Hybrid Simulations of Alpha Particle effects on the Interal Kink Mode in ITER*

J. Chen, G.Y. Fu, J. Breslau, W. Park

Princeton Plasma Physics Laboratory, Princeton, NJ

The effects of fusion alpha particles on the n=1 internal kink mode is studied by using particle/MHD hybrid simulations with the M3D code[1]. For parameters and profiles of ITER, simulations show that the n=1 internal kink is not stabilized by fusion alpha particles at the central safety value of $q(0) = 0.7$. The numerical results will be compared with simple analytic results to understand the q profile dependence of alpha particle stabilization as well as effects of finite orbit width and role of passing alpha particles.

References

[1] W. Park, E.V. Belova, G.Y. Fu, X.Z. Tang, H.R. Strauss, L.E. Sugiyama, Phys. Plasmas **6** 1796 (1999)

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