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Quantitative fitting of transport model parameters to experimental profiles[1] E.O. HADDEN, L. JONES, A.S. WARE, University of Montana, M. GILMORE, University of New Mexico, E. SCHUSTER, Lehigh University — The results of a quantitative comparison of experimental data from the HELCAT experiment and computational results from a 1D transport code are presented. In this work, we present both recent work on understanding the behavior of the transport model and a new effort to optimize of transport code input parameters in order to fit experimental profiles. This computational work is in collaboration with experimental work on the impact of a set of biased concentric rings on turbulent transport in the HELCAT device. The biased rings are modeled in the transport code as local $\mathbf{E}\times\mathbf{B}$ momentum sources. In our characterization of the transport code, both particle diffusivity and particle flux are shown to decrease with increased ring bias voltages and both are relatively insensitive to which of the rings is biased. On fitting to experimental data, we are developing an optimization routine that selects a set of input parameters to the transport code by minimizing a χ^2 difference between the code results and experimental data.

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