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Scaled Experiment of ITER Operational Scenarios on DIII-D and Extrapolation to ITER,* JM Park, M Murakami, *ORNL*, TC Luce, PA Polizer, LL Lao, PB Snyder, HE St John, GM Staebler, *GA;* EJ Doyle, *UCLA*– Scaled experiments of ITER operational scenarios on DIII-D are projected to ITER using theory-based (GLF23) modeling. Time-dependent transport simulations coupled to free-boundary equilibrium calculation reproduce successfully the time evolution of ITER similarity discharges, including stored energy and internal inductance, if the experimental edge pedestal profiles are imposed as boundary conditions. To extrapolate these results to ITER, iterative solution of core transport with MHD stability calculation of peeling-ballooning modes is employed assuming a moderate density peaking, which is consistent with DIII-D discharges and gyrokinetic calculations. Simulation of the baseline scenario shows that ITER can achieve its goal of fusion gain Q=10 with duration of burn ~400 s. ITER performance for the steady state scenario approaches the f_{NI} = 100% and Q=5 goals but shows a trade-off between f_{NI} and Q with variation in q_{95}. Sensitivities to edge pedestal and density peaking will be discussed.

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