

Abstract Submitted
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Towards a computational modeling of structure formation in colloidal drying ALEXANDER WAGNER, North Dakota State University — We present lattice Boltzmann models at different scales for the simulation of colloidal drying in the presence of polymers and structure formation in resulting phase-separation fronts. When a drop of colloid polymer mixture is exposed to an environment in which the solvent in which these particles are suspended evaporates an accumulation of non-volatile material at the rim of the drop is observed (coffee ring effect). When the solvent concentration is reduced beyond a certain threshold, the colloid polymer mixture undergoes phase separation. The structures formed by this phase-separation is observed to depend on the processing conditions. In this presentation we will briefly present the experimental observations and our numerical approach to address the observed phenomena.

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