Abstract Submitted
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The EPED Pedestal Model: Validation, Super H-Mode, and Core-Pedestal Coupling[1] P.B. SNYDER, E.A. BELLI, K.H. BURRELL, A. GAROFALO, R.J. GROEBNER, O. MENEGHINI, T.H. OSBORNE, GA, W.M. SOLOMON, PPPL, J.M. PARK, ORNL, J.W. HUGHES, MIT, M.N.A. BEURSKENS, CCFE, H.R. WILSON, U. of York — The EPED model predicts the H-Mode pedestal height and width by calculating non-local peeling-ballooning and kinetic ballooning mode constraints. Comparisons of EPED predictions to observations in more than 700 cases on 5 tokamaks, show agreement to a standard deviation of $\sim$ 20-25%. The effects of plasma shape, collisionality, and impurities are explored. EPED predicts the pedestal can in some cases have multiple self-consistent solutions, including a higher pressure "Super H" solution, which can be reached by controlling density evolution. Comparisons of Super H predictions to DIII-D observations, and Super H predictions for other devices will be presented. Recently, the AToM project has coupled EPED to core transport models, enabling self-consistent prediction of temperature and pressure profiles, and global stored energy, across the confined plasma. Predictions for existing devices and for ITER are discussed.

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