

Drop formation in inkjet printing

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Droplets with a well-controlled size and speed are required in many industrial and medical applications. In this work we study droplet formation from a piëzo inkjet print head by using single flash photography with a 100 nanosecond inter delay. The acquired recordings are used to calculate the flow rate and velocity development inside the droplet. The result could then be compared with a 1 dimensional model based on the lubrication approximation. In the model the equations are translated into a second order accurate scheme where the pinch-off singularity is prevented by adding a finite regularisation film. The comparison between experiments and numerical calculations show whether the relevant physics of the drop formation are understood.