Abstract Submitted
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Joint DIII-D/EAST Experiments Toward Steady State AT Demonstration[1] A.M. GAROFALO, O. MENEGHINI, G.M. STAEBLER, M.A. VAN ZEELAND, GA, X. GONG, S. DING, J. QIAN, Q. REN, G. XU, ASIPP, B.A. GRIERSON, W.M. SOLOMON, PPPL, C.T. HOLCOMB, LLNL — Joint DIII-D/EAST experiments on fully noninductive operation at high poloidal beta have demonstrated several attractive features of this regime for a steady-state fusion reactor. Very large bootstrap fraction (>80%) is desirable because it reduces the demands on external noninductive current drive. High bootstrap fraction with an H-mode edge results in a broad current profile and internal transport barriers (ITBs) at large minor radius, leading to high normalized energy confinement and high MHD stability limits. The ITB radius expands with higher normalized beta, further improving both stability and confinement. Electron density ITB and large Shafranov shift lead to low AE activity in the plasma core and low anomalous fast ion losses. Both the ITB and the current profile show remarkable robustness against perturbations, without external control.

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