

# MAGNETIC FORCE MICROSCOPY AS A LOCAL PROBE FOR SUPERCONDUCTING GAP SYMMETRIES

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Magnetic force microscopy – a scanning probe technique based on atomic force microscopy – has established itself as a valuable tool to uncover magnetic domain structures on the nanoscale [1]. On the other hand, its magnetically coated tip can serve as an ideal local probe to characterize important properties of superconducting samples [2,3]. We have recently completed designing and constructing a low temperature magnetic force microscope operating at sub-Kelvin <sup>3</sup>He temperatures within a three-axis vector magnet [4]. We demonstrate how to employ this setup to locally investigate intrinsic properties of the heavy fermion superconductor CeCoIn<sub>5</sub>, such as the pinning force of single Abrikosov vortices, the London penetration depth, as well as the superconducting gap symmetry.

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