Abstract Submitted
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Predictions of H-mode performance in ITER[1] ROBERT BUDNY, PPPL — Time-dependent integrated predictions of performance metrics such as the fusion power P_{DT}, $Q_{DT} \equiv P_{DT}/P_{ext}$, and alpha profiles are presented. The PTRANSP [1] code is used, along with GLF23 to predict plasma profiles, NUBEAM for NNBI and alpha heating, TORIC for ICRH, and TORAY for ECRH. Effects of sawteeth mixing, beam steering, beam shine-through, radiation loss, ash accumulation, and toroidal rotation are included. A total heating of P_{ext}=73MW is assumed to achieve H-mode during the density and current ramp-up phase. Various mixes of NNBI, ICRH, and ECRH heating schemes are compared. After steady state conditions are achieved, P_{ext} is stepped down to lower values to explore high Q_{DT}. Physics and computation uncertainties lead to ranges in predictions for P_{DT} and Q_{DT}. Physics uncertainties include the L→H and H→L threshold powers, pedestal height, impurity and ash transport, and recycling. There are considerably more uncertainties predicting the peak value for Q_{DT} than for P_{DT}.
[1] R.V. Budny, R. Andre, G. Bateman, F. Halpern, C.E. Kessel, A. Kritz, and D. McCune, Nuclear Fusion **48** (2008) 075005.

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