SYMMETRY SPLITTING OF IMPACTING DROPLETS ON PARTLY WETTING SURFACES.

M. A. J. Broom[1], G. R. Willmott[1,2]

[1]The Department of Physics and The MacDiarmid Institute for Advanced Materials and Nanotechnology, The University of Auckland, New Zealand; [2] School of Chemical Sciences, The University of Auckland, New Zealand

Email of presenting author m.broom@auckland.ac.nz

Impact of liquid droplets on hard surfaces is of importance in many industrial and natural processes. Although water repellence induced by surface patterning is understood in static systems, its influence in dynamic systems is less obvious. Of interest in this study is the quantitative understanding of droplet shape dependence on surface patterning, which has previously been approached qualitatively.[1]

This presentation advances on previous work[2] with the aim to explain the emergence of fingers in the outer spreading rim in relation to the impact region shape (Fig 1). Impact region shape and size is described as a function of the impact energetics and the microstructure design.

Also of interest in this study are the details of flow present during the early stages of droplet impact on microstructures. Using high speed, high magnification imaging a qualitative description of flow through the microstructure is presented.

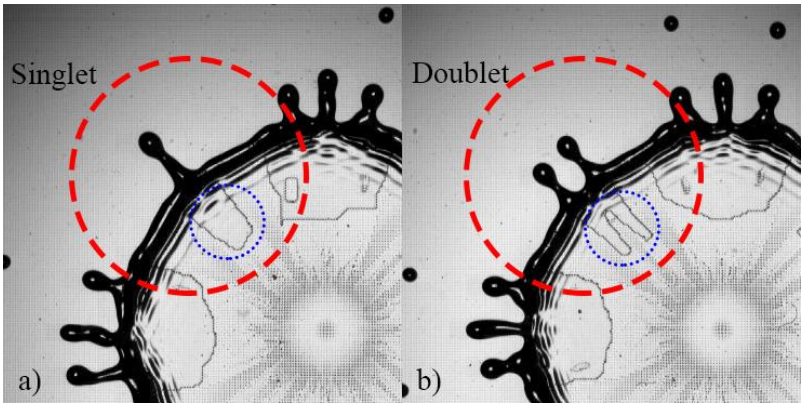

Fig 1: Droplet outcomes on microstructured surfaces consisting of 20µm square pillars with 60µm pitch and 15.8µm height, producing a) a singlet off axis finger, b) a doublet off axis finger.

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