# PREFACE: DROP EVAPORATION, SPREADING, AND STABILITY

Droplet evaporation is a phenomenon commonly encountered in nature or in industrial applications with cooling, combustion, printing and coating technologies, DNA mapping, etc. The classical physics problem of a spherical droplet of pure liquids or some simple binary mixtures evaporating in an ambient atmosphere has been studied for a long time and it is by now relatively well understood. However, when an evaporating drop consists of a multicomponent mixture or a more complex liquid, the problem is still in need of a solution. The same holds when the drop is in contact with a surface, since the loss of spherical symmetry and the appearance of a triple line significantly increase the complexity of the problem, leading to a number of questions regarding additional factors influencing drop evaporation. The main properties that have begun to be addressed are the composition of binary mixtures or of suspensions, the concentration of polymer solutions, the wettability and the thermal properties of the surface, and surface patterns. These investigations have already allowed for some significant progress, but many questions remain unanswered. From Young's early work on contact angles, via Picknett and Bexon's work on evaporating sessile drops, to Deegan's more recent study of the coffee ring formation, there is still much interest in the behavior of droplets.

This special issue of *Interfacial Phenomena and Heat Transfer* contains selected papers submitted on the topic of drop evaporation, focusing on spreading and stability. The call for this special issue was initially to gather papers dealing with pure and complex liquids and then to extend knowledge beyond the coffee ring effect by bringing together researchers from various disciplines with a common interest in droplets.

Height papers are presented in this special issue and cover a wide range of topics. Experimental, theoretical, and numerical approaches are proposed; complex fluids droplet or multicomponent droplet evaporation studies are presented, such as analysis at the triple line scale.

Guest Editors:

*David Brutin*
Aix-Marseille University,
Marseille, France

*David J. Fairhurst*
Nottingham Trent University,
School of Science and Technology,
Nottingham, United Kingdom

*Elmar Bonaccurso*
Center of Smart Interfaces,
Technische Universität Darmstadt,
Darmstadt, Germany

*Ying Sun*
Department of Mechanical Engineering and Mechanics
Drexel University,
Philadelphia, PA, USA

2169–2785/13/$35.00 