Abstract Submitted
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Computational exploration of the spatiotemporal effects of laser interaction with x-pinches.[1] JAMES YOUNG, University of Rochester, GILLISS DYER, SLAC National Accelerator Laboratory, MATTHEW EVANS, University of Rochester, SIEGFRIED GLENZER, ERIC GALTIER, SLAC National Accelerator Laboratory, HANNAH HASSON, University of Rochester, HAE JA LEE, BOB NAGLER, SLAC National Accelerator Laboratory, ROMAN SHAPOVALOV, IMANI WEST-ABDALLAH, PIERRE GOURDAIN, University of Rochester — We seek to explore the spatial and temporal effects of laser interaction with x-pinches. It has been established that hot spot formation occurs following a neck-cascading process. The eventual hot spot is formed in the region of highest compression (minimum neck diameter). Due to the uncertainty in the cascading phenomena, the exact hot spot location and timing is difficult to predict. Simulations will explore the laser/pinch interaction by varying the timing and power deposition of the laser. This study is motivated by trying to understand x-pinch physics on much shorter time scales, with a precision only made possible by XFEL such as LCLS. The simulations will show how the MEC lasers can control the location and timing of the x-ray burst. The XMHD simulation (PERSEUS) statistically explores the generation of a hot spot by a laser triggered instability using the current profile of a 250kA LTD system (LASSIE).

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