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Tunneling Spectroscopy of GaAs Bilayer Hole System NATHANIEL BISHOP, YENTING CHIU, MANSOUR SHAYEGAN, EMANUEL TUTUC, Princeton University — We measure tunneling between two two-dimensional (2D) GaAs (311)A hole layers with a density of about $3{\times}10^{10} cm^{-2}$, and separated by about 23 nm (well width 15 nm, barrier width 8 nm). At very low interlayer biases, the tunneling data are similar to 2D GaAs electron samples. But at higher interlayer biases, typically in the range 400 to 600 and 1100 to 1200 μV, the spectra show additional conductance peaks. The side peaks move to higher bias at higher densities, and their positions also evolve with applied parallel magnetic field. We discuss possible origin of these anomalous side peaks.

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