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Jet dynamics after cavity collapse JOSE MANUEL GORDILLO, ESI, Universidad de Sevilla, STEPHAN GEKLE, DEVARAJ VAN DER MEER, DETLEF LOHSE, Physics of Fluids, University of Twente — It has been recently shown -Gekle, Gordillo, van der Meer and Lohse, *Phys. Rev. Lett.*, 2008 (submitted)- that the liquid velocity field after cavity collapse can be analytically described as a superposition of a discontinuous line of sinks plus a concentrated point sink. This theory is able to quantitatively predict the axial and radial positions of the base of the high speed jets ejected. Nevertheless, the flow field within the fast sharp pointed jets shooting up and downwards cannot be predicted using this simplified description. Instead, we will show that downstream of a small region with a size of the order of the jet base, in which the liquid is accelerated upwards, liquid velocity and jet shape can be described by a simple unidirectional model in remarkable agreement with simulations. Up to first order, fluid particles conserve their velocities but we also show that, no matter how large the local Weber number at pinch-off is, capillarity ends up playing a role in the breakup of the ejected liquid jets.

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