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Magneto Rayleigh-Taylor instability growth in magnetically driven cylindrical liners[1] DAVID YAGER-ELORRIAGA, DANIEL RUIZ, Sandia National Laboratories, RYAN MCBRIDE, University of Michigan, PATRICK KNAPP, MATTHEW GOMEZ, THOMAS AWE, ROGER VESEY, DANIEL SINARS, Sandia National Laboratories — The magneto Rayleigh-Taylor (MRT) instability grows in magnetically-driven inertial confinement fusion systems and can limit attainable fuel pressures and fusion yields. Here we analyze MRT in cylindrical liners imploded on the Z Machine at Sandia National Laboratories for a wide range of targets and machine configurations. We show that different trends in the MRT amplitude can be understood using the acceleration history applied to linear and non-linear theories for traditional Rayleigh-Taylor instability growth. The acceleration history is determined using a thin-shell implosion model, which allows us to relate the instability amplitude to driver and target properties, including the peak current, risetime and the initial target radius and aspect ratio.

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