

**BRILLOUIN LIGHT SCATTERING INVESTIGATIONS OF
MAGNETOELASTIC EFFECTS IN THE MBE GROWN
Mo/Co/Au SAMPLES**

**R. Gieniusz,^{a,b} T. Blachowicz,^c A. Maziewski,^b B. Hillebrands,^a
L.T. Baczewski,^d A. Wawro,^d**

^aFachbereich Physik, Technische Universität Kaiserslautern
Erwin-Schrödinger-Strasse 56, 67663, Germany

^bLaboratory of Magnetism, Department of Physics, University of Białystok
Lipowa 41, 15-424 Białystok, Poland

^cDepartment of Electron Technology, Institute of Physics
Silesian University of Technology, Krzywoustego 2, 44-100 Gliwice, Poland

^dInstitute of Physics, Polish Academy of Science, Al. Lotników 32/46
02-668 Warsaw, Poland

The elastic and magnetic properties of the epitaxially grown $\text{Al}_2\text{O}_3/\text{Mo}(20\text{nm})/\text{Co}(d)/\text{Au}$ systems, with $d=1.2, 10, 31$ (nm), have been investigated by Brillouin light scattering (BLS) from generalized Rayleigh's elastic waves (phonons) and Damon-Eshbach spin-surface modes (magnons). For magnetic-type experiments perpendicular uniaxial anisotropy and in-plane two-fold anisotropy contributions to the energy density were distinguished and the anisotropy constants were determined. The contributions showed tendency to compete mutually. The same tendency was confirmed qualitatively in ferromagnetic resonance (FMR) experiments. For samples with higher uniaxial anisotropies, and lowered in-plane anisotropy contribution, higher BLS-magnon frequencies were observed. Obtained magnetic results were correlated with the measured phonons frequencies. Phonons results were in-plane isotropic and the uniaxial anisotropy contributions affected only the average level of the observed spin-wave frequencies. However, measured phonons frequencies were lower for samples with higher uniaxial anisotropies. Obtained results provide information useful for technology of magnetoelectronic devices.

13.4 cm

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Corresponding author :

R. Gieniusz

Address for correspondence :

Laboratory of Magnetism, Department of Physics, University of Białystok
Lipowa 41, 15-424 Białystok, Poland

Email address :

gieniusz@uwb.edu.pl

9.7 cm