

Liquid marbles stabilized with polymer particles

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Over the past decade or so, there has been increasing interest in the adsorption of colloidal particles at the air/water, oil/water and solid/water interfaces. This emerging field has led to new concepts and materials in soft dispersed systems such as “colloidosomes”, “armored bubbles”, “dry water” and “liquid marbles”, with potential applications being suggested in microencapsulation and biotechnology. The soft dispersed systems stabilized with inorganic particles (*e.g.* silica, alumina and graphene) have been mainly studied for a long time, and recently those stabilized with organic particles, including synthetic polymer particles, start to gain interest [1-4].

Here, I will give a talk on our research related to liquid marbles (dry liquids) [4] that are stabilized by polymer particles. The polymer particles have been demonstrated to be particularly attractive as the stabilizer for the soft dispersed systems, because they can be readily designed with specific surface chemistries using various functional monomers and by post surface modifications. Successful particle synthesis would inspire the construction of well-defined and functionalized particle-stabilized liquid marble systems. In this talk, liquid marbles (water-in-air dispersed system) stabilized solely with polymer particles will be presented in detail. The stabilities, microstructures and movements of these dispersed systems can be controlled by external stimuli: liquid marbles can be disrupted and/or move on demand.

References

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