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Progress in Demonstration of the ITER Baseline Scenario on DIII-D[1] E.J. DOYLE, UCLA, J.C. DEBOO, P. GOHIL, GA, DIII-D ITER DEMONSTRATION WG TEAM — Previous experiments to simulate ITER operating scenarios on DIII-D matched the anticipated ITER design for plasma shape, aspect ratio and value of I/aB, with size reduced by a factor of 3.7. Operating with deuterium plasmas, $H_{98y2} \geq 1$ was obtained while operating at the ITER target β_N of ∼1.8, i.e. key ITER performance targets were met. In 2010, attention changed to focus on investigating the performance of baseline scenario plasmas using H neutral beam injection into He plasmas, as proposed for use in ITER's initial non-nuclear operating phase. With H NBI, baseline scenario plasmas with an I/aB close to that for 15 MA operation on ITER, with $q_{95} \sim 3.2$ and $\beta_N \sim 1.8$ were operated. The confinement in these plasmas was substantially reduced as compared to equivalent D plasmas, requiring ∼8.6 MW versus 2.8 MW of NBI, respectively, to maintain the target β_N. Baseline scenario discharges were also successfully operated with varied levels of net torque input, using a mixture of co- and counter-NB, so as to investigate the effect of plasma rotation on confinement.

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