

Abstract Submitted  
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**A deeper analysis of the partial coalescence of a droplet onto a planar interface** TRISTAN GILET, NICOLAS VANDEWALLE, STEPHANE DORBOLO, ULg, GRASP TEAM — The partial coalescence of a droplet onto a planar liquid/liquid interface is investigated theoretically by using a dimensional analysis. Three dimensionless parameters seem to play an important part: the Bond number, and the Ohnesorge numbers in both fluids. The impact of these parameters is assessed by the way of an experimental work on 2000 coalescence events. Global quantities such as the available surface energy has been measured. According to the experimental results, the viscosity does not dissipate energy in the same way in both fluids. The different dissipation mechanisms are discussed. Simple theoretical models are able to predict when partial coalescence has to occur. Finally, the maximum number of steps in the cascade is investigated. It seems that the biggest number of successive partial coalescences is about eleven. Possible applications of the partial coalescence in microfluidics are discussed.

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