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**Analysis of the statistics of droplet sizes in atomization.**[1] STEPHANE ZALESKI, d'Alembert, Sorbonne Universite and CNRS, YUE LING, Department of Mechanical Engineering, Baylor University, DANIEL FUSTER, d'Alembert, Sorbonne Universite and CNRS, GRETAR TRYGGVASON, Department of Mechanical Engineering, Johns Hopkins University — From CPU-intensive simulations of quasi planar coflowing liquid and gas jets at high velocity, we obtain dynamics remarkably similar to experiments. Simulations are performed using the VOF method and the Paris simulator code. Four grids of increasing resolution are used. The distribution of droplet sizes is observed and shown to correspond to a log-normal distribution. The effect of statistical error and finite grid size is analyzed. It is shown that there are good indication of convergence of the probability distribution function upon grid refinement. The manned of convergence is analyzed. It is shown that PDFs obtained by VOF methods and by level set methods converge differently. The numerical mechanism for this difference is hypothesized. The *physical* mechanisms for the generation of this probability distribution function are also discussed. The dependence of these distributions on the grid resolution is a key point of future analyses.

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