Abstract Submitted
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**Non-axisymmetry Effects in Neoclassical Transport Simulations**[1]

E.A. BELLI, J. CANDY, General Atomics — Toroidal non-axisymmetry effects are implemented in the drift-kinetic neoclassical code NEO. Important tokamak edge effects, such as magnetic field ripple, caused by the discreteness of the toroidal field coils, and imposed magnetic perturbations are studied. The equilibrium is generated using a new 3D local analytic equilibrium solver, analogous to a 3D extension of the Miller formalism for shaped axisymmetric equilibria, based on the formalism developed by Hegna [1]. Unlike a global numerical equilibrium solver, this allows for systematic studies of the effects of 3D flux-surface shaping parameters. Initial studies focus on quasi-symmetric configurations, for which the neoclassical transport is intrinsically ambi-polar. The analytic development of a consistent formulation for inclusion of the radial electric field is considered.

[1] C.C. Hegna, Phys. Plasmas **7**, 3921 (2000).

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