

Abstract Submitted  
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**Swirl Flow-Focusing: a new way for the generation of Microbubbles** MIGUEL A. HERRADA, JOSE M. LOPEZ-HERRERA, ALFONSO M. GANAN-CALVO, ESI, Universidad de Sevilla — A volume of fluid (VOF) numerical method is used to predict the dynamics of bubble formation in an axisymmetric flow-focusing microfluidic device. Our numerical results for several gas-liquid configurations show that in all cases analyzed, the introduction of co-axial swirl in the focusing liquid fosters the stabilization of the gas-liquid meniscus promoting tapered geometries. Consequently, the use of swirl leads to a dramatic reduction of the size of the bubbles generated by the flow focusing device. Preliminary experiments support our numerical findings.

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