Abstract Submitted
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Ballooning Stability Of Tokamak Pedestals In The Presence Of Applied 3D Magnetic Perturbations[1] T B COTE, C C HEGNA, University of Wisconsin-Madison, M WILLENSDORFER, E STRUMBERGER, W SUTTROP, H ZOHM, Max-Planck-Institut fur Plasmaphysik — Applied 3d magnetic perturbations can destabilize ideal mhd ballooning modes in tokamak pedestals [1]. In this work, we describe techniques for studying infinite-n ballooning stability of 3d equilibria deduced from vmec calculations. Full magnetic profiles from vmec are used to construct local equilibria for flux surfaces in and around the edge pedestal region. These local equilibrium calculations are coupled with ideal ballooning stability analysis to determine stability of the system for given rmp configurations. This theoretical development is motivated by recent asdex-u experiments, where toroidally localized high-n mhd activity is observed in the presence of applied 3d fields. We will attempt to explain these observations. [1] T M Bird and C C Hegna 2013 Nucl. Fusion 013004

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