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Josephson vortex state across the phase diagram of $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$: a magneto-optics study SASA DORDEVIC, The University of Akron, D.N. BASOV, UCSD, S. KOMIYA, CRIEPI, Y. ANDO, CRIEPI, Y.J. WANG, NHMFL — We present a detailed doping dependent study of the Josephson vortex state in $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ using infrared spectroscopy. Magnetic field as high as 17 Tesla, applied along the CuO_2 planes, is found to suppress the Josephson plasmon in all measured samples. We find the strongest suppression in samples with dopings close to $x=1/8$ and attribute this effect to the spontaneous formation of in-plane charge inhomogeneities (“stripes”) at this doping level. Several theoretical models of the Josephson vortex state are applied to explain the observed effects.

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