

Stress-free production and effective medium model of colloidal crystals

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Supplementary Information

The silica spheres film deposited on a glass substrate shows all the colors of the visible spectrum depending on the angle of view. The crystal lattice of spheres causes opalescent colors due to Bragg diffraction of visible light. In general, these dried colloidal crystals are called artificial opals. The reflection of light shifts as expected, changing the angle of the incident light. This phenomenon proves the order of the spheres and the optical quality of the film.

Figure shows the glass plates coated with a LB film of a monolayer transferred in the upstroke mode at the selected pressure of 5 mNm^{-1} . It shows the angular dependence of the reflection wavelength in Langmuir-Blodgett films of silica spheres. The angular dependence of the reflection wavelength is an important parameter to determine the packing quality of the colloidal crystal. The homogeneous optical appearance of the films imply that involve the substrate is uniformly covered with beads.

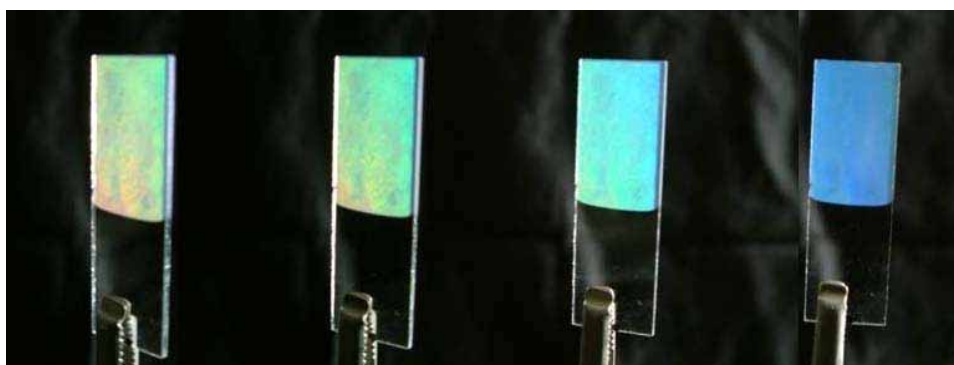


Figure Range of colour seen under different angles of a glass plate coated with a Langmuir-Blodgett film of silica spheres.