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**Long-Range and Local Dynamics of Fluctuations and Particle Transport in a Large Scale Laboratory Plasma**[1] M. GILMORE, L. YAN, University of New Mexico, N.A. CROCKER, W.A. PEEBLES, University of California, Los Angeles — Experimental evidence for long-time correlations in fluctuations and turbulent flux, persisting hundreds of autocorrelation times, in the Large Plasma Device is presented. The plasma has three distinct radial regions, each of which exhibits different behavior on local as well as the long time scales. In the center, significant long-range correlation is found, but intermittency is moderate. At large radii, outside of the main plasma column, fluctuations and transport are dominated by convective avaloids, with significant long-range correlation, and high intermittency. Separating the two regions, is a layer where a sheared E×B flow exists. It is shown that long-range correlation in the central region fluctuations and flux appears to be consistent with a Kolmogorov-type turbulent spectrum, as opposed to an avalanche-driven system. Additionally, these measurements suggest that the avaloids originate at the plasma edge, and do not begin as avalanches in the column core that spill out of the plasma.

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