

Drop impact and dynamic wetting with complex fluids

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The impact of a liquid drop on a solid surface is a fascinating phenomenon we frequently observe in everyday life. Despite its apparent simplicity, drop impact conceals some nontrivial and challenging physics. The interest in understanding drop impact phenomena is also practical, because they play a major role in the optimization of several applications, such as additive manufacturing and spray applications, which are ubiquitous in industrial as well as in domestic processes, from painting or cleaning surfaces to injecting fuel into internal combustion engines.

This lecture reviews some recent (and some not-so-recent) results about the impact and dynamic wetting of complex fluids drops on homo-thermal and heated surfaces, with focus on viscoelastic fluids (dilute polymer solutions) and viscoplastic (or yield-stress) fluids.