

Abstract Submitted
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Edge Turbulence Saturation, Sheared Flow and Blobs¹ D.A. D'IPPOLITO, J.R. MYRA, D.A. RUSSELL, Lodestar Research Corporation — Simulations with the Lodestar Scrape-Off-Layer Turbulence (SOLT) code are used to study (i) saturation mechanisms for edge turbulence (viz. sheared flow and profile flattening), (ii) the existence of a critical gradient due to the Kelvin-Helmholtz (KH) instability, and (iii) the effect of the saturated turbulence on blob creation. Source terms for particles and heat are balanced by the turbulent transport of particles, energy and momentum across the edge and SOL. This results in the development of sheared flows, which can be limited by the KH instability. This process is studied for electrostatic curvature-driven interchange turbulence. Because the simulation allows full profile evolution, a sharp transition is observed from saturation by sheared flows to saturation by profile flattening as the turbulence drive increases and the linear growth rate exceeds the maximum velocity shear allowed by the KH instability. The effect of the sheared flow on blob creation and transport will also be assessed.

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