Abstract Submitted
for the DPP15 Meeting of
The American Physical Society

Computational Study of Anomalous Transport in High Beta DIII-D Discharges with ITBs[1] ALEXEI PANKIN, Tech-X Corporation, ANDREA GAROFALO, General Atomics, BRIAN GRIERSON, PPPL, ARNOLD KRITZ, TARIQ RAFIQ, Lehigh U. — The advanced tokamak scenarios require a large bootstrap current fraction and high β. These large values are often outside the range that occurs in "conventional" tokamak discharges. The GLF23, TGLF, and MMM transport models have been previously validated for discharges with parameters associated with "conventional" tokamak discharges. It has been demonstrated that the TGLF model under-predicts anomalous transport in high β DIII-D discharges [A.M. Garofalo *et al.* 2015 TTF Workshop]. In this research, the validity of MMM7.1 model [T. Rafiq *et al.* Phys. Plasmas **20** 032506 (2013)] is tested for high β DIII-D discharges with low and high torque. In addition, the sensitivity of the anomalous transport to β is examined. It is shown that the MMM7.1 model over-predicts the anomalous transport in the DIII-D discharge 154406. In particular, a significant level of anomalous transport is found just outside the internal transport barrier. Differences in the anomalous transport predicted using TGLF and MMM7.1 are reviewed. Mechanisms for quenching of anomalous transport in the ITB regions of high-beta discharges are investigated.

[1]This research is supported by US Department of Energy.

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Date submitted: 24 Jul 2015 Electronic form version 1.4