APPLICATION OF MAGNETICALLY MODULATED MICROWAVE ABSORPTION TO STUDY GMR EFFECT IN Ni-Fe/Cu MULTILAYER SYSTEM

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9.7 cm

Magnetically Modulated Microwave Absorption (MMMA), Magnetic Hysteresis M(H), Giant Magnetoresistance (GMR) and Ferromagnetic Resonance (FMR) were examined in antiferromagnetically coupled Py/Cu (Py=$Ni_{83}Fe_{17}$-permalloy) multilayers (ML's). The correlation between MMMA technique and the standard GMR measurements as well as Magnetisation Reversal process will be showed. This work presents microwave studies of GMR, MR and FMR effects for different orientation of magnetic field direction relative to the sample surface. In Py/Cu ML's, at zero magnetic field, two component MMMA signal: broad (35 Oe) and narrow (2 Oe), has been observed. The broad line is related to the GMR effect. The extreme points of the MMMA broad line correspond to the maximum slope of the GMR(H) function. The narrow MMMA line is due to the magnetisation reversal MR, extremes of that are related to coercive field values H_c.
MMMA represents a new contactless method to study GMR effect in CIP configuration. This technique could be also used to determine very small coercive field values H_c in magnetic materials.

13.4 cm

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