

Effect of interparticle interactions and wettability of colloidal particles on fluid interface attachment

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Pickering emulsion is an emulsion stabilized by solid particles, and is relatively eco-friendly and economical compared to the case of using molecular surfactants, such that it is actively applied for various fields such as biosensing, drug delivery, and wastewater treatment. In order to control the physical properties of Pickering emulsion, investigation on understanding the mechanism by which solid particles are irreversibly adsorbed to the interface should be preceded. Previously, we quantitatively studied the interfacial adsorption probability according to the shape of individual particles and the electrolyte concentration. In this case, however, when the individual particles approach the interface, many factors involved in the actual Pickering emulsion production were excluded, such as the influence of the interactions between the particles already present at the interface or the effect of convection caused by the use of a spreading solvent. The current work measures the interfacial adsorption probability depending on the interparticle interactions and wettability of colloidal particles at a bulk scale.