

Abstract Submitted  
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**Radiative ablation with two ionizing-fronts when opacity displays a sharp absorption edge** OLIVIER POUJADE, MAX BONNEFILLE, MARC VANDENBOOMGAERDE, CEA DAM DIF — The interaction of a strong flux of photons with matter through an ionizing-front (I-front) is an ubiquitous phenomenon in the context of astrophysics (and inertial confinement fusion) where intense sources of radiation put matter into motion. When the opacity of the irradiated material varies continuously in the radiation spectral domain, only one single I-front is formed. In contrast, as numerical simulations tend to show, when the opacity of the irradiated material presents a sharp edge (around an electronic binding energy of the material) in the radiation spectral domain, a second I-front (an edge-front) can form. A full description of the mechanism behind the formation of this edge-front will be presented. This double ionizing front might have consequences in various domains of astrophysics where ablatively-driven flows play a significant role, such as star formation, acceleration of interstellar clouds, formation of Stromgren sphere in gaseous nebulae and supernovae remnant.

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