

Abstract Submitted
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Phonon anomalies and critical fluctuations associated with charge stripes in $\text{La}_{1.67}\text{Sr}_{0.33}\text{NiO}_4$ SVETLANA ANISIMOVA, DAN PARSHALL, DMITRY REZNIK, University of Colorado at Boulder, DANIEL LAMAGO, LLB, CEA Saclay, DOUGLAS ABERNATHY, SNS, Oak Ridge National Laboratory, KAROL MARTY, MARK LUMSDEN, HFIR, Oak Ridge National Laboratory, G. GU, J.M. TRANQUADA, Brookhaven National Laboratory — We will report inelastic neutron scattering measurements of the spectrum of charge excitations in the stripe-ordered phase of $\text{La}_{2-x}\text{Sr}_x\text{NiO}_4$ ($x = \frac{1}{3}$). We identified clear signature of charge stripes at low energies in the nickelates. Our results imply that dynamic stripes are critical fluctuations associated with the stripe-ordering transition. We also observed a phonon anomaly correlated with dynamic stripes above the static-ordering transition, which occurs at 241 K. Our results elucidate the nature of dynamic charge stripes and their signature in the neutron spectra.

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