TRANSP predictive modeling of EAST steady state plasmas[1]

R.V. BUDNY, W.M. SOLOMON, B. GRIERSON, X. YUAN, C. KESSEL, PPPL, S. DING, IPP-Hefei, CN — The EAST tokamak is starting operation with major upgrades to the heating, current drive, and diagnostic systems [1]. We use the plasma transport code TRANSP to predict performance [2] with nearly steady state non-inductive current conditions at plasma current near 500 kA and toroidal field near 2.3 T. The heating power is assumed to start with $\simeq$4 MW of beam injection and continue with $\simeq$3 MW of ICRH. Current drive of $\simeq$2 MW of LHCD is assumed. The GLF23 [3] predictive model incorporated in TRANSP is used to predict temperatures, and TGLF [4] to predict temperatures, toroidal rotation, and electron density profiles. We explore scans in parameters such as I_p, B_0, and boundary assumptions to maintain non-inductive and high performance.

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