

Abstract Submitted
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Folding of capillary threads in microfluidic networks¹ THOMAS CUBAUD, SAMIRA DARVISHI, Stony Brook University — We examine the evolution of the folding instability of lubricated viscous threads in straight microchannels. Folds having a uniform wavelength can be produced using a diverging microchannel connected to three channels in parallel. This design allows for the detailed experimental study of the influence of viscosity contrast, interfacial properties, and flow rates on the structure of miscible and immiscible micro-threads. In particular, we focus on the spatial damping of the amplitude of sinuous capillary threads due to interfacial tension effects. This study shows methods for the interfacial control of high-viscosity fluids in microfluidic systems.

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