

Assembly of flexible colloidal cluster using depletion interaction of anisotropic colloids

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Assembly of micro-scale units has been interested not only for physical study but for various applications such as photonic band gap material, diffraction gratings or biosensors. Various fabrication methods have been tried, however so far, it is not easy to achieve mass production of colloidal cluster. Especially, colloidal cluster with structural flexibility has in a scale of visible range provides great opportunity for understanding of inter-particle interaction of colloidal clusters.

Depletion interaction is inter-particle interaction of colloids in polymer-concentrated solution which motivates self-assembly of colloidal particles. In this study, we fabricated flexible colloidal clusters using depletion interaction between anisotropic colloids particle and simple sphere particle with guided self-assembly and electric field. we suggest a method for fabrication of flexible colloidal cluster with great productivity.