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Interface and surface effects on Magnetic Properties in FeRh PERIHAN AKSU, ADEM PARABAS, FIKRET YILDIZ, gebze technical university department of physics — FexRh1-x alloy systems has different magnetic properties depending of composition and temperature. When x is around 0.5, it is antiferromagnetic at room temperature and has phase transition around 370K from antiferromagnetic to ferromagnetic ordering. Due to this property, the FeRh alloy has a big potential for technological applications. In this study, effects of growing parameters, using buffer and cap layers on magnetic ordering and on phase transition have been studied. All films were grown on MgO(100) surface by sputter technique at different substrate temperatures. Rh and Pt were deposited on substrate as buffer and cap layer. Structural properties of the film were investigated by X-ray diffraction. Magnetization measurements were performed as a function of temperature by PPMS. And FMR spectra were registered and the results were analyzed for the ferromagnetic phases. Magnetization measurements showed that growing temperature has noteworthy effect on magnetic properties and structure of FeRh thin films. Depending of growth temperature, ferromagnetic and antiferromagnetic ordered samples were observed at room temperature. Phase transition also was controlled successfully by using buffer and cap layers.

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