Abstract Submitted
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Prediction and Optimization of the ITER Pedestal[1] P.B. SNYDER, O. MENEGHINI, General Atomics, M.N.A. BEURSKENS, IPP Greifswald, J.W. HUGHES, MIT PSFC , T.H. OSBORNE, General Atomics, H.R. WILSON, U. of York — The structure of the edge transport barrier, or pedestal, plays an important role in ITER performance, with fusion power predicted to scale roughly with the square of the pedestal pressure. Understanding the physics of the pedestal is also critical to reliably suppressing or mitigating ELMs. We present tests of the EPED model, which predicts pedestal structure based on the intersection of two calculated criticality constraints, on more than 800 cases on existing tokamaks, and assess model accuracy across a range of parameters including normalized gyroradius. The EPED model is found to predict observations significantly more accurately than existing empirical pedestal models. The model is then used both independently, and coupled to core transport predictions from TGLF and NEO, using OMFIT, to predict and optimize ITER performance, including exploring possible operation in the Super H-Mode regime.

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P.B. Snyder
General Atomics

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