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Turbulence Suppression and Transport Barrier Formation in Very Slow L–H Transitions[1] R.A. MOYER, J. CUTHBERTSON, *University of California, San Diego*, E.J. DOYLE, C.L. RETTIG, T.L. RHODES, *University of California, Los Angeles*, R.J. GROEBNER, K.H. BURRELL, *General Atomics*, J.G. WATKINS, *Sandia National Laboratories*, R. MAINGI, *Oak Ridge Associated Universities*, G.D. PORTER, *Lawrence Livermore National Laboratory* — We present analysis of the turbulence response and transport barrier formation in very slow L–H transitions in DIII–D. In fast L–H transitions, the transport barrier results from turbulent transport reduction due to $E_{\rm r}$ shear-enhanced decorrelation of the turbulence. Recently, L–H transitions have been studied in which the transition progresses slowly over 20-50 ms. Fluctuation measurements by reflectometry and Langmuir probes in the far edge and SOL do not drop while the transport barrier forms. In the negative $E_{\rm r}$ well, broadband fluctuations measured by coherent scattering decrease either during or at the end of the D_α drop. Radiated power measurements indicate that an X–point MARFE forms in L–mode and is extinguished in H–mode, so that the transition involves MARFE as well as transport barrier formation physics.

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