Abstract Submitted
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Plasma transport across magnetic field lines in the linear machine Mistral[1] ALEXANDRE ESCARGUEL, CYRIL REBOND, NICOLAS CLAIRE, TONY LEFEVRE, FABRICE DOVEIL, PIIM Laboratory, TURBULENCE PLASMA TEAM — Plasma transport across magnetic field lines has been experimentally studied in the linear machine Mistral. This addresses the physics of plasmas encountered in controlled magnetic fusion machines in the shadow of limiteurs. It is still not completely predictable in new configurations and needs to be studied in laboratory plasmas, where parameters can be easily controlled. The Mistral device is dedicated to study plasma instabilities in the presence of a magnetic field, essentially by optical diagnostics [1]. In this work, we present the study of plasmas instabilities regularly rotating around a central plasma. The radial evolution of the ionic velocity distribution function has been measured by Laser induced Fluorescence (LIF) inside the instability. Considering the momentum equations for ions and electrons [2, 3], a physical model has been developed to interpret the experimental data. The solutions are in good agreement with the experience and the physics is discussed. **Reference** [1] A. Escarguel, "Optical diagnostics of a low frequency instability rotating around a magnetized plasma column", Eur. Phys. J. D, 56, 209-214 (2010). [2] J. E. Allen, Contrib. Plasma Phys., 400 (2008). [3] B. M. Annaratone, A. Escarguel, T. Lefevre, C. Rebont, N. Claire and F. Doveil, in preparation.

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