

Abstract Submitted
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Optical Conductivity of LaAlO₃/SrTiO₃ Superlattices C.L.S. KANTNER, M. HUIJBEN, J. SEIDEL, M. WARUSAWITHANA, D.G. SCHLOM, R. RAMESH, J. ORENSTEIN — Precise contactless measurements of the optical conductivity of LaAlO₃/SrTiO₃ (LAO/STO) superlattices can be achieved using time-domain terahertz spectroscopy. We report the optical conductivity in the frequency range 3-30 cm⁻¹ as a function of temperature and concentration of oxygen vacancies in the STO layers. Superlattices were grown by laser-MBE, enabling control of the structure on the single-unit cell level. Optical measurements were made possible through the use of Si rather than STO substrates. To identify the interface contribution to the conductivity we compared the optical transmission of structures with different numbers of interfaces, while maintaining constant the total number of unit cells.

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