

Abstract Submitted
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Non-analytical Angular Dependence of the Upper Critical Magnetic Field in a Quasi-One-Dimensional Superconductor¹ OTAR SEPPER, ANDREI LEBED, University of Arizona — We have derived the so-called gap equation, which determines the upper critical magnetic field, perpendicular to conducting chains of a quasi-one-dimensional superconductor. By analyzing this equation at zero temperature, we have found that the calculated angular dependence of the upper critical magnetic field is qualitatively different than that in the so-called effective mass model. In particular, our theory predicts a non-analytical angular dependence of the upper critical magnetic field, $H_{c2}(0) - H_{c2}(\alpha) \sim \alpha^{3/2}$, when magnetic field is close to one of the crystallographic axes and makes an angle α with the axis. We discuss possible experiments on the superconductor (DMET)₂I₃ to discover this non-analytical dependence.

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