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Plasma response and error field compensation with n=2 in DIII-D H-mode plasmas * E.J. Strait, C. Paz-Soldan, R.J. La Haye, M.J. Lanctot, *GA;* J.M. Hanson, F. Turco, *Columbia U.*; S.R. Haskey, *ANU*; J.D. King, *ORISE*; N.C. Logan, R.M. Nazikian, M. Okabayashi, J.-K. Park, B.J. Tobias, *PPPL*; R.A. Moyer, *USCD*; M. Shafer, *ORNL* – Compensation of intrinsic error fields with toroidal mode number n=2 in DIII-D is found to reduce rotation braking. Some features of the response of H-mode plasmas to n=2 magnetic perturbations are similar to previous observations with both higher and lower mode numbers. As with n=1, the amplitude of the n=2 response rises with beta, consistent with excitation of a stable n=2 kink mode. As with n=3, n=2 perturbations above a threshold amplitude produce density pumpout. An n=2 field designed to minimize coupling to the stable kink creates little or no density pumpout, indicating that the kink mode coupling is important to particle transport. On the other hand, the part of the field that does not couple to the stable kink mode seems to play an important role in rotation braking, likely through neoclassical toroidal viscosity (NTV) effects.

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