

Abstract Submitted
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Are “edge transport barriers” a reality or a fantasy of TTF¹

LEONID ZAKHAROV, Princeton University, PPPL — For more than 3 decades, sharp electron temperature jumps (pedestals) at the plasma edge in H-mode or in the plasma core are interpreted as regions with suppressed transport - the “edge transport barriers.” Their later “explanation” as suppression of turbulence by a sheared rotation was presented as a triumph of the tokamak turbulence theory. The key assumption in existing interpretations of transport phenomena as well as the temperature pedestals is the existence of the perfect magnetic surfaces. In fact, there is no minimal experimental or theory reason for plasma having good magnetic surfaces at the edge. This makes considerations based on such an assumption not credible. Instead of the widespread but baseless assumption, the relaxing of it leads to the understanding of temperature pedestals, consistent with the basic experimental data and free of plasma physics miracles like “transport barriers.”

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