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IMPACT OF NON-LOCAL ELECTRODYNAMICS ON VORTEX
MATTER IN CLEAN $\text{YNi}_2\text{B}_2\text{C}$ AND V_3Si SUPERCONDUCTORS

SERDECZNIE ZAPRASZAM WSZYSTKICH ZAINTERESOWANYCH

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Streszczenie

The presence of non-local electrodynamics can strongly affect the properties of clean, high- κ superconductors, when the electronic mean free path is large compared with the coherence length ξ . The borocarbides, especially the non magnetic compounds $\text{YNi}_2\text{B}_2\text{C}$ and $\text{LuNi}_2\text{B}_2\text{C}$, are a particularly good systems for observing these effects. Non-locality modifies the vortex-vortex interaction and makes it anisotropic, even in cubic materials such as V_3Si and in tetragonal borocarbide crystals with the magnetic field directed perpendicular to the square basal plane. The experimental results are well described by Kogan's generalized London theory that introduces a third length scale, non-locality radius, in addition to the usual coherence length and penetration depth.