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Theory Experiment

Onset of a “Broadband Bursty” with Lithium Aerosol Injection in DIII-D,* Z. Yan, G.R. McKee, *U Wisc-Madison*; R. Maingi, D.K. Mansfield, D.J. Battaglia, B.A. Grierson, R. Nazikian, A.L. Roquemore, *PPPL*; G.L. Jackson, T.H. Osborne, C.P. Chrobak, J.S. deGrassie, R.J. Groebner, P.B. Snyder, *GA*; A.G. McLean, *LLNL*; DIII-D Team – A long wavelength density fluctuation with moderately broad spectral structure (40 kHz–150 kHz) was observed with 2D beam emission spectroscopy (BES) in DIII-D plasmas when lithium aerosol was injected into the scrape-off layer region. The onset of such modes happens on a very fast <10 ms time scale and seems to correlate with the pedestal expansion, increase in pedestal height and increase on energy confinement time that occur at higher lithium injection levels. The mode fluctuations seem very bursty in time. It is localized to the region $0.90 < r/a < 0.95$ with poloidal wavenumber about 0.46 rad/cm. The normalized density fluctuation amplitude peaks $\sim 8\%$ at $r/a \sim 0.92$. This mode may drive additional particle transport that could alter gradients and allow for pedestal growth by changing pedestal stability parameters.

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