## Abstract Submitted for the DFD19 Meeting of The American Physical Society

Delayed coalescence of drops at moving liquid/liquid interfaces<sup>1</sup> WEHELIYE HASHI WEHELIYE, TENG DONG, ThAMeS Multiphase, Department of Chemical Engineering, University College London, WC1E 6BT, FEI WANG, Beijing Institute of Space Long March Vehicle, No1. Nandahongmen Road, Fengtai District, Beijing, 100076, China, PANAGIOTA ANGELI<sup>2</sup>, ThAMeS Multiphase, Department of Chemical Engineering, University College London, WC1E 6BT — In this work, the delayed coalescence of drops with moving interfaces between two immiscible liquids were experimentally investigated. The aqueous phase was 78% Glycerol/water solution and the organic phase was Exxsol D80 oil. It was found that the coalescence was delayed when the interface moved and the delay time increased with the speed of the interface. The delay was attributed to the lubrication pressure in the film trapped between the drop surface and the bulk interface. Particle Image Velocimetry (PIV) was used to study the velocity fields while the structure of the thin trapped film was investigated with the Planar Laser Induce Fluorescence (PLIF) technique. The film was found to form a dimple symmetrical to the centerline when the interfaces had low velocity, while the dimple was less obvious when the interface velocity increased. Numerical simulations were carried out to investigate the profile of the lubrication pressure along the film of varying thickness.

 $^1\mathrm{EPSRC}$  MEMPHIS Grant; Chinese Scholarship Council (CSC)

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Date submitted: 01 Aug 2019 Electronic form version 1.4