

Abstract Submitted
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Pairing theory of striped superconductivity¹ SIEGFRIED GRASER, ARNO KAMPF, THILO KOPP, FLORIAN LODER, University of Augsburg — Starting from a pairing Hamiltonian with an attractive interaction for electrons on nearest-neighbor sites on a square lattice we present a Hartree-Fock scheme which allows for spin and charge density order simultaneously with d-wave superconductivity. Specifically for filling $7/8$ the stable groundstate solution is a striped superconductor with a stripe wavelength of eight lattice constants and π -shifted order parameters for d-wave pairing and antiferromagnetism. The superconducting state contains Cooper pairs with finite center of mass momenta \mathbf{q} and $-\mathbf{q}$ corresponding to half the wavelength for the stripe pattern of the charge density. Despite the d-wave symmetry of the local pairing amplitude the striped superconductor is fully gapped. We characterize the striped superconducting state in real-space and in momentum space and discuss its possible relevance to $\text{La}_{1.875}\text{Ba}_{0.125}\text{CuO}_4$.

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