Abstract Submitted
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Overview of Recent DIII-D Experimental Results[1] D.N. HILL, Lawrence Livermore National Laboratory, DIII-D NATIONAL TEAM — DIII-D experiments have demonstrated the effectiveness of recent upgrades in assessing key fusion science and ITER physics issues. These upgrades include: 1) the reorientation of a neutral beam to allow co-, counter-, and balanced injection, 2) the modification of the lower divertor to allow particle exhaust in high triangularity, double-null (DN) configurations, 3) modification of the current feeds for the toroidal field and 4) high-bandwidth power supplies for controlling the internal asymmetric coil set. Using these tools, experiments have demonstrated the capability to maintain near zero toroidal rotation, density control in a wide range of plasma shapes, and a reduction in both the intrinsic and corrected error fields. H-mode confinement is observed to decrease slightly as toroidal rotation decreases, yet the best cases with near-zero rotation is better than the scaled confinement needed for ITER ($H_{98y2} = 1.2$). Advanced Tokamak experiments have shown the benefit of DN operation in achieving high β, and edge localized mode suppression in the ITER shape at low collisionality using resonant magnetic perturbations was demonstrated.

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