9.7 cm

MAGNETIC STRUCTURE IN $FeCo - Al_2O_3$ GRANULAR FILMS STUDIED BY FMR

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A co-evaporation technique that is often used for preparation of granular films may result in a specific magnetic structure since the incident atom fluxes are inclined from the film normal. The effect of the oblique co-deposition on film magnetic properties has been studied. A series of $(FeCo)_x - (Al_2O_3)_{1-x}$ granular films with different FeCo content x ($0.07 < x < 0.5$) was obtained by the electron-beam co-evaporation technique at various inclination angles of incident atom fluxes. The samples have been investigated using X-band FMR and SQUID. A microstructure-induced anisotropy with the in-plane and out-of-plane (oblique) easy axes has been revealed with FMR in all the films starting from x = 0.12. Complex FMR spectra indicate an inhomogeneous magnetic structure. SQUID data also point out the specific inhomogeneous properties of the samples. The origin of the observed features is discussed in the framework of a model of dipolar coupling between magnetic particles where finite-size corrections to the point-dipolar interactions due to dipolar stray fields are taken into account.

13.4 cm

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