

Abstract Submitted
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Reverse Radiative Shock Experiments Relevant to Accreting Stream-Disk Impact in Interacting Binaries CHRISTINE KRAULAND, R. PAUL DRAKE, CAROLYN KURANZ, CHANNING HUNTINGTON, MICHAEL GROSSKOPF, DONNA MARION, RACHEL YOUNG, University of Michigan, TOMEK PLEWA, Florida State University — In many Cataclysmic Binary systems, mass onto an accretion disk produces a “hot spot” where the infalling flow obliquely strikes the rotating accretion disk. It has been argued (Armitage & Livio, ApJ 493, 898) that the shocked region may be optically thin, thick, or intermediate, which has the potential to significantly alter its structure and emissions. We report the first experimental attempt to produce colliding flows that create a radiative reverse shock. The experiment will have occurred at the Omega-60 laser facility in August 2010. Obtaining a radiative reverse shock in the laboratory requires producing a sufficiently fast flow (>100 km/s) within a material whose opacity is large enough to produce energetically significant emission from experimentally achievable layers. We will discuss the experimental design, the available data, and our astrophysical context. Funded by the NNSA-DS and SC-OFES Joint Prog. in High-Energy-Density Lab. Plasmas, by the Nat. Laser User Facility Prog. in NNSA-DS and by the Predictive Sci. Acad. Alliances Prog. in NNSA-ASC, under grant numbers are DE-FG52-09NA29548, DE-FG52-09NA29034, and DE-FC52-08NA28616.

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