

Abstract Submitted
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Laboratory Astrophysics: effects on radiative shock of lateral radiative losses. MICHEL BUSQUET, Observatoire de Paris & ARTEP, INC., EDOUARD AUDIT, CEA/DSM, CHANTAL STEHLE, Observatoire de Paris, MATTHIAS GONZALEZ, FREDERIC THAIS, CEA/DSM, BEDRICH RUS, Institute of Physics, PALS Center, OUALI ACEF, PATRICE BARROSO, Observatoire de Paris, ABRAHAM BAR-SHALOM, ARTEP, inc, DANIEL BAUDUIN, Observatoire de Paris, MICHAELA KOZLOVA, Institute of Physics, PALS Center, THIBAUT LERY, DIAS, Dublin, ALI MADOURI, CNRS/LPN, TOMAS MOCEK, JIRI POLAN, Institute of Physics, PALS Center — Radiative shock waves are observed around astronomical objects in a wide variety of environments, for example they herald the birth of stars and sometimes their death. They can also be created in the laboratory using energetic lasers, with control on the experimental conditions. We show here the first experiment on radiative shock performed at the PALS laser facility with a Xenon filled cell. It is also the first time that the slow-down of the radiative precursor is clearly seen in an experiment. During the first 40 ns of the experiment, we have traced the radiative precursor velocity, which shows a strong decrease at that stage. Three-dimensional numerical simulations, including state of art opacities, indicate that the slowing down of the precursor is consistent with a radiative loss induced by a reflection coefficient of about 40 % at the walls of the cell. *We would like to thank Hamamatsu, LASERLAB and JETSET for their support in doing the experiment at PALS.

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