Abstract Submitted
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Comparison of some turbulent confinement models for DIII-D, ARIES and FNSF[1] H.E. ST. JOHN, A.D. TURNBULL, M. CHOI, S.P. SMITH, L.L. LAO, R.J. BUTTERY, General Atomics — We give a detailed comparison of three of the leading turbulent confinement models applied to DIII-D and two advanced tokamak scenarios representing ARIES and FNSF. Of particular current interest is the recently installed Lehigh MMM7.1 transport module and its predictions compared to GLF23 and TGLF. A number of recent L- and H-mode DIII-D discharges are analyzed to check agreement with experiment for the three confinement models. The models can differ significantly in their predictions of tokamak confinement and, in particular, for steady state AT scenarios, the resulting rf current drive requirements can be somewhat different. For the AT cases, we show how fast wave on axis current drive together with ECH and L-H can be combined to produce favorable, negative shear q profiles that have acceptable predicted (less than about 200 kA) residual ohmic current in steady state. The sensitivity of the results to particular distinguishing features of the confinement (e.g. drift resistive ballooning, and trapped electron modes) is examined.

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