

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Pairing with multiple flavors of fermions in ultracold atoms

ROBERT CHERNG, Harvard University, GIL REFAEL, California Institute of Technology, EUGENE DEMLER, Harvard University — We use Ginzburg-Landau formalism to discuss s-wave pairing in ultracold Fermi gases with N flavors and with $SU(N)$ symmetric interactions. We show that when the number of flavors is greater than two, the uniform superfluid state is unstable since the magnetization or flavor imbalance couples directly to the superfluid order parameter. We study the case of three flavors in detail to analyze the competition between phase separation and non-uniform FFLO-like superfluid states. Implications of our results for experiments will be discussed.

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Date submitted: 20 Nov 2006

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