

Abstract Submitted
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Type-IV Superconductivity Phenomenon: Cooper Pairs with Broken Parity and Spin-Rotational Symmetries in D- and S-wave Singlet Superconductors ANDREI LEBED, Dept. of Physics, University of Arizona — Paramagnetic effects are shown to result in the appearance of a triplet component of order parameter in vortex phases of d- and s-wave singlet superconductors in the absence of impurities. This component, which breaks both parity and spin-rotational symmetries of Cooper pairs, is expected to be of the order of unity in a number of modern superconductors such as high-T_c, organic, MgB₂, and some others. A generic phase diagram of such type-IV superconductors [1], which are singlet ones at H=0 and in the Meissner phase and characterized by singlet-triplet mixed Cooper pairs, $\Delta_s + i\Delta_t$, in a vortex phase, is suggested.

[1] A.G. Lebed, Physical Review Letters, accepted (2006).

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