

The Influence of Thermal Annealing on Magnetostatic Properties of thin Fe and Ni Films

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Magnetic thin films exhibit unique physical properties, which allow to use them in the form of useful inventions [1-3]. The results of the investigation of the magnetostatic properties of the as-deposited and *in situ* annealed at temperature 573 K, 673 K and 773 K Fe and Ni films will be presented. The variations of the magnetic properties are analyzed as function of the film thickness, microstructure and surface roughness.

The dependance of the coercivity for the annealed samples was revealed. The observed variations of the magnetic properties as functions of thickness and annealing temperature were explained by the structural changes of the annealed Fe, Ni films in comparison with the as-deposited ones. In the case of Fe films the texture changes and K_u doublet resolution for thick films were found due to thermal recrystallization. The marked distinction of the near-surface and volume magnetic characteristics of the Ni films was discovered. That was ascribed to both the distinguishing domain structure of the near-surface area and the film volume and the existing roughness at the film surface. The obtained new experimental data can promote further designing multilayered systems for modern devices of spin microelectronics.

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