

Abstract Submitted
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When does turbulence spreading matter?¹ RAMESWAR SINGH, PATRICK H DIAMOND, University of California, San Diego — Turbulence spreading studies looking at spatiotemporal evolution of a slug of turbulence do not address how spreading affects profile evolution and thus miss the key question. Hence we study turbulence spreading effect on plasma profiles. Turbulence spreading is most active in the region of strong turbulence intensity gradient i.e., L mode edge with a strong edge localized turbulence source and in No Man's Land which connects the pedestal to the stiff core in H mode. Spreading reduces local intensity and steepens the pressure gradient to maintain steady state flux balance. In general, without an edge intensity source, the turbulence intensity profile is almost flat and spreading has a weak effect on plasma profiles in L mode. Interaction of turbulence spreading and avalanching is studied. Spreading weakly affects the avalanche distribution. In H mode, the strong intensity gradient at No Man's Land induces a flux of intensity from the unstable core to the stable pedestal where it is suppressed and ultimately dissipated by strong ExB shear. We find that turbulence spreading actually elevates the pedestal height by reducing turbulence intensity in No Man's Land. Hence surprisingly turbulence spreading actually increases energy content in H mode.

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Rameswar Singh
University of California, San Diego

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