

Abstract Submitted  
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**Coalescence of surfactant-laden drops in liquids**<sup>1</sup> EMILIA NOWAK, MARK SIMMONS, University of Birmingham — Whilst coalescence of droplets in air is much studied, the mechanism of merging surfactant-laden drops in other liquids is less well understood. The dynamics of the coalescence of droplets in presence of surfactants was investigated focusing on the curvature and progression of the width of the neck that bridges the drops (up to millimetres) as well as the mixing patterns and surface flows driven by Marangoni stresses. Coalescence of different composition droplets revealed difference in the curvature of the meniscus on either side of the growing bridge which was more pronounced for the lower viscosities of the surrounding oils and related to the different local values of the surface tension. With the aid of a dye present in one of the drops, the visualisation of bulk flow was possible and different patterns were observed with increasing viscosity of the surrounding oil that led to formation of mushroom-like structures inside the droplets.

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Omar Matar  
Imperial College London

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