

Abstract Submitted
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The influence of radiation on shocks structure in laboratory astrophysics MATTHIAS GONZALEZ, Instituto de Fusion Nuclear, Universidad Politecnica de Madrid, Madrid, Spain, EDOUARD AUDIT, CEA Saclay DSM/IRFU/SAp, Gif-sur-Yvette, France, CHANTAL STEHLE, MICHEL BUSQUET, OBSPM/LERMA, Meudon, France — Radiative shocks are found in various astrophysical situations such as stellar accretion. Studying such shocks, their topology and thermodynamical properties is the starting point to understand their physical properties. This study is now possible with the recent development of large laser facilities which has therefore given a strong impulse to laboratory astrophysics. We present the main characteristics of radiative shocks obtained in such installations thanks to results obtained in experiments and with our multi-dimensional radiation-hydrodynamics code HERACLES. We focus our discussion on the importance of multi-dimensional radiative transfer effects on the shock topology and dynamics. In particular, the importance of the ratio between the photon mean free path and the transverse extension of the shock, the possibility to achieve the stationary limit in the laboratory and the angular distribution of the radiative flux which emerge at the walls of the tube are discussed.

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