THE FORMATION DYNAMICS OF COMPOSITE DROPLETS AND JANUS PARTICLES

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In this work, we study the interaction dynamics of two droplets of immiscible fluids suspended in the continuous liquid medium by means of numerical simulation. Two configurations of such a system are investigated: (1) the complete engulfing of one phase by another one giving a composite droplet and (2) the partial engulfing resulting in the Janus particles. The attention is focused on studying the engulfing dynamics and formation of Janus particles as functions of relative sizes, viscosities and interfacial tensions of the predator and prey droplets. The peculiarities of the engulfing dynamics at rest and shear flow are discussed.