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Three-dimensional laser-induced fluorescence measurements in a helicon plasma source¹ JULIANNE MCILVAIN, M. UMAIR SIDDIQUI, ZACHARY SHORT, MIGUEL HENRIQUEZ, EARL SCIME, West Virginia University — We describe an upgrade to our two-dimensional laser-induced fluorescence (LIF) diagnostic that enable measurements over a three dimensional volume of plasma. With this new capability, we have measured the flow of ions and neutrals in an argon plasma toward a stainless steel, grounded plate aligned perpendicular to the magnetic field in a helicon plasma source. We present measurements of the three-dimensional flow field in this three-dimensional volume as a function of the magnetic field strength and rf power in the helicon source.

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