

Preparation of Self-assembled Structure of Monodisperse Particles in Droplets as a Confined Geometry

조영상, 문준혁, 양승만*
한국과학기술원
(smyang@kaist.ac.kr*)

Self-assembled structure of monodisperse colloidal particles can be used for various applications such as photonic and chemical sensing materials. Despite unique optical properties of colloidal crystal films or their inverted structures, fabrication of spherical structure of colloidal crystal can be more advantageous for novel applications such as photonic inks or electronic papers. In association with this application, emulsion or aerosol droplets containing monodisperse building block particles have been used as confined geometry for the preparation of spherical colloidal crystal by shear rupturing or electrospraying method. In this study, large amount of micron-sized aerosol droplets were generated by nebulizer or vibrating aerosol generator. Aerosol droplets were used as confined geometry for the fabrication of self-assembled structure of uniform silica particles. Monodisperse micro-spheres were assembled into spherical colloidal aggregates by evaporation-induced self-assembly inside droplets.