

SURFACTANTS AND JETTING BEHAVIOUR IN INKJET PRINTING

E. Antonopoulou¹, O. G. Harlen², M. A. Walkley² and N. Kapur³

¹EPSRC Centre for Doctoral Training in Fluid Dynamics, University of Leeds, Leeds, UK

²Department of Applied Mathematics, University of Leeds, Leeds, UK

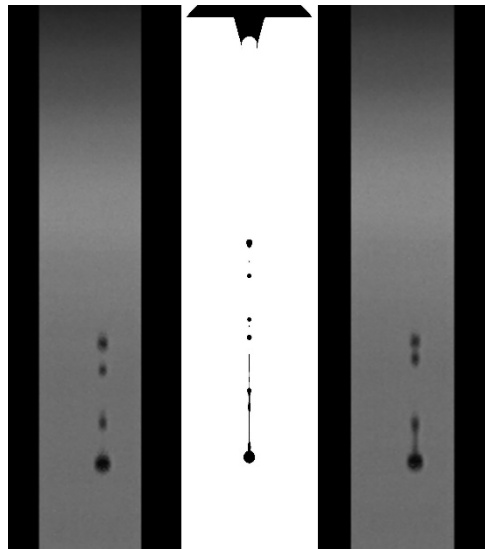
³School of Computing, University of Leeds, Leeds, UK

⁴School of Mechanical Engineering, University of Leeds, Leeds, UK

scea@leeds.ac.uk

A key challenge in developing new applications of inkjet technology is to produce inks that can be jetted to form individual droplets and to transport functional components needed for the application. The development of mathematical models that allow fluid jetting behaviour to be determined as a function of fluid properties would allow optimisation to be carried out in-silico before creating the inks and verifying the performance.

Surfactants are often added to aqueous inks in order to modify the surface tension. However, the rapid expansion of the free surface during the fast jetting process means local areas of the surface will be depleted of surfactants leading to surface tension gradients, the effects of which on ink behaviour in jetting are unknown..



In this work, experimental studies of the jetting behaviour with and without the addition of surfactants are presented.

In parallel we are developing a finite element based numerical simulation of inkjet break-up and drop formation in the presence of surfactants.

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