Abstract Submitted
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Impact of different heating and current drive mixes on steady-state scenarios for ITER[1] M. MURAKAMI, J.M. PARK, ORNL, L.L. LAO, T.C. LUCE, R. PRATER, H.E. ST. JOHN, GA, P.T. BONOLI, MIT — Impact of a range of different sets of heating and current drive mixes on the ITER steady-state scenarios are examined exploiting an iterative steady state solution procedure using a new fast transport solver FASTRAN utilizing the ONETWO and EFIT codes. There is trade off between Q and f_NI,as in the I_P scan (8 – 10 MA): optimization of 8MA scenarios lead to f_NI =100% and Q $\leq$ 4.5, while optimization of 9-MA scenarios lead to f_NI =95% and Q $\leq$ 5.3 using day-1 baseline H&CD capability, These values are close, but still somewhat short in simultaneously achieving the Q = 5 and f_NI = 100%. Upgrades of ECCD (with TORAY/CQL3D for parallel momentum conservation effects) considered include the Upper Steering Mirror (USM) and Equatorial Launcher Top Steering Mirror (EL-TSM) systems for current profile control and (2) doubling the total EC power to 40 MW. Effects of different density, density peaking, q_min and transport models will also be discussed.

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