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Effect of Surfactants on Drop Coalescence at Liquid/liquid Interfaces[1] WEHELIYE HASHII WEHELIYE, TENG DONG, PANAGIOTA ANGELI[2], Univ Coll London — In this paper the coalescence of a drop with a liquid-liquid interface was investigated experimentally using Particle Image Velocimetry (PIV). Initially the drop rest on the interface was studied. It was found that during drop rest the interface deformed before rupture, and the deformation increased with increasing surfactant concentration. The results from PIV showed that two counter-rotating vortices formed inside the droplet during the rupture process which moved from the bottom to the top of the drop. The evolutions of vortices for three surfactant concentrations will be presented. The vortices moved faster in lower surfactant concentrations compared to the higher ones. The intensities of the vortices in different concentrations were also calculated. After the rupture, for low surfactant concentrations, the intensities increased with time and reached a maximum while at later times they decreased. At high surfactant concentrations, the increase and subsequent decrease in intensity was not as pronounced.

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