

Study of high-field magnetization process in amorphous RE-Co films (RE=La,Gd,Tb)

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Experimental study and numerical modeling of magnetization process in thin amorphous films of Co alloy with Gd,Tb and La have been performed. Magnetization curves were measured at temperatures varied from 5 to 300 K in the field range of 70 kOe. Analysis of the results revealed relatively large magnetic susceptibility for Gd_xCo_{1-x} ($x < 0.4$) and Tb_xCo_{1-x} ($x < 0.25$) films, which remained the same for different x and demonstrated little change with temperature. Magnetic saturation of La-Co films was observed in low-field region. Magnetization curves were interpreted by numerical modeling in terms of sperimagnetic ordering and magnetization ripple. For Tb_xCo_{1-x} ($0.25 < x < 0.4$) samples in low-field region (below 10 kOe) nonlinear growth of the magnetization was observed. The last tendency can be explained in terms of stochastic magnetic structure, which was confirmed by magnetic force microscopy.

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