Abstract Submitted
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Linear and nonlinear gyrokinetic studies of turbulence in stellarator geometry with the GS2 code[1] J.A. BAUMGAERTEL, G.W. HAMMETT, D.R. MIKKELSEN, Princeton Plasma Physics Laboratory, W. DORLAND, University of Maryland, E.A. BELLI, General Atomics — The GS2 gyrokinetic code is being used to study microinstabilities and turbulence in flux-tubes in non-axisymmetric geometries, including stellarators. Stellarators have a number of interesting features, such as natural negative magnetic shear and a large number of shaping parameters, which offer possibilities for reducing microturbulence and improving performance. GS2 traditionally uses numerical equilibria for these studies, but recently an analytical stellarator equilibrium model[2] has been implemented for benchmarking with the GKV and GENE gyrokinetic codes. In addition to studying ITG modes, we will present results on kinetic ballooning mode growth rates and instability thresholds, using both the analytical model and numerical stellarator equilibria from recent design studies. Nonlinear results will also be discussed.

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[2]SUGAMA, WATANABE, and FERRANDO-MARGALET, Plasma and Fusion Research, Vol. 3, p.041 (2008)

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