Energy of Stable Half-Quantum Vortex in Equal-Spin-Pairing

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In the triplet equal-spin-pairing states of both ^3He-A phase and Sr_2RuO_4 superconductor, existence of Half-Quantum Vortices ($HQVs$) are possible. The vortices carry half-integer multiples of magnetic quantum flux $\Phi_0 = \frac{hc}{2e}$. Our approach is based on a description of the HQV in terms of a $BCS-$like wave function with a spin-dependent boots. To obtain equilibrium condition for such systems, one has to take into account not only weak interaction energy but also effects of Landau Fermi liquid. We have considered $l = 2$ order effects of Landau Fermi liquid. We have shown that the effects of Landau Fermi liquid interaction with $l = 2$ are negligible. An effective Zeeman field exists in the HQV state of the equal-spin-pairing condensate. In thermodynamic equilibrium such an effective Zeeman field will produce a nonzero spin polarization in addition to that created by external fields.