

Abstract Submitted
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Stripe order in $\text{La}_{2-x}\text{Ba}_x\text{CuO}_4$ at ambient and high pressure.¹

M. HUECKER, J. S. WEN, Z. J. XU, G. D. GU, J. M. TRANQUADA, Brookhaven National Laboratory, M. V. ZIMMERMANN, HASYLAB at DESY, Hamburg, Germany — The pronounced stability of the charge and spin stripe order in $\text{La}_{2-x}\text{Ba}_x\text{CuO}_4$ at $x = 1/8$ doping still is a poorly understood peculiarity. A combination of electronic and structural interactions is likely, however it has been difficult to clearly separate the involved mechanisms. One approach is to explore how stripe order fades away for dopings $x \neq 1/8$. We have performed high energy (100 keV) x-ray diffraction and static magnetization experiments on single crystals between $x=0.095$ and 0.155 . To our surprise, at ambient pressure stripes exist in a much broader range of doping around $x = 1/8$ than expected. In the underdoped region charge stripe order always coincides with a structural transition associated with a rotation of the octahedral tilt axis. However, for $x = 1/8$ and high pressure we have been able to show that stripe order also occurs in the absence of this structural phase, which motivates us to discuss stripes in terms of an electronic liquid crystal phase.

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