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A spectroscopic study of the superconductor at the $LaAlO_3/SrTiO_3$ interface HANS BOSCHKER, CHRISTOPH RICHTER, JOCHEN MANNHART, Max Planck Institute for Solid State Research — The electron liquid at the $LaAlO_3/SrTiO_3$ interface is a model system for the study of superconductivity as it provides a two-dimensional superconductor whose properties can be tuned with an electrical gate field. We developed planar tunnel junctions to study the superconductivity spectroscopically. Our tunnel junctions give access to two important physical parameters: the size of the superconducting gap and the electron-phonon spectral function. We will present measurements of both as a function of the electric gate field. The likelihood of the convential electron-phonon coupling mechanism for superconducting pairing will be discussed.

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