

Bubble growth in supersaturated liquids

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The opening of a carbonated beverage, which is immediately followed by the formation of bubbles, is perhaps the best known example of gas exsolution from a supersaturated liquid. In this situation, the dominating mechanism of bubble growth is the diffusion of gas, spurred by the thermodynamically-unstable condition of supersaturation. Although the necessary conditions for bubbles to form as well as the nucleation mechanisms have been extensively studied, much less attention has been given to the experimental study of the bubble's growth (especially when only a finite amount of dissolved gas is available). This phenomenon is of great importance, for example, in oil extraction, where the growth of bubbles -confined to small pores- can have significant effects on production rates. In this context, we have designed and built an experimental setup to study the diffusive growth of bubbles in a supersaturated liquid. This poster shows the setup and the first measurements performed in it.