NTV Model for RWM Feedback Control[1] DOV RHODES, J. BIALEK, A.H. BOOZER, A.J. COLE, M.E. MAUEL, G.A. NAVRATIL, N. RATH, Q. PENG, Columbia University, HBT-EP TEAM — Neoclassical toroidal viscosity (NTV) effects due to non-resonant applied magnetic fields have drawn attention in recent years as a potential means of introducing toroidal momentum in large tokamaks such as ITER. These effects are of particular interest at Columbia University's HBT-EP facility, which specializes in the study of the resistive wall mode (RWM). The RWM has been extensively simulated in VALEN, a 3D finite element code which computes the coupling between the plasma and every conducting surface. In order to evaluate the RWM stability, VALEN depends upon a torque parameter alpha [1]. Informed computation of alpha from NTV could lead to improved RWM analysis. We develop a NTV model for computing alpha to be input into VALEN. The ultimate goal is to make use of the NTV rotation computations for real time feedback control of RWMs in HBT-EP.

[1] A.H. Boozer, Phys. Rev. 86, 5059 (2001)

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