Abstract Submitted
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Theory and Experiment on Radiative Shocks R. PAUL DRAKE, AMY B. REIGHARD, University of Michigan — The current generation of high-energy-density research facilities has enabled the beginnings of experimental studies of radiation hydrodynamic systems, common in astrophysics but difficult to produce in the laboratory. Radiative shock experiments specifically have been a topic of increasing effort in recent years. Our group and collaborators [1] have emphasized the radiographic observation of structure in radiative shocks. These shocks have been produced on the Omega laser by driving a Be piston through Xenon at velocities above 100 km/s. The talk will summarize these experiments and their results. Interpreting these and other experiments is hampered by the limited range of assumptions used in published theories, and by the limitations in readily available simulation tools. This has motivated an examination of radiative shock theory [2]. The talk will summarize the key issues and present results for specific cases.
[1] Gail Glendinning, Ted Perry, Bruce Remington, Jim Knauer, Tom Boehly, and other members of the NLUF Experimental Astrophysics Team. Publications: Reighard *et al., Phys. Rev. Lett.* submitted; Leibrandt, *et al., Ap J.*, in press, Reighard *et al.*, IFSA 03 Proceedings, Amer. Nucl. Soc. (2004).
[2] Useful discussions with Dmitri Ryutov and Serge Bouquet.
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