# Magnetic field induced switching of ferroelectric domains in GeMnTe/InP thin layers

H. Przybylińska,[1] V. Volobuiev,[2] A. Grochot,[1] A. Ney,[2] W Jantsch,[2] G. Bauer,[2] and G. Springholz[2]

[1] *Institute of Physics, Polish Academy of Sciences, Warsaw, Poland*
[2] *Institute of Semiconductor and Solid State Physics, Johannes Kepler University, Linz, Austria*

GeMnTe is one of the rare materials that are simultaneously ferroelectric (FE) and ferromagnetic (FM). The FE moment results from relative displacement of the cation and anion fcc sublattices along a <111> body diagonal, accompanied by transition from cubic to rhombohedral structure. While in the bulk all <111> directions are equally probable, in thin layers grown on (111) $BaF_2$ substrates biaxial strain leads to preferential orientation of the FE moment perpendicular to the layer surface. Here we present results of ferromagnetic resonance studies of GeMnTe layers grown by MBE on (111) InP substrates, showing that in this system the rhombohedral distortion occurs along <111> directions oblique to the surface normal. Moreover, the orientation of the FE moment switches from one oblique <111> axis to another when the direction of the applied magnetic field is changed.

*The work is supported by National Science Centre under grant No. UMO-2014/15/B/ST3/03928*