

Novel Techniques for Revealing Atomic-Scale Properties of Magnetic Materials

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The design of novel functional magnetic materials requires detailed knowledge about their atomic-scale properties, including atomic structure, competing spin-dependent interactions down to the atomic level as well as atomic-scale details of the resulting spin textures. In recent years, several spatially-, energy-, and spin-resolved techniques have been developed, such as spin-polarized scanning tunneling microscopy and spectroscopy [1,2], magnetic exchange force microscopy [3], single-atom magnetometry [4,5] or time-resolved spin-sensitive spectroscopy [6,7] allowing detailed investigations of magnetic materials down to the atomic level. We will present several outstanding examples, ranging from novel types of soft-magnetic surface alloys, to nanostructured thin films and atomic-scale clusters as well as artificially constructed nano-scale atomic arrangements on surfaces.

References:

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