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Modeling Peeling-ballooning Stability in 3D Pedestals Using PB3D TYLER COTE, C. C. HEGNA, University of Wisconsin - Madison, M. WILLENSDORFER, G. SUAREZ LOPEZ, Max-Planck-Institute for Plasma Physics, R. S. WILCOX, Oak Ridge National Laboratory, C. PAS-SOLDAN, General Atomics, T. WEYENS, The Mathworks, Inc. — Local 3D magnetic geometry can impact the stability of localized MHD ballooning instabilities in the presence of 3d magnetic perturbations. To better understand the changes in MHD stability due to 3d geometry, it is necessary to describe the stability properties of intermediate wavelength global peeling-ballooning modes in 3d pedestals. In this work, we provide an overview for a new tool being developed for studying these peeling-ballooning modes in 3d: pb3d. We make connections between 3d peeling-ballooning theory, infinite-n ballooning theory, and local 3d magnetic geometry to predict the 3d stability behavior of the peeling-ballooning modes. Finally, preliminary results are presented making use of experimentally-derived VMEC equilibria for both ASDEX upgrade and DIII-d. Work supported in part by the US DOE under contracts DE-86ER53218, DE-AC05-00OR22725, and DE-FC02-04ER54698.

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