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Overview of Recent DIII-D Results in Support of ITER,*
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Recent DIII-D experiments continue to add to a physics basis for ITER design decisions. RMP ELM control, usually done using two rows of internal coils, has been demonstrated using a single row at similar perturbation levels. Rotation and stability in the interior are sensitive to nonresonant fields driven by these coils. Confirming theory-based predictions, these fields accelerate the plasma toward an offset velocity in the direction opposite the current. Discharges duplicating most of the characteristics of each ITER operational scenario have been created, including some starting from the ITER startup scenario, transitioning into a hybrid, and ramping down without disruption. Lower internal inductance than indicated in the ITER design has been observed in all demonstration scenarios, motivating modifications to ITER's poloidal field coil system. In preparation for the initial phase of ITER, the H-mode transition, pedestal, and local transport have been studied in hydrogen plasmas. Consistent with past results in deuterium, the L-H threshold in hydrogen is reduced significantly as rotation is decreased.

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