Stripe domains in FeGa thin films

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We present several studies that we performed on Fe1-xGax (FeGa) epitaxially grown onto GaAs(100). Such studies cover the structural and magnetic properties, and also magnetotransport measurements. The FeGa thin films, grown by molecular beam epitaxy (MBE), present a crystalline elongation along the growth direction that increases with the Ga concentrations. This tetragonal deformation would be the responsible of the appearence of the self-organized stripe-like magnetic domains, whose out-of-plane magnetization component oscillates periodically in the space. We will discuss how this periodic arrangement is reflected in the magnetic properties by means of ferromagnetic resonance, magnetic force microscopy and micromagnetic models. Moreover, we will show recent magnetotransport measurements where we observed different behaviors depending if the electric current is confined to cross the domain walls or to flow along the stripes. The results also show a not expected behavior with temperature.