

Abstract Submitted
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Developing and Testing the EPED Pedestal Model¹ P.B. SNYDER, R.J. GROEBNER, A.W. LEONARD, T.H. OSBORNE, General Atomics, J.W. HUGHES, MIT-PSFC, H.R. WILSON, U. York — The EPED model has been developed to predict the pressure at the top of the tokamak edge transport barrier (or “pedestal height”), which strongly impacts fusion performance. EPED is based on two fundamental and calculable constraints, criticality to (A) peeling-ballooning and (B) kinetic ballooning modes. The constraints are calculated using MHD and gyrokinetic stability codes, leading to a model that is simple and yet first principles in the sense that nothing is fit to observations. The model is tested against observation on several devices, including dedicated experiments on DIII-D and C-Mod, and prediction and optimization of ITER are discussed.

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