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High-speed jet formation after solid object impact STEPHAN GEKLE, Physics of Fluids, University of Twente, The Netherlands, JOSÉ MANUEL GORDILLO, Area de Mecanica de Fluidos, Universidad de Sevilla, Spain, DEVARAJ VAN DER MEER, DETLEF LOHSE, Physics of Fluids, University of Twente, The Netherlands — A circular disc impacting on a water surface creates a remarkably vigorous jet. Here we study this phenomenon in a controlled way by pulling the disc through the free surface at constant speed. An axisymmetric air-filled cavity is formed which eventually pinches off in a single point. Immediately after cavity closure the pinch-off location turns into a stagnation point and the flow pattern changes from radial sink flow into hyperbolic flow. The stagnation point deflects the incoming liquid leading to the formation of two fast sharp-pointed jets shooting up- and downwards from the closure point. We study the jet characteristics as a function of both impact velocity and disc radius.

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