Abstract Submitted
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Effects of Triangularity on Ion Temperature Gradient Turbulence Saturation[1] J. M. DUFF, B. J. FABER, C. C. HEGNA, University of Wisconsin - Madison — Transport driven by ion temperature gradient (ITG) turbulence is an important loss channel in tokamaks. In this work, we model how triangularity (both positive and negative values) of an axisymmetric flux surface affects ITG linear growths, turbulent saturation and turbulent transport. This is accomplished for each geometry by combining analysis from the gyrokinetics code GENE, a reduced fluid model for evaluating turbulence saturation by unstable-stable mode coupling through three-wave interactions[1], and a quasilinear transport model. Quasilinear scaling predicts ion heat fluxes increase at low and moderate positive and negative triangularities and sharply decrease with strong positive and negative triangularity. Using quasilinear scaling, geometries with negative triangularity are predicted to have lower ion heat fluxes than the corresponding positive counterpart. [1] Hegna et al. PoP, 25, 022511 (2018)

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