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Instabilities and Structure Evolution in Radiative Shocks F.W. DOSS, R.P. DRAKE, A.J. VISCO, C.C. KURANZ, M.J. GROSSKOPF, University of Michigan, A.B. REIGHARD, Lawrence Livermore National Laboratory, J. KNAUER, Laboratory for Laser Energetics — Radiative shocks, systems in which radiation transport across the shock front contributes substantially to the properties and dynamics of the shock, occur frequently in astrophysical systems, motivating our high-energy-density experiments. Recent laser-driven experiments have produced collapsed shocks by launching 10-20 μm drive disks of Be into shock tubes of Xe gas at atmospheric pressure. This method produces strongly radiative shocks at well over 100 km/sec. Experiments using x-ray pinhole radiography of collapsed radiative shocks have revealed evidence of structure evolution, perhaps through instability mechanisms. Recent experiments provided simultaneous normal and oblique data. Theoretical work related to structure growth will also be reported. This research was sponsored by the NNSA through DOE Research Grants DE-FG52-07NA28058, DE-FG52-04NA0064, and the NNSA Stewardship Science Graduate Fellowship.

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