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Diffuse-interface modeling of three-phase interactions PATRICK ANDERSON, Eindhoven Univ of Technology, JANG MIN PARK, School of Mechanical Engineering, Yeungnam University, 38541 Gyeongsan, Republic of Korea — In this work, a numerical model is developed to study the three-phase interactions which take place when two immiscible drops suspended in a third immiscible liquid are brought together. The diffuse-interface model coupled with the hydrodynamic equations are solved by a standard finite element method. Partial and complete engulfing between two immiscible drops are studied, and the effects of several parameters are discussed. In the partial-engulfing case, two stages of wetting and pulling are identified, which qualitatively agrees with experiment. In the complete-engulfing case, three stages of wetting and/or penetration, pulling and spreading are identified.

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