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Impact of varying neutral densities on turbulence and transport in LAPD CONOR PERKS, Massachusetts Institute of Technology MIT, SASKIA MORDIJCK, College of William and Mary, TROY CARTER, University of California, Los Angeles — Theoretical predictions and simulations of turbulence in plasmas are often derived for fully ionized plasmas and the impact of neutrals is neglected. However, most plasmas are not fully ionized and the effects of neutrals might have an impact on the turbulence characteristics and the resulting transport. LAPD provides a unique environment in which we can increase the ionization of the plasma by increasing the voltage on the cathode and we can increase the neutral density by increasing the pressure in the vessel. We compare the profiles and turbulence characteristics in a set of experiments at 3 levels of neutral gas pressure and various levels of ionization. The density and radial velocity perturbations peak at the same radius and this location shifts inward with increasing gas pressure. As the neutral density and thus collisions increase and the voltage on the cathode decreases we observe that the parallel flow slows down and even changes sign. Using this dataset we will investigate how and whether changes in ionization affect turbulence.

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