Abstract Submitted
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Development of a drift wave turbulence transport model for a linear plasma device[1] D. BRUGGER, A.S. WARE, University of Montana, M. GILMORE, S. XIE, University of New Mexico, E. SCHUSTER, Q. WANG, Lehigh University — This work investigates modeling of transport and flow generation in a linear plasma device using a 1-D transport code. Drift wave turbulence models have been analyzed to derive models for the growth rate, nonlinear saturation mechanism, and Reynolds stress parameterization in the transport model. The goal is to model the HELCAT experiment including the use of biased concentric rings as control elements for the radial electric field profile. By varying the bias voltages, the local ExB flow can be modified. The effect will be identical to a source of *ExB* flow in the limit of zero beta (i.e., when diamagnetic flows are negligible). By varying the momentum sources a sheared radial electric field can be generated that can suppress turbulent particle and heat transport. The impact of ion temperature effects, axial flow and plasma boundary conditions are investigated. Comparisons with density and flow profiles from HELCAT experiments will be undertaken.

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