TUAT Fluid Dynamics Seminar

Hydrothermal waves on evaporating sessile drops

Lecturer: Assistant Professor Dr. **Yutaku Kita**

Department of Mechanical Engineering and the International Institute for Carbon-Neutral Energy Research (WPI-I²CENR), Kyushu University

Abstract

Drops and their evaporation are not only ubiquitous in nature but also relevant to many industrial applications e.g. material processing, patterning, DNA chip manufacturing and thermal management. Although it looks like a simple system at a glance, drop evaporation results from the complex interplay between heat and mass transfer and fluid dynamics. In my talk, I shall introduce our thermographic visualisation of evaporating drops (organic solvents or water) in various situations (environment, heating), revealing a few of them. The following topics will be covered: spontaneous thermocapillary hydrothermal waves on ethanol drops, the effect of secondary component present in the atmosphere *i.e.* ethanol drops evaporating in humid air, a way to *actively* control mixing in pure water drops.

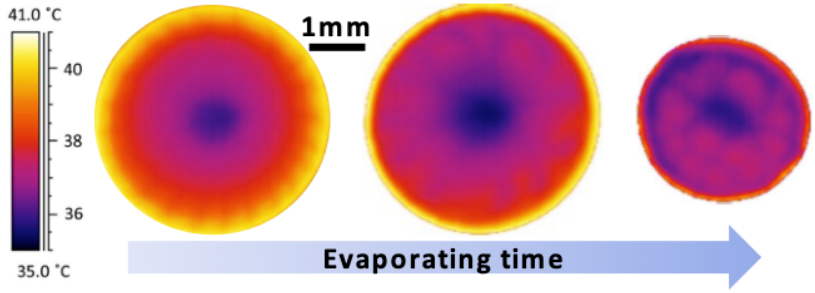

Figure: Evolution of thermal patterns on an evaporating ethanol drop (top-view).

Date : Thursday, January 16th, 2020

Place: Building 6 - Room 501

Time : 13:30 - 14:30

organized by: Assoc. Prof. Y. Tagawa (tagawayo@cc.tuat.ac.jp)