

Abstract Submitted
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Linear gyrokinetic studies in NCSX and W7-X stellarators with the GS2 code¹ J.A. BAUMGAERTEL, W. GUTTENFELDER, G.W. HAMMETT, D.R. MIKKELSEN, PPPL, P. XANTHOPOULOS, J. GEIGER, IPP Greifswald, W. DORLAND, Univ. of Maryland, College Park, E. BELLI, General Atomics — The GS2 gyrokinetic code is being used to study microinstabilities and turbulence in non-axisymmetric flux-tube geometries. Non-axisymmetric systems, such as stellarators, have a number of interesting features, like natural reversed magnetic shear and a large number of shaping parameters. These offer possibilities for reducing microturbulence and improving performance. The NCSX and W7-X designs were partially optimized for neoclassical transport; however, the turbulent transport has not been studied in detail. We will present studies of gyrokinetic instabilities in NCSX and W7-X equilibria, including important geometry and linear benchmarks between GS2 and GENE, a gyrokinetic code from IPP. We will also discuss improvements to the GS2 trapped particle treatment and a new computational grid generator for GS2.

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Jessica Baumgaertel
Princeton Plasma Physics Laboratory

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