Non-axisymmetric Response Calculations Using a Non-ideal Two-fluid Model,* N.M. Ferraro, ORISE; M.S. Chu, GA; M.J. Lanctot, Columbia U.; M.S. Chance, S.C. Jardin, PPPL — The linear plasma response to externally applied non-axisymmetric fields is calculated for several DIII-D discharges. The response is computed using the initial-value, finite-element code M3D-C1. Calculations include viscosity, Spitzer resistivity, two-fluid effects, and rotation. Both the closed- and open-field line regions are included in the calculations, with the open-field line region treated as low-density, low-temperature plasma rather than a vacuum. The response is calculated both in the presence of a conducting wall and a resistive wall, with the resistive-wall response calculated by coupling M3D-C1 to the VACUUM code. Results of these calculations are compared with ideal-MHD calculations for the same discharges, as well as with experimental measurements.

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