Abstract Submitted
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The evolution of the instabilities during magnetically driven cylindrical liner implosions[1] STEPHEN SLUTZ, Sandia National Labs, DANIEL SINARS, RYAN MCBRIDE, ROGER VESEYS, MARK HERRMANN, MICHAEL CUNEO, Sandia National Labs — Numerical simulations [S.A. Slutz et al Phys. Plasmas 17, 056303 (2010)] indicate that fuel magnetization and preheat could enable cylindrical liner implosions to become an efficient means to generate fusion conditions. A series of simulations has been performed to study the stability of magnetically driven liner implosions. These simulations exhibit the initial growth and saturation of an electro-thermal instability. The Rayleigh-Taylor instability further amplifies the resultant density perturbations developing a spectrum of modes initially peaked at short wavelengths. With time the spectrum of modes evolves towards longer wavelengths developing an inverse cascade. The effects of mode coupling, the radial dependence of the magnetic pressure, and the initial surface roughness will be discussed.

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