

Abstract Submitted
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Bubble deformations in corrugated microchannels at large capillary numbers¹ THOMAS CUBAUD, MARTIN SAUZADE, Stony Brook University — Multiphase flows in confined microgeometries display a variety of intriguing dynamics. Here, we experimentally examine trains of monodisperse gas bubbles of different sizes and concentrations passing through a series of extensions and constrictions from low to large capillary numbers. Using highly viscous carrier fluids, we show in particular that bubbles strongly deform in velocity fields set with the channel geometry. We measure the instantaneous front and rear velocities of periodically distorted capillary surfaces and develop functional relationships for predicting the morphology of multiphase flow patterns at the pore scale.

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