

Inhomogeneity of Superconductivity and Stripe Correlations in the Overdoped Regime of $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ at $x \sim 0.21$

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With the aim at investigating the relationship between the anomalous decrease in T_c ,¹ development of the Cu-spin correlation² and the inhomogeneity of superconductivity³ in the overdoped regime of $\text{La}_{2-x}\text{Sr}_x\text{CuO}_4$ at $x \sim 0.21$, we have investigated the transport and magnetic properties. It has been found that the temperature dependence of the magnetic susceptibility shows a plateau and the magnetization curve shows the so-called second peak in the superconducting (SC) state at $x \sim 0.21$, both of which are due to the strong vortex pinning in the normal-state regions in the inhomogeneous SC state.⁴ On the other hand, the ab-plane electrical resistivity under magnetic field has revealed that the SC transition curve shifts to the low-temperature side in parallel with increasing field above ~ 10 T at $x \sim 0.21$, which is similar to that observed at $x \sim 1/8$ where the so-called stripe correlations are developed. Accordingly, it is possible that the stripe correlations are developed under the nano-scale inhomogeneity of superconductivity at $x \sim 0.21$.

¹N. Kakinuma *et al.*, Phys. Rev. B **59**, 1491 (1999).

²I. Watanabe *et al.*, unpublished.

³Y. Tanabe *et al.*, J. Phys. Soc. Jpn. **74**, 2893 (2005).

⁴Y. Tanabe *et al.*, J. Phys. Soc. Jpn. **76**, 113706 (2007).