

Colloid and Interface Science ~Mysterious World Generated from Particles and Interface~



Sakai's research aims to develop the methodologies for fabrication of the colloidal materials (e.g., metal nanoparticles, porous materials, emulsions, bubbles and foam) and organization colloidal materials into multi-dimensional (1D, 2D and 3D) structures in solutions and/or at interfaces in an efficient manner with respect to cost, energy and environment. In particular, amphiphilic characters (dual natures) of molecules or polymers are essential elements for designing the methodologies.

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In the Future



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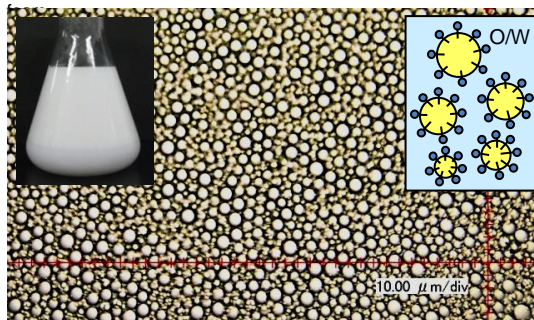
Colloidal materials and their organization on substrate are strongly required for recent device fabrication because of the device miniaturization. Furthermore, the improvement of device performance is required for the convenience of our daily life. The Sakai's research group attempts to develop "high-purity colloidal materials" because they are expected to exhibit higher performance.

After Graduation

Technological processes such as papermaking, pottery making and the fabrication of soaps, cosmetics and medicines involve manipulation of colloidal systems. Colloid and interface science provides various opportunities in the industries such as catalyst, electronics, toiletry and medical fields.



Preparation and characterization of colloidal materials such as metal nanoparticles, porous materials, emulsions, bubbles and



Optical micrograph of oil-in-water (O/W) emulsion..Emulsions are used in various fields such as cosmetic, food and medical field.

Nano-architecture and application based on colloid and interface science

