

**Domains stimulated magnetostatic coupling in NiFe/Au/Co/Au multilayers investigated by complementary methods**

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We report on magnetization reversal of NiFe/Au/Co/Au multilayers characterized by in-plane and out-of-plane anisotropy of NiFe and Co layers respectively. For such films the transition from a weak to a strong ferromagnetic coupling correlated with creation of stripe domains in Co layers is observed. The strengths of this magnetostatic coupling and the magnetic field range in which this coupling exists can be regulated by a proper choice of the ferromagnetic and/or spacer layers thickness. The manifestation of the coupling in magnetization reversal, magnetoresistance, Mössbauer spectroscopy, and soft x-ray resonant magnetic scattering measurements performed for different samples will be discussed. On the basis of these complementary measurements the evolution of the magnetic structure with magnetic field will be described.

13.4 cm

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9.7 cm