

Spatial Modulation Patterns in Two-Dimensional Fulde-Ferrell-Larkin-Ovchinnikov Superconductivity

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FFLO superconductivity is an interesting class of superconductivity, which breaks the intrinsic symmetry and has spatially modulated order parameters. Determining its spatial modulation patterns is one of the fundamental problems concerning FFLO superconductivity. Preceding studies based on the Ginzburg-Landau expansion showed that, in isotropic two-dimensional systems, patterns such as stripe, triangle, square, hexagonal, are realized depending on the temperature and the applied magnetic field. However, the Ginzburg-Landau expansion is not necessarily applicable especially at the low temperature, and another approach is necessary. In this research, based on the Bogoliubov-de Gennes equations we investigate the patterns at absolute zero temperature.