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Oblique drop impact onto a deep liquid pool MARISE V. GIELEN, PASCAL SLEUTEL, Physics of Fluids group, Faculty of Science and Technology, University of Twente, The Netherlands, JOS BENSCHOP, MICHEL RIEPEN, VICTORIA VORONINA, ASML The Netherlands B.V., The Netherlands, DETLEF LOHSE, JACCO H. SNOEIJER, MICHEL VERSLUIS, HANNEKE GELDERBLOM, Physics of Fluids group, Faculty of Science and Technology, University of Twente, The Netherlands — While perpendicular drop impact onto a deep liquid pool is widely studied, the dynamics after oblique drop impact remain to be quantified. Here we study, for the first time, oblique drop impact experiments onto a deep liquid pool using ultrafast imaging. We quantify the splashing behavior and derive a model to describe the splashing threshold based on the impact angle and Weber number of the impacting drop. In addition, we study the cavity formation below the water surface and quantify the cavity depth and displacement. Based on the asymmetric cavity dynamics, we develop a method to predict the direction in which a jetted droplet can escape the cavity.

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