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Magnetic-field-driven superconductor-insulator transition in stripe-ordered $\mathbf{La_{1.48}Nd_{0.4}Sr_{0.12}CuO_4}$[1] PAUL BAITY, ZHENZHONG SHI, DRAGANA POPOVIĆ, Dept. of Phys. & Natl. High Magnetic Field Lab., Florida State Univ., T. SASAGAWA, Tokyo Inst. of Tech. — The effects of the magnetic field (H) in underdoped cuprates, the nature of the H-driven superconductor-insulator transition (SIT), and the interplay with charge ordering are some of the key questions in high-temperature superconductivity. A recent study of the H-driven SIT in highly underdoped ($T_c \sim 4$ K) $La_{2-x}Sr_xCuO_4$ (LSCO) revealed an intermediate phase, with two quantum critical points separating the superconductor and the insulator. While charge distribution in highly underdoped LSCO seems to be inhomogeneous, its sister compound $La_{2-x}Nd_{0.4}Sr_xCuO_4$ (LNSCO) with $x = 0.12$ is known to have a charge-stripe order already in $H = 0$ at low enough temperatures (T). In order to address the above issues, we carry out detailed measurements of the in-plane and out-of-plane magnetoresistance with different H orientations and over a wide range of T on LNSCO single crystals with $x = 0.12$ and $T_c \sim 4$ K. The results will provide insight into the universality of the H-driven SIT in cuprates with different types or, at least, varying degrees of charge order.

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