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Drop fragmentation due to hole nucleation during Leidenfrost impact CHRISTOPHE PIRAT, ANNE-LAURE BIANCE, CHRISTOPHE YBERT, LPMCN, Université Lyon 1 et CNRS — Drop impact on a smooth plate heated above the Leidenfrost temperature is investigated in the range of large Weber number. Liquid fragmentation due to the rupture of the expanding lamella during the impact is studied experimentally. This rupture can be triggered by the presence of a small defect on the surface, which acts as a nucleation site for the hole formation, whereas the liquid does not contact the substrate. The rupture is shown to take place above a critical impact velocity, the lower when the defect size is the larger. This mechanism of rupture is compared to classical splash. It is shown to be relevant if the drop size R_0 and the size of the defect d are below a critical ratio $R_0/d \leq 40$.

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