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Stabilization of z-pinch m=0 instabilities by axial sheared flows[1] IOANA PARASCHIV, BRUNO S. BAUER, VLADIMIR I. SOTNIKOV, VOLODYMYR MAKHIN, University of Nevada Reno — The growth and saturation of the m=0 magnetohydrodynamic (MHD) instability is numerically studied in a cylindrical diffuse Bennett equilibrium in the presence of sheared plasma flows with the aid of a 2D MHD code (MHRDR). Using Fourier analysis the amplitude of different axial modes is followed from the linear to the nonlinear regime. It is found that the linear growth rates and the nonlinear saturation level of the m=0 modes decrease substantially with increasing velocity shear. Two different profiles for the axial velocity are used, one parabolic and one linear in radius. It is shown that the linear profile, which has a constant shear, is much more efficient in stabilizing the m=0 modes.

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