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Bubble pinch-off in a stagnant liquid pool at high Reynolds numbers ROCÍO BOLAÑOS-JIMÉNEZ, MARCO RIVETTI, ALEJANDRO SEVILLA, CARLOS MARTÍNEZ-BAZÁN, JOSÉ MANUEL GORDILLO, Universidad de Jaén — We present a theoretical, numerical and experimental study of the *symmetric* pinch-off which takes place when a bubble is grown from a nozzle placed at the bottom of a stagnant pool of liquid. Our experiments show that the initial stages of bubble pinch-off are driven not only by surface tension, but also the by the liquid hydrostatic pressure. Moreover, we obtain a simple scaling law for the global collapse time which is shown to be consistent with the experimental results. Boundary integral numerical simulations are also shown to be in excellent agreement with the experiments. In addition, we discuss the dynamics of the final stages previous to pinch-off, providing with a simple model, based on the *local slenderness* around the neck, which is shown to closely reproduce the time evolution of both the minimum radius and the local axial curvature once surface tension and viscous effects are self-consistently incorporated. This is confirmed by experiments performed with water as well as with different silicone oils. Finally, the dynamics of azimuthal perturbations around the zeroth-order collapse solution is addressed.

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