeAl alloy films on their magnetic and transport properties was investigated in this study. The ordered and disordered FeAl alloy films of 150 nm thick were prepared by flash evaporation on the heated and cooled substrates, respectively. The structures of the films were examined by transmission electron microscopy and x-ray diffraction. Magnetic properties were investigated by field dependence of magnetization and ferromagnetic resonance. The transport properties have been measured in 5 - 300 K temperature range with and without magnetic field of 0.5 T. The influence of structural order-disorder structural transition on the temperature dependence of resistivity is discussed in connection with the data of magnetic properties, and analyzed in the framework of the partial localization of the electronic states and the variable range hopping conductivity. It is concluded that the loss of translational invariance in the disordered state of the FeAl alloy film induces significant changes in magnetic and transport properties as well as electronic structures.