

Abstract Submitted
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Overview of Recent DIII-D Experimental Results¹ MAX FENSTERMACHER, LLNL — Recent DIII-D experiments have added to the ITER physics basis and to physics understanding for extrapolation to future devices. ELMs were suppressed by RMPs in He plasmas consistent with ITER non-nuclear phase conditions, and in steady state hybrid plasmas. Characteristics of the EHO during both standard high torque, and low torque enhanced pedestal QH-mode with edge broadband fluctuations were measured, including edge localized density fluctuations with a microwave imaging reflectometer. The path to Super H-mode was verified at high beta with a QH-mode edge, and in plasmas with ELMs triggered by Li granules. ITER acceptable TQ mitigation was obtained with low Ne fraction Shattered Pellet Injection. Divertor ne and Te data from Thomson Scattering confirm predicted drift-driven asymmetries in electron pressure, and X-divertor heat flux reduction and detachment were characterized. The crucial mechanisms for ExB shear control of turbulence were clarified. In collaboration with EAST, high beta-p scenarios were obtained with 80% bootstrap fraction, high H-factor and stability limits, and large radius ITBs leading to low AE activity.

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