



# Time Efficient Nondestructive Characterization of Customized Magneto-optical Thin Layers for Industrial Use

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In the production of coating systems for magneto and magneto-optical sensors is the homogeneity of the layer thicknesses of decisive importance for the metrological characteristics. Material optimization and quality assurance can benefit from audit procedures that reflect such critical parameters quickly and easily. For quick micro-magnetic layer thickness characterization of ferromagnetic layers which Barkhausen noise and eddy current microscopy (BEMI) was developed and tested extensively on Fraunhofer IZFP. The initial version of that device was large, heavy, expensive and sophisticated to use, why the application was previously limited to the laboratory applications. Based on the micro-magnetic multiparameter microstructure and stress analysis (3MA) developed at Fraunhofer IZFP and by using improved Barkhausen noise and eddy current probes, a cost-effective, robust usable even in industrial environments BEMI system was built and tested. The new BEMI system will be presented, and the imaging properties, measurement effects and the potential of the extended procedure to characterize different magnetic sensor layers will be presented.

