

# **Lattice Boltzmann simulations of complex fluids for printing and coating applications**

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The lattice Boltzmann method has evolved towards a powerful simulation method for fluid dynamics problems. Its main advantages with respect to simulations of processes relevant for coating applications are the ease of treating multiphase and multicomponent flows, suspended objects such as colloidal particles, and flows in complex geometries. Furthermore, the inherent parallelism of the method allows the simulations of macroscale systems with microscale resolution on state-of-the-art supercomputing facilities. In this presentation I will give an overview on recent applications involving the formation of complex fluids as a model for inks, flow in porous media as a model system for paper or other coating substrates, and simulations of deposition, coalescence and evaporation of droplets on chemically and geometrically patterned substrates.