

Abstract Submitted  
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**Fulde-Ferrell-Larkin-Ovchinnikov states**  
**in Fermi-Fermi mixtures**<sup>1</sup> JIBIAO WANG, QIJIN CHEN, Zhejiang University  
— Fulde-Ferrell-Larkin-Ovchinnikov (FFLO) states have been of great interest in the study of population imbalanced atomic Fermi gases. It has been known that the phase space of FFLO states for an equal-mass Fermi gas in three dimension (3D) is rather small and thus has not been observed experimentally. In this talk, we will explore possible effects of mass imbalance as in a Fermi-Fermi mixture on the FFLO phases for a 3D homogeneous case. In particular, we will use a pairing fluctuation theory in which incoherent pairing fluctuations constitute a key ingredient of the theory and thus lead naturally to the appearance of a pseudogap when the pairing interaction becomes strong. We will present various phase diagrams related to the FFLO states at both zero and finite temperatures, throughout the BCS-BEC crossover, and show that a large mass ratio may indeed enhance FFLO type of pairing and make it easier to detect such states experimentally. References: Y. He, C.-C. Chien, Q.J. Chen, and K. Levin, Phys. Rev. A 75, 021602(R) (2007); Q.J. Chen, Y. He, C.-C. Chien, and K. Levin, Phys. Rev. B 75, 014521 (2007).

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