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Modeling control of turbulent transport in a linear device[1] L. HERRMANN, P. BOLENBAUGH, A.S. WARE, University of Montana, S. XIE, M. GILMORE, C. WATTS, University of New Mexico — A transport code is used to model active control experiments on the HELCAT (HELicon-CAThode) experiment (for more details on the HELCAT experiment see S. Xie, *et al.*, this meeting). The 1D transport code includes evolution of the density, ion and electron temperatures, poloidal flow, radial electric field, and rms fluctuation amplitude. The helicon/cathode source is modeled as a power input with a flat-top radial profile and the majority of the power going into the electrons. The control elements, biased concentric rings in the experiment, are modeled as localized momentum sources in the transport code. The effect will be identical to a source of polidal $\mathbf{E}\times\mathbf{B}$ flow in the limit of zero β (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 results of modeling a typical experimental equilibrium will be presented along with initial results from varying the amplitudes of the momentum sources.

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