

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Properties and behavior of superconductors exhibiting a Fulde-Ferrell-Larkin-Ovchinnikov phase¹ WILLIAM A. CONIGLIO, CHARLES C. AGOSTA, Clark University — The body of data on the Fulde-Ferrell-Larkin-Ovchinnikov (FFLO) state in 2d organic superconductors has grown to a critical mass where we may begin studying the boundaries of the FFLO phase in detail. In some very clean layered superconductors, when a magnetic field is aligned exactly parallel to the conducting layers, a superconducting phase develops at fields above the Pauli paramagnetic limit H_p and temperatures below about $T_c/3$. The phase is widely ascribed to FFLO behavior. We focus on the superconductors κ -(ET)₂Cu(NCS)₂, β'' -(ET)₂SF₅CH₂CF₂SO₃, and λ -(BETS)₂GaCl₄, which have been studied by rf penetration depth and other techniques. We have probed the boundaries of the FFLO phase using alignment angle to tune the amount of spin-orbit scattering and temperature to control the degree of Pauli paramagnetic limiting. Using our data collected in pulsed magnetic fields at low temperature, we have gained new understanding about the behavior of the state and the conditions necessary for it to develop.

¹We acknowledge Department of Energy support from ER46214.

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Date submitted: 19 Nov 2010

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