Abstract Submitted
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Overview of Recent DIII-D Experimental Results[1] M.E. FENSTERMACHER, LLNL, DIII-D TEAM — Recent DIII-D experiments have added to the ITER physics basis and to physics understanding for extrapolation to future devices. Experiments using RMP ELM suppressed, QH-, I- and VH-mode plasmas contribute to the physics basis for an ELM control solution in ITER. The effect of pellet ELM pacing on core plasma evolution and impurity accumulation at ITER scaled frequencies was also examined. New swing probe data validate models of inner divertor SOL plasma conditions and their role in divertor detachment. A strong anomalous RE loss mechanism is observed, and multiple massive gas injectors show dependence of disruption mitigation radiation asymmetries on injector number and location. Prompt loss of energetic beam ions has been observed with the application of 3D fields. Coupling of electron heating dominated ITER baseline and advanced tokamak (AT) plasmas with a radiative divertor for target heat flux control was examined. Experiments determined the effect of helium plasma on L-H transition power and bulk ion rotation in support of ITER non-nuclear scenarios. Increased understanding of the physics mechanisms controlling the energy transport in $q_{min} > 2$ AT plasmas to extend these regimes to higher β_N and fusion performance $G = \beta_N H_{89}/q_{95}^2$ will be presented.

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