

Abstract Submitted  
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**Gyrokinetic studies of stellarator turbulent transport via Gene**

H.E. MYNICK, PPPL, P. XANTHOPOULOS, IPP-MPG, Greifswald, A.H. BOOZER, Columbia Univ. — We study the turbulence and turbulent transport in stellarators (and tokamaks), via analysis of simulation results from the 3D gyrokinetic code Gene<sup>1</sup>, with particular emphasis on the configuration-dependence of turbulence characteristics. Present day stellarator designs seek to optimize stellarator neoclassical transport. With the advent of simulation codes like Gene, one can now seek to characterize and then optimize designs for TOTAL transport. The comparison between different configurations in stellarator parameter space is of 2 types, global and local. Global comparisons look at changes in plasma performance (eg, levels of turbulent fluxes and zonal flows, dependence of these on plasma gradients) between very different designs (eg, a QA versus a QI/QO design). Local comparisons look at the changes in performance between slight variants of the same design. Both aid in gaining insight into which geometric features (curvature, local and global shear, etc) are important in determining the turbulent characteristics.

<sup>1</sup>P. Xanthopoulos, F. Jenko, Phys.Plasmas **13**, 092301 (2006).

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