CICLO DE SEMINARIOS 2012

SMAT-C Soft Matter Research and Technology Center

"Recoil of a liquid filament: escape of the pinching through vortex ring inception"

Dr. Jérôme Hoepffner

Université Pierre et Marie Curie, Francia

A liquid filament recoils by the effect of its surface tension. It may recoil to one sphere: the geometrical shape with lowest surface, or otherwise segment to several pieces which individually will recoil to spheres. This experiment is classical and its exploration is fundamental to understanding how liquid volumes relax. In this paper, we uncover a mechanism involving the creation of a vortex rings which plays a central role in escaping the segmentation.

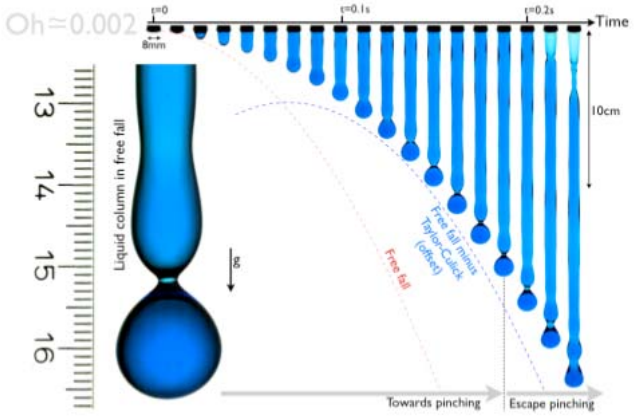

FIGURE 1. Display of the phenomenon of escape. A column of liquid is let free from a vertical straw. Its tip recoil and builds a neck which shrinks apparently toward end-pinching. Unexpectedly, the neck reopens and a new capillary wave is sent upon the liquid cylinder. See the supplementary material for a movie of this experiment.

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Sala de Conferencias, Tercer Piso, Departamento de Física
Universidad de Santiago de Chile

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