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Capillary pinching in a pinched micro-channel OLIVIER AMYOT, IMFT UMR 5502, FRANCK PLOURABOUÉ, CNRS UMR 5502, GEMP TEAM — We study experimentally the capillary pinching of a gas bubble by a wetting liquid inside a pinched channel. We show how this capillary pinching is geometrically controlled by the channel shape. The capillary pinching induces a very reproducible bubbling, at a very well-defined frequency. The dynamic exhibits two distinct regimes : a long-time elongation of the air bubble and a rapid relaxation of the interface after the interface break-up. The slow regime depends on the imposed flux and on the channel geometry. The rapid deformation dynamical regime very weakly depends on the boundary conditions. Scaling arguments are proposed in the context of the lubrication approximation to describe both regimes.

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