Two-dimensional hopping of aqueous colloidal clusters on com-
mensurate 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 Brown-
ian motion is studied. The mobility of clusters decreases nonmonotonically with
increasing cluster size. The mobility proceeds, depending on cluster shape, by dif-
f erent 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.