

## **Poster 9**

### ***Surface Non-Uniformity Length Scales in Drying Latex Films***

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Surface non-uniformities in drying latex films have been widely reported in the literature in the past few years. Surface morphology studies using instruments such as atomic force microscopy reveal non-uniformities in film thickness. These non-uniformities are detrimental to their application as paints and adhesives. In this work, linear stability analysis is used to predict the length scales relating to these non-uniformities, in surfactant containing latex films. Film height, particle volume fraction, and surface surfactant concentration evolution equations define the system. The base solution, which is taken as uniform drying away from the film edge, is perturbed infinitesimally, and the growth rate of the perturbation is followed. Imposing the stability criterion gives an approximation to the wave number, and hence the length scale of surface non-uniformity. The analysis gives the length scale as a function of drying parameters such as drying rate, initial particle volume fraction, and surface surfactant concentration. The study reveals the effect of these parameters on the sizes of the surface non-uniformities seen at the end of drying.