

Abstract Submitted
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Broadening of Calculated EC-Driven Currents in NTM Stabilization Experiments at DIII-D¹ F. VOLPE, Max-Planck-Gesellschaft, R.W. HARVEY, A.P. SMIRNOV, CompX, R. PRATER, General Atomics — The agreement between the measured and calculated width of EC driven currents in earlier NTM stabilization experiments at DIII-D [1] was improved by simultaneously taking into account several broadening mechanisms. Doppler and relativistic broadening were evaluated by means of a new semi-relativistic formulation of the dielectric tensor recently incorporated in the GENRAY ray tracing code. Smearing of the driven currents within the magnetic island and along the deformed flux surfaces external to the island was taken into account. The radial diffusion of current across the flux surfaces was incorporated in a Fokker-Planck calculation of driven current, assuming a radial diffusion coefficient consistent with confinement. Finally, the mutual misalignment of gyrotron beams was estimated and included in the evaluation of the total current driven by multiple beams. Implications for ITER will be discussed.

[1] C.C. Petty, et al., Proc. 20th IAEA Fusion Energy Conf., Vilamoura, Portugal, 2004, paper EX/7-3.

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