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**Complete Phase Diagram of the Attractive Hubbard Model with
a Zeeman Field** YEN LEE LOH, The Ohio State University, NANDINI TRIVEDI

— We study the attractive Hubbard model on square and cubic lattices, using a variational mean-field theory in which the interaction is decoupled in six channels (spin, charge, and pairing). We present the phase diagram as a function of attraction U , chemical potential μ , and Zeeman (spin-exchange) field h , and also as a function of the numbers of up and down spins. We test our hypothesis that FFLO states have a larger range of stability in a lattice than in the continuum, especially in lower dimensions. We discuss the results in the context of ultracold fermions in optical lattices, as well as the implications for thin film superconductors in a parallel magnetic field.

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