

Abstract Submitted
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The calculation of the effective diamagnetic frequency using BOUT++ code¹ Y. M. WANG, ASIPP, LLNL, X. Q. XU, LLNL, P. B. SNYDER, T. H. OSBORNE, GA — The effective diamagnetic frequency of the peeling-ballooning modes is evaluated by the ideal MHD and the 2-fluid models. This effective diamagnetic frequency is used in the EPED code to predict the pedestal width and height. In the DIII-D detachment experiments, the difference of the measured pedestal height and predicted pedestal height become more significant for the higher density cases. In the higher gas puffing case, the bootstrap current is suppressed and the decrease of the pressure gradient will lead to less ion diamagnetic stabilization. A new effective diamagnetic model is needed to improve the accuracy of the pedestal parameters prediction. The effective diamagnetic frequency with different parameters is calculated by BOUT++ 3-field linear code using dbm19 equilibrium generated by TOQ code. The equilibria are generated using sets of different fraction of bootstrap current, elongation, q_{95} , pedestal width and height. A new formula of effective diamagnetic frequency with these parameters is generated by fitting the simulation results. Using the new formula, the comparison between the simulation results and the experimental measurements will be conducted.

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