

Abstract Submitted
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Calculation of Modulated Transport Coefficients for Recovery of ECH Deposition Profiles¹ M.W. BROOKMAN, M.E. AUSTIN, C.W. HORTON, UTA, C.C. PETTY, GA — Ray tracing of ECRF power through fixed plasma profiles may significantly underestimate the ECH and ECCD deposition profile width. Density fluctuations present in tokamak plasmas modify the path of radiation on a fluctuation timescale, spreading the heating power over a wide area. Deposition is hard to measure as transport quickly spreads power, and transport effects are difficult to separate from a truly broadened profile. While the total power deposited should be unchanged in an ITER-like scenario, tearing mode suppression is sensitive to the alignment and width of the ECCD profile. A novel integral method for calculating thermal transport coefficients based on ECE measurements of T_e is presented and applied to DIII-D data. These are compared with computational predictions of broadening from the ray tracing code C3PO and distribution code LUKE [1]. This work will provide the analytical framework for measuring fluctuation broadening in a future DIII-D experiment.

[1] Y. Peysson, J. Decker, L. Morini, and S. Coda, Plasma Phys. Control. Fusion 53 124028 (2011)

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