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Two-dimensional hopping of aqueous colloidal clusters on commensurate surface wells. MINSU KIM, Physics, UIUC, STEPHEN ANTHONY, Chemistry, UIUC, STEVE GRANICK, Material Science and Engineering, UIUC — Hopping of colloidal clusters in various shapes and sizes that are mainly confined within commensurate surface wells except for diffusing between them by Brownian motion is studied. The mobility of clusters decreases nonmonotonically with increasing cluster size. The mobility proceeds, depending on cluster shape, by different jumping mechanisms such as zigzagging or translation without rotation; this produces nonmonotonic changes of mobility when, at fixed cluster size, cluster shape varies. Unlike atomic clusters that change configuration and dissociate easily, these colloidal clusters are very stable and each type of jump can be identified separately. Hopping rate, diffusion and different jumping mechanisms that are associated with them will be discussed for various sizes and shapes of clusters.

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