

# Electrical Transport Properties of La-Doped SrTiO<sub>3</sub>

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## ABSTRACT

In this study, La-doped SrTiO<sub>3</sub>(Sr<sub>1-x</sub>La<sub>x</sub>TiO<sub>3</sub> = 0.02 ~ 0.3) bulk were prepared by solid-state reaction method and La-doped SrTiO<sub>3</sub>(Sr<sub>1-x</sub>La<sub>x</sub>TiO<sub>3</sub>) thin films were grown on the Si(100) and SrTiO<sub>3</sub>(100) substrates by the off-axis rf magnetron co-sputtering system. In the experiment, we expect Sr<sup>2+</sup> ions were replaced by La<sup>3+</sup> ions in the samples, and introduced the electron carriers. However, the specimens turn into electrically conductive after annealing in mixed H<sub>2</sub>/Ar. The temperature dependence of resistivity and Hall coefficients were studied, and found that the transport properties, which can not be described by the free electron gas model, are related to the electron correlation systems in film specimens.

Keywords : Sr<sub>1-x</sub>La<sub>x</sub>TiO<sub>3</sub>、electron correlation systems

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