

THE SCANNER OF MAGNETIC INHOMOGENEITIES BASED ON SUBMICRON YIG FILM

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As it's known from the theory, dependence of polar angle of magnetisation of an one-domain film on a normal magnetic field for its some directions there are local minima. For a film in a vortical state [1] presence of these minima (as the special case) leads to absorption of high-frequency energy in a zero magnetic field [2]. It gives the possibility to construct the probe for the magnetic field scanner which allows to measure the magnetic field distribution from the micron dimensions objects.

Now magnetisation distributions with about 1 microns resolution are obtained. The further improvement of the probe construction will give the possibility to scan domain wall and magnetic vortexes.

[1] V.F. Shkar and V.N. Varyukhin, Iron-yttrium garnet films with magnetic vortices // JETP Letters Vol. 88, No. 4, P. 271-274, 2008

[2] V.F. Shkar and V.N. Varyukhin, Magnetic resonance and self-sustained oscillations in an iron-yttrium garnet film in a vortex state // JETP Letters Vol. 92, No. 5, P. 338-342, 2010

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9.7 cm