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**Optical conductivity of SrTiO<sub>3</sub> based interfaces** MING XIE, GURU KHALSA, ALLAN MACDONALD, The University of Texas at Austin — Since the discovery of a high mobility two-dimensional electron gas at the interface of LaAlO<sub>3</sub>/SrTiO<sub>3</sub>, there has been a large scientific effort to understand the properties of perovskite interfaces. Naturally, this effort has focused on magneto-transport and photoemission studies. Here we use the Kubo formalism to study the optical conductivity of SrTiO<sub>3</sub> based interfaces and discuss its implications on the underlying physical properties of these systems. In particular, the response to light polarized in- and out-of-plane will be contrasted.

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