

Photocurable Pickering Emulsions and Buckling Phenomena

김신현^{1,2}, 허철준^{1,2}, 이기라^{3,4}, Howard A. Stone⁵, 양승만^{1,2,*}

¹한국과학기술원 생명화학공학과; ²광자유체집적소자연구단;

³한국기초과학지원연구원 서울센터; ⁴나노바이오시스템연구팀; ⁵Harvard University

Division of Engineering and Applied Sciences

(smyang@kaist.ac.kr*)

Colloidal spheres adsorbed at liquid-liquid interface can form two dimensional (2D) ordered structures by self-organization as they form 3D colloidal crystals in bulk phase. Recent interest in 2D sphere packing at a spherical interface stems from its relevance to drug delivery, spherical crystallography and materials science. However, sphere packings in 2D arrangement at liquid-liquid interface have not been fully understood relative to 3D sphere packings.

Herein, we examined the structural behavior and mobility of Bancroft-type emulsions, which were stabilized by small colloidal particles adsorbed from continuous phase, and developed a simple method for fabricating polymeric particles with complex surface morphologies using a particle-stabilized photo-curable emulsion in aqueous medium. Especially, raspberry-like or golf ball-like particles were produced with controlled surface morphologies by changing colloidal surface chemistry.