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Nanopositioning for Magneto-optic Imaging of Nanostructures and Materials¹ NASER QURESHI, OLEG KOLOKOLTSEV, ROBERTO ORTEGA-MARTINEZ, CCADET, Universidad Nacional Autonoma de Mexico — A positioning system with nanometer resolution has been developed based on mechanical motor and screw systems. This has been applied to the near- and far-field magneto-optical imaging of nanostructures and to imaging of spin waves in magnetic thin films. This system shows remarkably low levels of drift and vibration compared to more widely used piezoelectric systems, and typically does not require position feedback during fixed-position data acquisition processes. During scanning processes, non-repeatability problems typical of mechanical positioning systems are reduced using a new electronic motor control scheme and software feedback. As a result, we are able to demonstrate an average mechanical resolution of 1.45nm and near diffraction-limited imaging using scanning confocal imaging. We thus demonstrate a highly simplified mechanical approach to spatially resolved magneto-optical measurements.

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