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Optical properties of $SrTiO_3$ and $LaSrAlO_4$ N.J. GANTZLER, S.V. DORDEVIC, The University of Akron — We report on the optical properties of $SrTiO_3$ and $LaSrAlO_4$, both of which are materials currently used as substrates for superconducting thin films. Their role in the superconductivity of these structures is not fully understood. In this work, we evaluate room temperature spectra collected from far-infrared to near-ultraviolet for both $SrTiO_3$ and $LaSrAlO_4$. Overall, the transmission and the reflection spectra of both materials are found to be less than 25 %, and above the bandgap the materials are completely opaque. The values for the band gaps, obtained from transmission spectra, are 3.21 eV for $SrTiO_3$ and 5.03 eV for $LaSrAlO_4$.The reflection spectra, also less than 25 %, reveals signatures of interband transitions. After fitting the transmission and reflection spectra simultaneously using the Tauc-Lorentz model, we generate the optical conductivity along with other optical functions.

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