

Abstract Submitted
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Droplet impact on falling liquid films¹ OMAR MATAR, ZHIZHAO CHE, IVAN ZADRAZIL, GEOFFREY HEWITT, CHRISTOS MARKIDES, Imperial College London — Droplet impact is a ubiquitous phenomenon in nature, and has a wide range of applications; these include inkjet printing, spray painting, and surface cleaning. In this study, we examine the impact of droplets on falling liquid films, which is an event that occurs in various two-phase flows, such as annular flows and spray cooling. High-speed photography is used to visualise droplet impact, and associated phenomena, on a uniform falling liquid film, which is created on a flat substrate with controllable thickness and flow speed. Different phenomena are observed and analysed for droplet impact at different impact speeds, angles, and film thicknesses and flow speeds. The results of the present work are part of a programme to elucidate the complex dynamics of multiphase flows and to develop validated numerical tools for accurate predictions.

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