Abstract Submitted
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Internal measurement of magnetic fluctuations in runaway plateau plasmas in DIII-D[1] M. D. PANDYA, B. E. CHAPMAN, UW-Madison, J. CHEN, D. L. BROWER, UCLA, W. X. DING, USTC, N. W. EIDIETIS, GA, E. M. HOLLMANN, UCSD, A. LVOVSKIY, GA, K. J. MCCOLLAM, UW-Madison, C. PAZ-SOLDAN, GA, J. S. SARFF, UW-Madison, E. J. STRAIT, GA, R. YONEDA, UCLA — A band of low-frequency (f <20 kHz) magnetic fluctuations is measured in post-disruption runaway-electron-plateau plasmas, which at low current (˜180kA) and large edge safety factor (q ˜10) are calculated to be linearly stable to MHD. The measurements are made with the Radial Interferometer Polarimeter (RIP). Consisting of three horizontal chords, one at the equatorial midplane and the other two at z = +/- 13.5 cm, RIP measures the line integral of the equilibrium and fluctuating density and magnetic field. During the plateau, the RIP-measured magnetic fluctuation amplitude is about 25 G (delta-b/B ˜0.1%). With a vertical sweep of the plasma across the RIP chords, the magnetic fluctuation profile is found to be flat. The origin of these fluctuations is not yet known. The magnetic and density fluctuations measured by RIP have finite coherence and cross-phase, the latter of which may help identify the source of the fluctuations. MHD stability calculations for the runaway plateau have for the most part been based on equilibrium reconstructions lacking internal constraints. However, RIP is now being added as a constraint in EFIT, which could contribute to improved estimates of stability.

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