

Abstract Submitted
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Density Fluctuation Enhancement During RMP ELM-Suppressed Discharges¹ G.R. MCKEE, R.J. FONCK, D.J. SCHLOSSBERG, M.W. SHAFER, Z. YAN, U. Wisconsin-Madison, T.E. EVANS, General Atomics, R.A. MOYER, UCSD — Fluctuation behavior changes dramatically over the radial range $0.6 < r/a < 1.0$ during ELM-suppressed phases of H-mode discharges with externally applied resonant magnetic perturbations (RMPs) on DIII-D. The 2D spatiotemporal characteristics of density fluctuations during ELM suppression are characterized with beam emission spectroscopy and exhibit a broadband structure from 80–400 kHz. The fluctuation power increases by up to one order of magnitude in the mid-core region ($0.6 < r/a < 0.8$), with more modest increases in the pedestal region. The increase in turbulence coincides with the ELM-suppressed phases, which typically start a few 100 ms after the application of a radial magnetic field. The radial and poloidal correlation lengths of the increased fluctuations are a few centimeters, typical of long-wavelength turbulence. The increased fluctuations appear to be related to observed profile changes, reduction of the line integrated density, and increased radial particle transport.

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