

Abstract Submitted
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Charge stripes, nematicity and disorder in a cuprate superconductor DAMJAN PELC, MARIJA VUČKOVIĆ, University of Zagreb, Faculty of Science, Department of Physics, HANS-JOACHIM GRAFE, SEUNG-HO BAEK, IFW Dresden, Institute for Solid State Research, MIROSLAV POŽEK, University of Zagreb, Faculty of Science, Department of Physics — Charge stripe order is recognized as an important ingredient of the physics of cuprates, yet the thermodynamics of its formation and the influence of disorder are unclear. We present a study of the development of charge stripes in the cuprate $\text{La}_{1.8x}\text{Eu}_{0.2}\text{Sr}_x\text{CuO}_4$, using three complementary experimental techniques: nuclear quadrupole resonance, nonlinear conductivity and specific heat¹. We find an intermediate phase between (pseudogapped) metal and charge stripes, existing in a dome-shaped region of the phase diagram and appearing through a sharp phase transition. A novel technique² is used for measurements of nonlinear response, which show that the new phase is consistent with a charge nematic. This is in agreement with recent predictions of charge stripe formation with quenched disorder³. Our experiments thus resolve the intricate process of charge stripe formation and provide a link to other materials with electronic nematic order.

¹D. Pelc et al., *Nature Comm.* **7**, 12775 (2016)

²M. Došlić, D. Pelc, M. Požek, *Rev. Sci. Instr.* **85**, 073905 (2014)

³L. Nie, G. Tarjus, S. Kivelson, *Proc. Nat. Acad. Sci. USA* **111**, 7980 (2014)

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