

Abstract Submitted  
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**Cusps and spouts in microfluidic systems** AURÉLIEN DUBOIN, Laboratoire de Microfluidique, MEMS et Nanostructure UMR Gulliver CNRS-ESPCI 7083, 10 rue Vauquelin 75005 Paris, France, FLORENT MALLOGGI, Laboratoire Interdisciplinaire sur l'Organisation Nanométrique et Supramoléculaire, CEA Saclay, 91191 Gif sur Yvette Cedex, France, FABRICE MONTI, PATRICK TABELING, Laboratoire de Microfluidique, MEMS et Nanostructure UMR Gulliver CNRS-ESPCI 7083, 10 rue Vauquelin 75005 Paris, France — By injecting mineral oil (inner phase) and polymer solutions (outer phase), in a microfluidic flow focusing geometry, we observed the formation of cusps. These cusps undergo a transition from a steady state, to a thin cylindrical spout (oil in polymer). These oil spouts, do not touch the walls, and are surprisingly stable (they do not break into droplets). We study the nature of the cusp-spout transition, and find it is of first order. By taking advantage of the stability of the jet, we expect to synthesize micro-wires with this approach.

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