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Direct Numerical Simulations of Bubble Break-up in Turbulence[1]

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— We present direct numerical simulations of bubble break-up in a three-dimensional homogeneous and isotropic turbulent flow. We consider the effect of the turbulent Reynolds number and the bubble Weber number on the break-up dynamics, the number of child bubble created together with their size and the break-up frequency. An ensemble of simulation is done in order to study these quantities statistically. For Weber number slightly above the critical value number, we retrieve binary break-up with two child bubble of similar size, while for large Weber number, we observe more complex break-up patterns with successive break-up events and the formation of a large number of much smaller bubbles.

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