

Abstract Submitted
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Improvements to the FLASH code for Simulating HEDP Experiments¹ MILAD FATENEJAD, JOHN BACHAN, SEAN COUCH, CHRIS DALEY, ANSHU DUBEY, NORBERT FLOCKE, CARLO GRAZIANI, DON LAMB, DONGWOOK LEE, ANTHONY SCOPATZ, PETROS TZEFERACOS, KLAUS WEIDE, University of Chicago — FLASH is an open source, compressible spatially adaptive radiation magnetohydrodynamics code that incorporates capabilities for a broad range of physical processes, performs well on a wide range of existing advanced computer architectures, and has a broad user base. Capabilities have been incorporated into the FLASH code to enable simulations of laser-driven HEDP experiments. We summarize recent improvements to the HEDP capabilities of the FLASH code and present results from several collaborations that use FLASH to simulate HEDP experiments. The ray trace that package models laser energy deposition has been substantially improved. Methods have been added for smoothing laser deposition and a “3D-in-2D” ray trace has been added for improved accuracy in 2D cylindrical simulations. Numerous improvements have been made to the FLASH MHD solver, including support for 2D cylindrical geometry and magnetic resistivity. Post-processing scripts have been generated that enables the SPECT3D simulated diagnostic software to operate on FLASH output. The results of several verification tests will also be presented.

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