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Super free fall for a container composed of diverging flat plates A. MEDINA, A. TORRES, S. PERALTA, SEPI ESIME-Unidad Azcapotzalco IPN, P.D. WEIDMAN, University of Colorado at Boulder — We have analyzed experimentally and theoretically the characteristics of the upper free surface of a liquid column released from rest in a vertical container whose cross-section opens slowly in the downward direction. In distinction with the work of Villermaux and Pomeau (2010) for a conical container, we consider a container composed of slightly inclined flat surfaces. At small times for which viscous effects can be neglected, the free surface moves downward with an acceleration larger than gravity. The existence of a nipple centered on the upper free surface with amplitude an increasing function of time is observed. A one-dimensional model of the initial acceleration for flat, slightly expanding walls reproduces the observed super free fall experiments fairly well. Details of the nipple development will be presented.

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