

Abstract Submitted
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Laser Induced Fluorescence (LIF) Data for Neutral Argon (ArI) in a Large Scale Helicon Plasma RALPH KELLY, MARK GILMORE, KEVIN MEANY, YUE ZHANG, Univ of New Mexico, TIFFANY DESJARDINS, Los Alamos National Laboratories — When neutral and ion densities are spatially non-uniform, neutral-ion collisions can exert a torque on a magnetized plasma column via the $F \times B$ force, where F is the force exerted on ions by neutrals. This $F \times B$ force may have a significant effect on the dynamics of plasma instabilities and flows. In order to investigate the role of neutral dynamics in helicon discharges in the HelCat (Helicon-Cathode) plasma device at U. New Mexico, an Ar I Laser Induced Fluorescence (LIF) system has been developed. The LIF system is based on a >250 mW, tunable solid state laser. The laser will pump the metastable $(^2P_{3/2}^0)4s$ level to the $(^2P_{1/2}^0)4p$ level using 696. 7352 nm light, and fluorescence radiation from decay to the $(^2P_{1/2}^0)4s$ level at 772. 6333 nm is observed. The system design and initial data will be presented.

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