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Gate-tunable superconducting 2DEG at the amorphous LaAlO3/SrTiO3 interface[1] GUENEVERE PRAWIROATMODJO, University of Copenhagen, FELIX TRIER, University of Copenhagen, Technical University of Denmark, DENNIS CHRISTENSEN, YUNZHONG CHEN, NINI PRYDS, Technical University of Denmark, THOMAS SAND JESPERSEN, University of Copenhagen — We investigate superconductivity in Hall-bar devices patterned at the amorphous $LaAlO_3/SrTiO_3$ interface. We find a critical temperature of 360 mK, which is gate-tunable to up to 460 mK, higher than is usually found in its crystalline equivalent. We measure the phase diagram and investigated the 2DEG confinement and its gate-dependence by probing the critical parallel and perpendicular magnetic fields using a vector magnet system. We find that the Ginzburg-Landau coherence length is larger than the thickness of the layer of superconducting electrons, confirming its two-dimensional nature.

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