

MODIFICATION OF MAGNETIC PROPERTIES OF FERRIMAGNETIC THIN FILMS FOR SPINTRONIC APPLICATIONS

Research group: Department of Thin Films, Division of Physics of Magnetism and Cooperative Phenomena

Principal Investigator: dr inż. Piotr Kuświk (habilitation procedure in progress)

Contact: piotr.kuswik@ifmpan.poznan.pl

Project description:

The possibility of wide-range modifications of magnetic properties of ferrimagnetic systems generate great interest. Properties that can be tuned by controlled changes of composition include magnetic anisotropy, saturation magnetization, type of interlayer interaction, and compensation point. Thanks to that, ferrimagnetic layers strongly compete with ferromagnetic layers in spintronics, the field in which the electron transport is controlled by their charge and spin. In recent years, it has been shown that it is possible to switch the magnetization direction of ferrimagnetic layers using light pulses or spin-polarized currents. Moreover, in such layers, skyrmions (chiral magnetic texture) have also been observed. This magnetic structure can be created, and its motion controlled using currents only, this important property opens the possibility to develop a new generation of magnetic memories.

Aim of the project:

Our goal is to develop a method to control the magnetic properties of ferrimagnetic layers that are critical for applications in spintronic devices. These studies will focus on experimental work supported by micromagnetic simulations.