

Gutzwiller Theory of Band Magnetism in LaOFeAs

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We use the Gutzwiller variational theory to calculate the ground-state phase diagram and quasiparticle bands of LaOFeAs. The Fe3d-As4p Wannier-orbital basis obtained from density-functional theory defines the band part of our eight-band Hubbard model. The full atomic interaction between the electrons in the iron orbitals is parametrized by the Hubbard interaction U and an average Hund's-rule interaction J . We reproduce the experimentally observed small ordered magnetic moment over a large region of (U, J) parameter space. The magnetically ordered phase is a stripe spin-density wave of quasiparticles.