Abstract Submitted
for the DFD10 Meeting of
The American Physical Society

Singular jets in the formation of bubbles in viscous fluids THOMAS SEON, VIRGINIE DUCLAUX, ARNAUD ANTKOWIAK, CNRS & UPMC Univ Paris 06, Institut Jean Le Rond d'Alembert, Paris, France — We study experimentally the process of formation of large bubbles in viscous fluids. Whereas at low flow rates, the produced individual bubbles quickly recover a quasi-spherical shape, collective behaviors between bubbles are identified as the feeding gas flow rate is increased. These interactions may lead to the surprising gobbling of a bubble by another, resulting in large sized bubbles with inner viscous shells. At even higher feeding rates, a violent Worthington jet following bubble pinch-off appears. This jet is so intense and concentrated that perforation of the bubble may occur. We analyze the whole phenomenology of the large interface deformations associated with bubble formation in viscous fluids with detailed experiments conducted with high-speed video imaging.

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Date submitted: 23 Jul 2010 Electronic form version 1.4