Analysis of Bloch-wall fine structures by magnetic force microscopy

U. Hartmann

Microfield profiles of isolated 180° Bloch walls in highly perfect iron single crystals have been detected using a magnetic force microscope (MFM). The achieved spatial resolution of 10 nm permits a first quantitative insight into the near-surface variation of the stray field. A closer analysis of the experimental data by comparison with model calculations confirms some fundamental uncertainties in image interpretation generally inherent to the MFM technique. The basic problems are summarized as a general guideline for the applicability of the MFM technique.