Abstract Submitted
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PTRANSP Simulations of ITER Steady-State and Hybrid Discharges A.H. KRITZ, T. RAFIQ, G. BATEMAN, A.Y. PANKIN, Lehigh U., C. KESSEL, D.C. MCCUNE, R.V. BUDNY, PPPL — ITER PTRANSP simulations, in which the temperatures, toroidal angular frequency and currents are evolved, are carried out starting with initial profiles obtained from TSC studies. Simulations are carried out using both the new Multi-Mode model and GLF23 transport models to investigate the prediction of plasma rotation and the sensitivity of fusion power production to pedestal height and impurity concentration. It is shown that the time history associated with heating and current drive sources impacts the time dependence of the evolution of the plasma rotation profile and fusion power production. Various mixes of heating (with associated current and torque drives, and fueling) and variations in the parameters associated with these source are considered in order to examine various possibilities and contingencies for ITER steady state and hybrid discharges. It is found, using the Multi-Mode model for a steady state discharge, the fusion power is 185 MW corresponding to a fusion $Q = 7.1$, and for a hybrid discharge the fusion power exceeds 400 MW corresponding to $Q = 8.6$.

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