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1D Coulomb drag between coupled nanowires formed at oxide interfaces[1] YUHE TANG, MICHELLE TOMCZYK, MENGCHEN HUANG, Univ of Pittsburgh, HYUNGWOO LEE, CHANG-BEOM EOM, Univ of Wisconsin at Madison, PATRICK IRVIN, JEREMY LEVY, Univ of Pittsburgh — "Coulomb drag" is a transport phenomenon where Coulomb interaction between two close but electrically isolated conductors induces voltage in one conductor when an electric current is injected in the other conductor. It is a powerful approach to probe electronic correlations. Here we examine 1D electronic correlations in a proximally coupled nanowire system where two parallel nanowires are created with conductive atomic force microscopy at the $LaAlO_3/SrTiO_3$ interface. Coulomb drag measurements are made by injecting current into one wire (drive wire) and measuring the induced voltage in the other wire (drag wire). This geometry offers experimental insights into the interplay of electron pairing and superconductivity in reduced dimensions.

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