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Charge-order dynamics in underdoped $La_{1.6-x}Nd_{0.4}Sr_xCuO_4$ revealed by electric pulses[1] BAL K. POKHAREL, YUXIN WANG, Dept. of Phys. Natl. High Magnetic Field Lab., Florida State Univ., J. JAROSZYNSKI, Natl. High Magnetic Field Lab., T. SASAGAWA, Materials and Structures Laboratory, Tokyo Institute of Technology, DRAGANA POPOVIC, Dept. of Phys. Natl. High Magnetic Field Lab., Florida State Univ. — The dynamics of the charge-order domains has been investigated in $La_{1.48}Nd_{0.4}Sr_{0.12}CuO_4$, a prototypical stripe-ordered cuprate, using pulsed current injection. We first identify the regime in which nonthermal effects dominate over simple Joule heating and then demonstrate that, for small enough perturbation, pulsed current injection allows access to nonthermally induced resistive metastable states. The results are consistent with the pinning of the fluctuating charge order, with fluctuations being most pronounced at the charge-order onset temperature. The nonequilibrium effects are revealed only when the transition is approached from the charge-ordered phase. Our experiment establishes pulsed current injection as a viable and effective method for probing the charge-order dynamics in various other materials [1]. [1] Pokharel, Bal K., et al.,Appl.Phys. Lett. 118, 244104 (2021)

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