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Equilibrium shapes of pendant monodisperse microbubbles suspension droplets JUAN MANUEL FERNANDEZ, FRANCISCO CAMPO-CORTES, Universidad de Sevilla — The formation and stability of pendant droplets are a great value for both fundamental and engineering applications. In their pioneering work, Bashforth and Adams obtained the profile of a pendant pure liquid droplet by integrating the Young-Laplace equation. Since then, the stable and unstable conditions that govern the equilibrium of a pendant liquid droplet are well characterized. Here, we study the formation of droplets containing inside a suspension of monodisperse microbubbles. In this study, we present the different morphologies of these pendant multiphase droplets from the tip of a capillary tube of radius R for different average densities of the suspension droplet, defined as $\rho_a = \rho_g\alpha_g + \rho_l\alpha_l$ where α_g and α_l are respectively the gas and liquid volume fractions. Experimental droplet profiles are compared with the theoretical predictions obtained by integrating the Young-Laplace equation. For low gas volume gas fraction (high liquid volume fraction), the suspension droplet shape (and consequently its maximum critical volume for stable equilibrium) is defined by the average Bond number, $\rho_a gR^2/\sigma$. However, for dense suspensions, $\alpha_g > 0.7$, the presence of microbubbles greatly changes the mode of drop formation.

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