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Title: Optimizing the Concentration of Colloidal Suspensions in Convective Assembly of Centimeter-Sized Uniform Monolayer Colloidal Crystals

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- It is shown that the concentration of the colloidal suspension has a significant role in the assembly of a uniform centimeter-sized Monolayer Colloidal Crystal (MCC).
- The optimized range of the concentrations for fabricating MCCs made of polystyrene (PS) microspheres with the diameter of 508 nm is obtained.
- Having used the gravity assisted convective assembly method, it has been shown that not only the size of the MCC but also its uniformity and quality is highly dependent on the concentration of the colloidal suspension.
- Different methods have been used to analyze the samples such as taking the transmission spectra, optical microscopy imaging, scanning electron microscopy (SEM) imaging, and studying the diffraction patterns of the samples
- It is deduced that the optimized range of the concentration is from 1.7 wt % to 1.85 wt %.

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