

Abstract Submitted
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Edge Turbulence Correlation Measurements by Phase-Contrast Imaging in DIII-D¹ S. CODA, M. PORKOLAB, Dept. of Physics and Plasma Fusion Center, M.I.T., K.H. BURRELL, General Atomics — The DIII-D Phase-Contrast Imaging system measures the line integrals of density fluctuations along 16 vertical chords at the outer edge of the plasma ($0.85 < r/a < 1.15$) with excellent radial resolution (adjustable from 0.5 to 0.04 cm). The correlation properties of the edge turbulence are being documented for a variety of heating and confinement regimes heating powers, and plasma parameters. The radial correlation functions are invariably wavelike with finite average wavelength; the inward and outward spectra are generally balanced, although net propagation in either direction is observed in some cases. Time-resolved statistical analysis reveals a rapid decrease in the radial correlation length at the transition from L- to H-mode. Preliminary comparisons with theory, using the measured values of the correlation length and decorrelation time, in conjunction with the electric-field shear determined by charge-exchange recombination spectroscopy, have corroborated the hypothesis of turbulence stabilization by $E \times B$ velocity shear. A more extensive and detailed comparison will be presented at the meeting.

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- Prefer Oral Session
 Prefer Poster Session

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