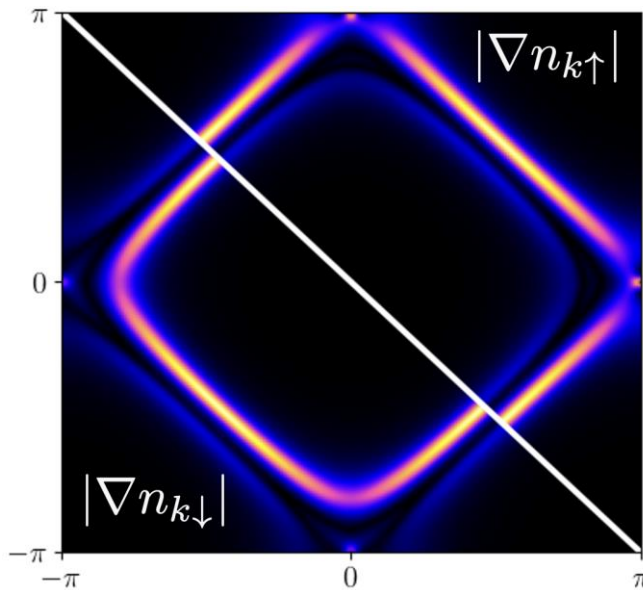


PHYSICS COLLOQUIUM



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Hartree-Fock-Bogoliubov Study of Spin-Polarized Fermi Systems

Abstract

With the turn of the century came the development of quantum simulators - engineered many-body systems that controllably simulate complex quantum phenomena. Of these systems is the ultracold atomic gas in an optical lattice, obeying the Fermi-Hubbard model and emulating the electrons in the crystal potential of a solid. The tunability of this system allows for the study of novel phases across a much broader parameter space than available for experiments with real materials. We present mean-field results demonstrating the effect of spin-orbit coupling on spin-polarized systems, which gives way to exotic superfluid/superconducting phases and non-trivial topological properties.

3:00 p.m. - 4:30 pm, Friday, March 21st,
In-Person: McLane 162