

Spin waves in structured yttrium iron garnet films.

R. Gieniusz,¹ V. Bessonov,^{1,2} U. Guzowska,¹ A.I. Stognii,³ and
A. Maziewski¹

¹*Faculty of Physics, University of Białystok,
Lipowa 41, 15-424 Białystok, Poland*

²*Institute of Metal Physics, Ural Division of RAS, Yekaterinburg 620041, Russia*

³*Scientific-Practical Materials Research Center at NASB, Minsk, Belarus*

The interaction of the magnetostatic surface spin waves (SW) with a single antidot and a line of antidotes in thin garnet films is presented (see also R.Gieniusz et al. Appl. Phys. Lett. 102, 102409 (2013) and Appl.Phys.Lett. 104, 082412 (2014)). Diffraction on the single antidot as a passive point excitation source to create caustic SW beams is shown. The phenomenon of SW total non-reflection on line of antidotes is observed. SW are investigated by Brillouin light scattering spectroscopy. Experimental results are well explained by the iso-frequency dependencies. The numerical modeling of both the diffraction parameters on the single antidot and total non-reflection on the line of antidotes is consistent with the experimental results.

Supported by: Team SYMPHONY project of the FNP, co-financed by the EU from ERDF, OPIE 2007–2013.