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Category Number and Subject:

Theory       Experiment

**Sawtooth Crash Modifications to Intermediate-k Turbulence and Flows on DIII-D,\*** J.C. Hillesheim, W.A. Peebles, T.L. Rhodes, L. Schmitz, T.A. Carter, P.A. Gourdain, G. Wang, *UCLA* – Initial data from the new multichannel Doppler backscattering and reflectometry diagnostic system on DIII-D are presented including results showing increased intermediate- $k$  ( $k_{\perp}\rho_s \sim 2$ ,  $k_{\perp} \sim 6-7 \text{ cm}^{-1}$ ) density fluctuations and flow velocity modifications associated with the sawtooth crash. In Ohmic plasmas at radial location  $\rho \cong 0.4$ , density fluctuation propagation velocity excursions of up to  $\sim 9 \text{ km/s}$  from an equilibrium of  $\sim 0 \text{ km/s}$  and relaxation back to equilibrium in less than  $200 \mu\text{s}$  are observed. Density fluctuation levels are observed to increase within the same period and to remain at a higher level for an additional  $200-500 \mu\text{s}$ . Details and capabilities of the new multichannel (currently 4-channel) system for simultaneous multipoint measurements with frequencies separated by  $350 \text{ MHz}$  and tunable in the range  $53-78 \text{ GHz}$  are described.

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