

Magnetic Microwave Planar Metamaterials: Experimental Results

S. Tarapov,^{1,2} A. Girich,² S. Polevoy,² S. Nedukh,^{1,2} and R. Vovk¹

¹*Karazin Kharkiv National University,
4 Svobody Sq, Kharkiv, 61022, Ukraine*

²*O.A.Usikov Institute for Radiophysics and Electronics NASU,
12 Ak. Proskura Str., Kharkiv, 61085, Ukraine*

The results of numerical and experimental investigation of spectral features of artificial structures (metamaterials) included a magnetic elements with strong frequency dispersion are presented. Among them are the planar chain-like photonic crystals, loaded with magnetically controlled elements. These structures have been considered both in linear and nonlinear regimes. As well the hyperbolic type metasurfaces features are considered. The experimental verification of the models proposed has been carried out for microwave band. The special features of the waves propagate through these structures, their constitutive parameters formation and the areas of the magnonic application in microwave and optical regimes are described.

References:

[1] Microwaves in Dispersive Magnetic Composite Media (Review Article), S.I.Tarapov, and D.P.Belozorov, Low Temperature Physics (AIP Publ.), 2012, v.38, p.603-625.