

## **Scanning tunneling microscopy of the Abrikosov flux lattice with ferromagnetic probes**

R. Berthe, U. Hartmann and C. Heiden

Using a low-temperature scanning tunneling microscope spatial variations of the current-voltage characteristics have been investigated on NbSe<sub>2</sub> single crystals employing PtIr and ferromagnetic Ni tips. At 4.2 K a clear superconducting energy gap is visible even when tunneling through the Ni tip. After field-induced transfer of the sample into the superconducting mixed state a complete Abrikosov flux lattice is imaged for both types of probes by recording the tunneling current at a fixed voltage within the superconducting gap. Comparison of the images obtained by the two probe materials clearly shows that no distortion of the flux lattice is produced by magnetostatic interactions between the ferromagnetic tip and the individual vortices. This provides the basis for future investigations of flux distributions in superconductors by magnetic force microscopy.