

Abstract Submitted
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M3D-C¹ simulations of the plasma response to $n = 3$ magnetic perturbations applied to the NSTX-U snowflake divertor¹ G.P. CANAL, GA/ORAU, N.M. FERRARO, PPPL, T.E. EVANS, T.H. OSBORNE, GA, J.E. MENARD, PPPL, J-W. AHN, ORNL, R. MAINGI, PPPL, A. WINGEN, ORNL, D. CIRO, USP, H. FRERICHS, O. SCHMITZ, UW Madison, V. SOUKHANOVISKII, LLNL, I. WATERS, UW Madison — Single- and two-fluid resistive magnetohydrodynamic simulations, performed with the code M3D-C¹, are used to investigate the effect of $n = 3$ magnetic perturbations on the SF divertor configuration. The calculations are based on simulated NSTX-U plasmas and the results show that additional and longer magnetic lobes are created in the null-point region of the SF configuration, compared to those in the conventional single-null. The intersection of these additional and longer lobes with the divertor plates are expected to cause more striations in the particle and heat flux target profiles. In addition, the results indicate that the size of the magnetic lobes, in both single-null and SF configurations, are more sensitive to resonant than to non-resonant magnetic perturbations. The results also suggest that lower values of current in non-axisymmetric control coils close enough to the primary x-point would be required to suppress edge localized modes in plasmas with the SF configuration.

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