9.7 cm

THE EFFECT OF INTERFACIAL ROUGHNESS ON THE MAGNETIC CHARACTERISTICS OF BILAYER SYSTEM

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The magnetic properties of multilayers depend on their surface and interface quality which is closely related to their roughness. In presented work the interfacial roughness derived on the basis of the discrete Gaussian model is introduced to the calculations of the interlayer exchange coupling through nonmagnetic metallic interface. The coupling parameters are then used to derive basic magnetic characteristics of the system under consideration applying the Green function formalism in random phase approximation. The magnetisation distribution across the magnetic films are presented for the set of parameters of interfacial roughness. The results obtained show that the existence of interfacial roughness changes not only the value of the Curie temperature of the magnetic bilayer consisting of ultrathin magnetic films but also the dependence of T_C on the spacer thickness and its orientation. Moreover, it is shown that the positions and intensities of the ferromagnetic resonance lines calculated for the considered system are strongly sensitive to the parameters describing interfacial roughness.

13.4 cm

Subject category :

2. Magnetic Films, Surfaces and Multilayers

Presentation mode :
poster

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