

## R-VSM AND MOKE MAGNETOMETERS FOR NANOSTRUCTURES

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In this paper we will demonstrate two magnetometers: resonance vibrating sample magnetometer (R-VSM) and magneto-optical Kerr effect magnetometer (MOKE) for hysteresis loop measurements of monolayers and multilayers of spintronic structures. Both arrangements are characterized by low cost and sophisticated electronics solutions. The measuring head of R-VSM is universal and could work in the Helmholtz coils as well as in an electromagnet. The frequency of R-VSM is about 75 Hz. For sensitivity determination some test measurements on MgO(001)/200ÅCr/Fe(4, 3, 2ML)/50ÅCr samples were performed. The sensitivity was estimated as  $10^{-5}$  emu. The MOKE system with differential amplifier (in contrast to lock-in detection technique) is especially recommended for rapid measurements up to 1.5 kHz. The calibration of the Kerr rotation angle was performed on Fe-wedge sample, prepared by MBE-technique, in the thickness range of 1ML to 50 ML of Fe. On the basis of these measurements the angle resolution of Kerr rotation is estimated as 0.001 min. The demonstrative measurements on SV and MTJ structures have been discussed. We also show that for obtaining full information about magnetization reversal process in magnetic multilayers both magnetometers should be used, because both methods are complementary. R-VSM measurements deliver information about averaged magnetization process from the whole volume of the sample, whereas magneto-optical information from MOKE magnetometer is local, limited by light-beam spot and depth with an exponential decay.