Selective localization of particles by the capillary force-driven network structure in the suspension

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We suggest a method to selectively localize particles in the suspensions. Localization of particles to a specific position is somewhat complicated in general. We exploit a concept of capillary suspension to facilitate this more easily. The capillary suspension makes use of capillary forces which are generated by adding a small amount of immiscible fluid to a suspension. Those additional liquids form liquid bridges between particles and connect them building a network structure. Recently, we tried to add smaller particles which can be building blocks of network structure and figured out that not only the distribution of major particles but also additional particles could be controlled by this network structure. We developed a strategy to control and improve mechanical properties using particle localization method and showed enhancement of adhesion properties and conductivity of slurries.