

Abstract Submitted
for the DFD17 Meeting of
The American Physical Society

Effect of interference of capillary length on evaporation at meniscus SHU SOMA, TOMOAKI KUNUGI, TAKEHIKO YOKOMINE, ZENSAKU KAWARA, Kyoto Univ — In this study, the experimental results on the evaporation characteristics of meniscus in various geometrical configurations which enable to vary a perimeter of liquid-vapor interface and a meniscus curvature were obtained, and the main factor in evaporation process was clarified. As the experimental conditions, the perimeter was adjusted from 1mm to 100mm order, and the curvature from the inverse of capillary length, $\kappa(\sim 0.4\text{mm}^{-1})$, to about 10mm^{-1} . Measuring devices for evaporation rate, which consisted of a test section on an electric balance, was set to a reduced pressure environment for making the purified water in the test section evaporate. There is no heater in the test section and system was set to be isolated from outside environment. It was found that the evaporation rate and flux could be organized by the perimeter if the curvature is constant at κ . On the other hand, when the curvature is larger than κ , it was found that the curvature is the dominant factor in the evaporation process. It can be considered that an interference of capillary length is a key to understand these results.

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Date submitted: 20 Jul 2017

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