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Cylindrical Effects on Magneto-Rayleigh-Taylor Instability[1]
MATTHEW WEIS, YUE YING LAU, RONALD GILGENBACH, University of Michigan, CHRISTOPHER JENNINGS, MARK HESS, Sandia National Laboratories — This paper concentrates on the effects of cylindrical geometry on the magneto-Rayleigh-Taylor instability (MRT), a major concern in the magnetized liner inertial fusion concept (MagLIF) [1]. Several issues are being studied, such as the Bell-Plesset effect [2], the effects of magnetic shear and feedthrough [3], and the nonzero MRT growth rate that remains (but was hardly noticed) in the k = m = 0 limit in Harris' seminal paper on a cylindrical liner [4], where k and m are respectively the azimuthal and axial wavenumber. We shall use simulation and direct integration of the eigenvalue equation to investigate the importance of the cylindrical geometry, which is particularly relevant in the final stage of compression in the MagLIF concept.

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