

Magneto-Optical Kerr/Faraday Microscopy for Magnetic Domain Observation and Spin Dynamics Study

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Magnetic imaging technique based on magneto-optical Kerr/Faraday microscopy will be introduced. Magneto-optical Kerr/Faraday effect (MOKE/MOFE) has been long utilized as a surface-sensitive detection of magnetic properties both on macro- and micro-scale. Instrumentation examples for Kerr/Faraday microscopy using MOKE/MOFE will be shown with various optical configurations. Typical examples of magnetic domain visualization will be presented with quantitative image analysis, allowing us to determine magnetization reversal, magnetic relaxation, and magnetic hysteresis curve. Spin dynamics observation over wide range of time scales will be discussed. Finally, recent development combined with ultrafast pump-probe stroboscopy technique will be also discussed.