

Russian Physics Journal 2007 vol.50 N1, pages 48-51

Shape of a magnetic resonance line in a thin film on the surface of anisotropic superconductor with irregularly distributed Abrikosov's vortices

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Abstract

The form of an electron paramagnetic resonance (EPR) in a thin paramagnetic film ($\lambda/10$, λ -London's depth of magnetic field penetration into superconductor) overlying the surface of an anisotropic superconductor is calculated taking into account the local magnetic field non-uniformity of an irregular Abrikosov's vortex lattice. It is shown that the form of EPR is noticeably varied with the degree of irregularity of the superconductor vortex lattice. It is suggested that an inclusion of this circumstance into consideration may essentially change the conclusions made on the lattice type and parameters of this superconductor, which are typically derived from the analysis of the EPR form. © Springer Science+Business Media, Inc. 2007.

<http://dx.doi.org/10.1007/s11182-007-0004-9>
