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Studying the Validity of 1D Models in Analyzing Transport in LAPD[1] REEHAN SIRAJ, William Mary, CONOR PERKS, North Carolina State University, SASKIA MORDIJCK, William Mary, TROY CARTER, University of California, Los Angeles — Understanding how drift-wave driven plasma turbulence affects heat transport in magnetic confinement devices has improved considerably using high performance models and improved turbulence diagnostics. In fully ionized plasmas, most drift-wave driven turbulence should lead to the flattening of the electron density gradient, but it is unclear in partially ionized plasmas how the direct influence of a neutral source affects the profile as well as the underlying turbulence. Experiments on LAPD spanning a range of neutral pressures and cathode voltages allow us to explore how turbulence and turbulent radial particle transport is affected. In small linear devices, the electron density and temperature are determined by 1D transport along the magnetic field lines. To assess how much the electron density profile diverges in LAPD from these calculations, we will compare our experimental profiles to this 1D theory and add measured radial losses using a flux probe.

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