Abstract Submitted
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Is humidity a key factor in controlling the wetting and evaporation of a binary sessile drop?[1] SENTHIL KUMAR PARIMALANATHAN, SAM DEHAECK, ALEXEY REDNIKOV, PIERRE COLINET, Universit Libre de Bruxelles — Studies on the wetting phenomenon are of vital importance for industrial applications such as coating, lithography, and so on. Most of the fundamental aspects for these applications have been formulated through observing a sessile drop spreading on a substrate. It is of great interest to study the wetting characteristic in case of a drop with binary composition, especially the cocktails of alcohol [e.g., Iso-Propanol (IPA)] and water. It has been observed experimentally that in these cases, the ambient relative humidity (RH) and the initial drop composition seems to play a very important role in the wetting dynamics. On varying the composition of IPA/water mixture and RH, with the help of optical interferometry, the droplet spreading behavior has been studied. For better understanding, an analytical model has been developed to characterize the dependence of these parameters on wetting behavior. The model has been conveniently used to generate so-called a map of regime (MOR) diagram which clearly demarcates the different wetting zones depending on the relative evaporation (or adsorption/absorption) of water in the drop.

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