Abstract Submitted
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Linear analysis of geodesic curvature driven instability in divertor legs in spherical tokamaks[1] D. A. BAVER, J. R. MYRA, Lodestar Research Corporation, Boulder CO, F. MILITELLO, D. MOULTON, CCFE, Culham Science Centre, Abingdon UK — Turbulence in the divertor region impacts the heat flux width, which is important for evaluating advanced divertor configurations such as the super-X. In this work, the ArbiTER[1] code is used to analyze the underlying linear instabilities that drive divertor leg turbulence. Simulations of the divertor leg of MAST-U have revealed a type of instability that is driven predominantly by geodesic curvature. This drive mechanism allows a ballooning-type mode to exist in regions that would normally be categorized as having good curvature. This type of instability is particularly prominent in the MAST-U super-X divertor, but also exists in the standard divertor configuration. We will compare the location, mode structure, and growth rates of these modes in different divertor configurations and examine their toroidal mode number spectrum. 1. D. A. Baver, J. R. Myra and M. V. Umansky, Comm. Comp. Phys. 20, 136 (2016).

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