

Abstract Submitted
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Peeling stability in quasi-symmetric stellarators¹ C. C. HEGNA,
University of Wisconsin - Madison, J. C. SCHMITT, Auburn University — Quasi-symmetric stellarators produce an equilibrium bootstrap current in the presence of finite pressure gradients. As such, current driven MHD stability properties need to be addressed for this class of optimized stellarators. The criterion for peeling stability is derived for general three-dimensional magnetohydrodynamic equilibria. For the quasi-symmetric class of stellarators, the stability properties of the peeling drive are determined by the sign of the rotational transform gradient and the direction of the equilibrium current. For scenarios with rational surfaces located just outside the last closed flux surface, generally quasi-helically symmetric stellarators are destabilizing to peeling modes in the presence of bootstrap current, whereas quasi-axisymmetric configurations are stable against peeling drive.

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