

SEMINARIUM Z MAGNETYZMU I NADPRZEWODNICTWA

Uprzejmie zawiadamiamy, że w **środę**

9 grudnia 2015 r., o godz. 10:00

w sali 203 (bud. 1) odbędzie się seminarium, na którym

mgr Sergii Parchenko

(Department of Physics of Magnetism, Faculty of Physics, University of Białystok)

wyłosi referat na temat:

“Laser-induced spin dynamics in multisublattice ferrimagnetic dielectrics”

The results of study on the non-thermal ultrafast spin dynamics of rare-earth Bi-doped iron garnets with a strong Faraday rotation using all-optical pump-probe technique via the inverse Faraday effect, will be presented. Static optical and magneto-optical properties of these garnets were measured [1]. A wide range of frequency modes of the magnetization precession, covering three orders of magnitude have been observed. At the 1-20 GHz frequency range, we demonstrate a beating process, which was the result of exciting spatially-distributed magnetostatic spin waves [2]. At picosecond time scale, we demonstrate the excitation of the collective exchange resonance between rare-earth (Gd,Yb) and transition metal (Fe) sublattices in the 0.04–1.5 THz frequency range using a single femtosecond near-infrared pulse. To explain our results we proposed a model of excited modes using an analytical description based on the spin wave emission and the Kaplan–Kittel exchange resonance.

- [1] S. Parchenko et al., “Magnetization reversal and magnetic domain structures in Gd–Yb–BIG crystals”, IEEE Trans. on Magn. 50, 6000904 (2014).
- [2] S. Parchenko et al., “Wide frequencies range of spin excitations in a rare-earth Bi-doped iron garnet with a giant Faraday rotation”, Appl. Phys. Lett. 103, 172402 (2013).
- [3] S. Parchenko et al., “Non-thermal optical excitation of THz-spin precession in a magneto-optical insulator”, accepted in Appl. Phys. Lett. (2015).

Serdecznie zapraszamy

Roman Puźniak
Henryk Szymczak
Andrzej Wiśniewski