

The influence of roughness on some magnetic properties of layered structures of Fe, Co separated by Cu or Au

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The system of two magnetic (M) layers divided by nonmagnetic (N) spacer is considered. Roughness in the interface region is introduced employing model proposed by Bruno and Chappert [1, 2]. Presence of roughness leads to modification of the interface exchange parameter and interface anisotropy in comparison to samples with ideal interface. The magnetisation distribution and Curie temperature has been calculated using Green function formalism [3] for systems consisting of Fe or Co standing for M and Cu or Au standing for N, respectively. Parameters corresponding to GaAs have been taken into account to characterize the substrate. The results obtained show decreasing of Curie temperature and shift of magnetisation curve with increasing of roughness parameter.

References

- [1] P. Bruno, C. Chappert, Phys. Rev. Lett. **67**, (1991), 1602; **67**, (1991), E2592
- [2] Y. Wang, P. M. Levy, J. L. Fry, Phys. Rev. Lett. **65**, (1990), 2732
- [3] S. Machowski and A. Urbaniak-Kucharczyk, Surf. Sci. 507-510C (2002) 551.

13.4 cm

Subject category :

2. Magnetic Films, Surfaces, Multilayers and Nanostructures

Presentation mode :

poster

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9.7 cm