

(Contact line motions of polymeric fluids)

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Studies on a contact line motion are important in many industrial processes such as inkjet printing, screen printing, slot coating and so on. As inks in printing processes are complex fluids containing particles and/or viscoelastic additives, we need to consider the elasticity of complex fluids in the contact line motion. In this study, we consider the contact line motion of polymer solutions and polymer melts theoretically and experimentally. The results reveal that the polymeric fluids show faster contact line speeds than Newtonian fluids and both the migration of polymer molecules from the wall in polymer solutions and/or the first normal stress difference strongly affect the contact line motion. The present result can be used in the derivation of the boundary condition for solving free surface flows of viscoelastic fluids on solid surfaces.