

Abstract Submitted
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Overview of recent DIII-D experimental results¹ M.E. FENSTER-MACHER, LLNL; DIII-D Team — Recent DIII-D experiments have contributed to the ITER physics basis and to physics understanding for extrapolation to future devices. Resonant Magnetic Perturbation ELM suppression was extended to lower shaping as a guide to joint experiments showing first ELM suppression in ASDEX-U. The physics model of suppression was validated in low torque ITER baseline plasmas. Toroidal variation of density gradients and turbulence was documented during RMP. Plasma rotation was predicted from measured scaling of intrinsic torque and momentum transport. Runaway electron plateau dissipation using SPI was demonstrated including new understanding of synchrotron and collisional damping effects. Good coupling of high frequency RF from a helicon antenna during H-mode was observed. Upstream pedestal density at divertor detachment decreased with increasing divertor closure. Bifurcations to detachment in H-mode with increasing density were reproduced with UEDGE including drifts. Sources, SOL transport and core accumulation of tungsten from toroidally continuous divertor target tiles were identified.

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