Abstract Submitted
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Improvements to the High Energy Density Physics Capabilities in FLASH[1] SHRAVAN KUMAR, J. BACHAN, S. COUCH, C. DALEY, A. DUBEY, M. FATENEJAD, N. FLOCKE, C. GRAZIANI, D.Q. LAMB, D. LEE, K. WEIDE, Flash Center for Computational Science, U. Chicago — FLASH is a modular and extensible compressible spatially adaptive radiation-hydrodynamics 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. We have been adding capabilities to FLASH to make it an open science code for the academic HEDP community. We summarize the improvements we have made to the HEDP capabilities of FLASH during the past year. A semi-implicit multi-group flux-limited diffusion solver has been implemented. A JFNK-based implicit hydrodynamic solver has been developed that relaxes stability constraints, leading to larger time steps. Numerous improvements have been made to the multi-material equation of state in FLASH and the laser ray-trace package. Finally, the results of several verification tests involving radiative/non-radiative shocks will also be presented.

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