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Pairing superfluidty in a Weyl semimetal with dipolar interaction

LONG ZHANG, XIONG-JUN LIU, Peking University, INTERNATIONAL CENTER FOR QUANTUM MATERIALS TEAM — We study the topological superfluid phase of a three-dimensional Weyl semimetal realized in a single-component dipolar Fermi gas. The system is constructed by employing both the nearest and second-nearest hopping, and generating periodic gauge potentials in an anisotropic cubic lattice. By calculating the superfluid pairing induced by dipole-dipole interaction, we determine the phase diagram of this system and obtained many novel properties.

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