Effects of nonaxisymmetric magnetic fields on tokamak equilibria with finite beta and rotation[1] FRANCOIS LOUIS WAELBROECK, LINJIN ZHENG, Inst. Fusion Studies, Univ. Texas at Austin, ILON JOSEPH, Lawrence Livermore Natl. Lab. — Resonant Magnetic Perturbations (RMP) are used in tokamaks for suppressing the edge localized modes (ELMs). In this work, we combine the AEGIS code with two-fluid resistive-layer theory to compute the plasma response to RMPs, including the particle pump-out and the accelerating torque in the edge. The AEGIS code is a linear ideal MHD code that uses an adaptive integration scheme. For the purpose of the present RMP calculation, AEGIS is functionally similar to the IPEC code but accounts additionally for the effects of plasma rotation. We use AEGIS to calculate the amplitude of the singular currents in the resonant layers, which we combine with the numerical integration of the resistive layer equations to calculate the quasilinear transport fluxes.

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