VALEN modeling of RWM with Rotation JAMES BIALEK, ALAN
BOOZER, Columbia University — The VALEN RWM active control modeling code
has been extended to include the effects of mode rotation. Single mode theory pre-
dicts that rotation of an unstable plasma mode near a conducting wall lowers the
growth rate of the instability and rotation above a critical value will lead to passive
stabilization (ref#1). This expected stabilization threshold has been observed in the
VALEN model. VALEN can model the 3-D passive stabilizing structure surrounding
the plasma. When the passive structure is not axisymmetric the mode is found to
lock at small values of the mode torque parameter. Examples of these results are
presented for ITER (with and without blanket modules), DIII-D and HBT-EP.

Ref#1 A.H.Boozer, Pop 1999

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