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Transport Properties of the γ-Al_2O_3/$SrTiO_3$ Heterostructure

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The 2-dimensional electron gas formed at the interface between $LaAlO_3$ and $SrTiO_3$ has attracted a lot of interest due to its fascinating electronic structure. Compared to semiconductors the electrons still suffer from a low carrier mobility. Substituting the deposited film with the spinel γ-Al_2O_3 resulted in a γ-Al_2O_3/$SrTiO_3$ heterostructure exhibiting a high electron mobility thus providing a big step towards applications and mesoscopic measurements. Understanding the electron transport is, however, still crucial. Here, we report an investigation of the transport properties of the γ-Al_2O_3/$SrTiO_3$ interface hereunder a study of anisotropy and carrier density tuning.