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Effect of cation-nonstoichiometry in the SrTiO₃ layer on the interfacial conductance of LaAlO₃/SrTiO₃ heterostructures SUSANNE HOFFMANN-EIFERT, FELIX GUNKEL, SEBASTIAN WICKLEIN, FZ Juelich, PGI-7 and JARA-FIT, Juelich, Germany, PETER BRINKS, MARK HUIJBEN, JOSEE E. KLEIBEUKER, GERTJAN KOSTER, GUUS RIJNDERS, Mesa+ Institute for Nanotechnology, University of Twente, Enschede, The Netherlands, REGINA DITTMANN, RAINER WASER, FZ Juelich, PGI-7 and JARA-FIT, Juelich, Germany — A study of the interface conductivity in LaAlO₃/SrTiO₃ (LAO/STO) heterostructures will be presented with focus on the defect chemical state of the SrTiO₃ close to the interface. SrTiO₃ layers with a controlled deviation from cation stoichiometry (Sr/Ti=1) were grown to investigate the effect of cation-nonstoichiometry in the SrTiO₃ layer on the resulting interface conductance of the corresponding LAO/STO heterostructures. The study comprises structural information and electrical properties derived from Hall measurements and high-temperature conductance measurements performed under equilibrium oxygen atmospheres. According to the model of defect chemistry the results give further evidence for the importance of charge compensation through defects on cation lattice sites.

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