Abstract Submitted
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Signatures of half-quantum vortices in magnetoresistance of perforated samples[1] VICTOR VAKARYUK, VALERII VINOKUR, Argonne National Laboratory — Recent cantilever magnetometry measurements of annular micron-size samples of Sr_2RuO_4 [1] have revealed evidence for the existence of half-quantum vortices (HQVs) in this material. Here we suggest to look for HQVs at temperatures close to T_c in magnetoresistance of "punctured" (perforated) Sr_2RuO_4 samples which consist of an array of regularly spaced micron-size holes in an otherwise uniform superconducting matrix. Due to the dissipative nature of resistive measurements signatures of HQVs might be seen even if their thermodynamic stability is not expected. We analyze the dependence of magnetoresistance on the thermodynamic stability of HQVs and point out features which may help to identify them.

[1] J. Jang, D.G. Ferguson, V. Vakaryuk, R. Budakian, S.B. Chung, P.M. Goldbart, Y. Maeno (2010).

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