MA 1 Hauptvortrag Chapman

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Modifying magnetic films by focused ion beams — •John Chapman — Dept of Physics and Astronomy, University of Glasgow, Glasgow G12 8QQ, UK

The properties of magnetic films can be modified by low dose irradiation with Ga ions in a focused ion beam machine (FIB). Thus in the case of exchange biased bilayers the strength of the offset field can be changed in a controlled manner, whilst for multilayer films that support perpendicular anisotropy in their as-grown state, local areas supporting in-plane magnetisation can be introduced. Even in the case of single layer magnetic films grown on a seed layer, local property change can be engineered so that preferential sites for domain walls can be created leading to effective forms of wall traps. Here I describe how magnetic imaging, using Lorentz microscopy, backed up by structural imaging and analytical electron microscopy illustrate the way in which magnetisation processes in the various films are modified. Attention is paid to the changes to the physical microstructure that occur and the potential of the technique for high resolution patterning is assessed. Examples of property modification on a sub-100 nm scale are presented.