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# Complex Order Parameter Tuning in Superconducting $\text{La}_{1.88}\text{Sr}_{0.12}\text{CuO}_4$

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High-temperature superconducting cuprates are a model system to examine the relationship between intertwined quantum phases. The competition has, however, been difficult to tune with external stimuli without inducing superconducting vortices by a magnetic field at the same time. In our study, we show that  $c$ -axis strain couples directly to the phase competition between charge stripe order and superconductivity in  $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$  (LSCO). To track the evolution of charge order upon application of strain at different temperatures, dopings, and magnetic fields, x-ray diffraction measurements were performed at DESY. We show, that compressive  $c$ -axis pressure enhances stripe order only within the superconducting state. The strain furthermore diminishes the magnetic field enhancement of stripe order. It thus provides a fruitful approach to study the interplay between superconductivity and charge order in the cuprates.

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