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Gorgon simulations of Magnetized Liner Inertial Fusion[1] JONATHAN ROELTGEN, Saint Joseph's University, CHRISTOPHER JENNINGS, ADAM SEFKOW, STEPHEN SLUTZ, Sandia National Laboratories — Substantial fusion yields are predicted with pulsed power machines driving cylindrical liner implosions with preheated and magnetized deuterium-tritium [S.A. Slutz et al Phys. Plasmas 17, 056303 (2010)]. The Rayleigh-Taylor instability is the most likely mechanism that could degrade the fusion yield of this concept which we call Magnetized Liner Inertial Fusion (MagLIF). Gorgon is a 3D magnetohydrodynamics code that is well suited to simulating the effects of 3D Magneto-Rayleigh-Taylor instabilities. It has successfully simulated wire array z-pinches in 3D. We plan to use Gorgon to simulate the MagLIF concept in 3D, but first we are performing 1D simulations to test the essential physics necessary to simulate the MagLIF concept, for example bremsstrahlung losses from the fuel and the inhibition of transport by the magnetic field. We will present 1D Gorgon results of optimized MagLIF yields as a function of drive current.

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Stephen Slutz
Sandia National Laboratories

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