Magnetic excitations in inhomogeneous magnetic layered composites

A. Urbaniak-Kucharczyk[1]

[1] *Chair of Solid State Physics, Faculty of Physics and Applied Computer Sciene, University of Łódź, Pomorska149/153, 90 236 Łódź, Poland*

The knowledge of properties of elementary magnetic excitations in magnetic layered composites is important to minimize their disturbing influence or make use of them in logic devices. Spin waves patterns for a ferromagnetic layered composite with spatial distribution of anisotropy across magnetic layers have been calculated. Temperature dependence of anisotropy parameters has been also taken into account. As a result the characteristics of spin wave spectrum have been obtained for systems deposited on substrate characterized by parameters corresponding to GaAs for the case of uniform anisotropy parameter and for non-uniform distribution of this parameter. The effects of damping due spin-spin interaction leading to non-zero line-width of ferromagnetic resonance peaks have been additionally taken into account. As a result the dependence of the resonance lines profiles and the low-temperature magnetisation behaviour on parameters characterizing system under consideration were obtained for the case of uniform anisotropy parameter and for exponential distribution of this parameter in magnetic layers, respectively.