

Abstract Submitted
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Experiments on the Propagation of Plasma Blobs¹ NOAM KATZ, JAN EGEDAL, WILL FOX, MIKLOS PORKOLAB, MIT — We investigate the large-scale motion of plasma blobs in the Versatile Toroidal Facility (VTF) using Langmuir probe arrays. Blobs, or field-aligned filaments, have been used to model plasma fluctuations in the scrape-off layer of tokamaks and other devices [1-3]. These fluctuations, which are interchange modes driven by magnetic field curvature, display a convective or ‘bursty’ character and can sometimes form large coherent structures. We use VTF, a well-diagnosed basic plasma physics experiment, to create plasma blobs reproducibly. The experiments are designed to investigate how the average blob speed scales with various experimental parameters and to probe the internal electrostatic structure of the blobs. We find that charge exchange collisions with neutrals play a significant role in the non-linear evolution of the plasma structures. [1] Krasheninnikov S, Phys. Lett. A, 283 (2001) 368 [2] Zweben S et al, Nucl. Fusion, 44 (2004) 134 [3] Garcia O et al, Phys. Plasmas, 12 (2005) 090701

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