

Magnetostatic coupling in stripes of [Co/Au/NiFe/Au]₁₀ films investigated with resistance measurements

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This work is concerned with the influence of a patterning of sputtered [Co(t_{Co})/Au(2 nm)/NiFe(2 nm)/Au(2 nm)]₁₀ multilayers on their giant magnetoresistance (GMR). Magnetostatic coupling between Co and NiFe layers is reflected in a resistance versus magnetic field dependence [1]. We show that the character of the dependence and of the coupling is preserved if the films are patterned, using electron lithography, into stripes of several micrometers width. The amplitude of GMR decreases by roughly 25% when the structure is patterned into 10 μm wide stripes and the domain structure changes only slightly for the width of the stripes down to 2 μm .

References:

[1] M. Urbaniak, F. Stobiecki, B. Szymański, A. Ehresmann, A. Maziewski, M. Tekielak, J. Appl. Phys. **101**, 013905 (2007)

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