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【182】 Engineering Phase Competition Between Stripe Order and Superconductivity in $\text{La}_{1.88}\text{Sr}_{0.12}\text{CuO}_4$

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Unconventional superconductivity often couples to other electronic orders in a cooperative or competing fashion. Identifying external stimuli that tune between these two limits is of fundamental interest. We show that strain perpendicular to the CuO_2 -planes couples directly to the competing interaction between charge stripe order and superconductivity in $\text{La}_{1.88}\text{Sr}_{0.12}\text{CuO}_4$ (LSCO). Compressive c -axis pressure amplifies stripe order within the superconducting state, while having no impact on the normal state. Further, we applied magnetic fields up to 10 T. We find that strain dramatically diminishes the magnetic field enhancement of stripe order in the superconducting state.

These results suggest that c -axis strain acts as tuning parameter of the competing interaction between charge stripe order and superconductivity. This interpretation implies a uniaxial pressure-induced ground state in which the competition between charge order and superconductivity is reduced.

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