

Abstract Submitted
for the DFD19 Meeting of
The American Physical Society

Evaporation of ethanol-water sessile droplet on an inclined substrate at an elevated temperature SAYAK BANERJEE, SARAVANAN BALUSAMY, PALLAVI KATRE, PRADEEP GURRALA, KIRTI SAHU, Indian Institute of Technology Hyderabad, India, PHASE CHANGE IITH COLLABORATION — We experimentally investigated the evaporation dynamics of water-ethanol binary droplets of various molar compositions on an inclined heated substrate. The substrate temperature and inclination angle are varied and the droplet behaviour are observed using a combined optical and thermal imaging techniques in a custom-made goniometer-IR camera set-up. The triple line behaviour, the contact angle and the wetting diameter evolution of the droplet, as well as thermo-solutal Marangoni wave dynamics are studied. Theoretical modelling of evaporation rates for binary-droplets on heated inclined substrates has been performed and compared against the experimental results.

Kirti Sahu
Indian Institute of Technology Hyderabad, India

Date submitted: 27 Jul 2019

Electronic form version 1.4