Electronic structure of the Abrikosov vortex core in arbitrary magnetic fields

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Using a scanning tunneling microscope we imaged Abrikosov vortex lattices in 2*H*-$NbSe_2$. At a reduced temperature of T/T_c=0.6 we found a distinct decrease of the vortex-core radius with increasing magnetic field. Even at low fields $H/H_{c2} << 1$, the effect of vortex-vortex interactions on the spatial variation of the order parameter *Delta* (*rho*), is clearly evident. In order to interpret the experimental results the microscopic equations of the superconducting state are solved self-consistently. A good quantitative agreement is obtained without any variational free parameters.