

**DEPARTMENT OF MECHANICAL ENGINEERING****SEMINAR****Online**

Title: Solutal Marangoni flow and its applications

Speaker: Dr. Hyungsoo Kim
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Date: 21 January, 2021 (Thursday)

Time: 3:00 p.m. (Hong Kong Time)

Zoom meeting: 1) Link to join the meeting:

<https://hku.zoom.us/j/96333749597?pwd=VWhKaUUzZ2ZSR0x0M05rL3Z3b2VWZz09>

2) Meeting ID: 963 3374 9597

3) Password: 576748

Abstract:

Marangoni phenomenon was first identified in the so-called "tears of wine" by physicist James Thomson in 1855. Since his observation, it has been extensively discussed and applied to a myriad of applications including material migration, mixing, coating and cleaning. In this talk, using the solutal Marangoni effects inspired by wine, we control a flow pattern and enhance mixing efficiency in a sessile droplet without using any active external device. For a model problem, we use vapors of alcohol liquid to generate the surface tension gradient of the droplet surface. We investigate experimentally and theoretically how the vapor-driven solutal Marangoni flow inside a sessile droplet are created. The idea is also

extended to the uniform coating application for the key element of a display. We believe that the solutal Marangoni effect can impact on various microfluidics applications.

Biography:

- **Bachelor degree (2006), Kumoh National Institute of Technology (South Korea)**
- **Master degree (2008), KAIST (South Korea)**
- **PhD degree (2013), TU Delft (NL)**
- **Postdoc (2013-2016), Howard Stone group in Princeton University (USA)**
- **Assistant professor (2017-present), Mechanical Engineering, KAIST (South Korea)**

ALL INTERESTED ARE WELCOME

For further information, please contact Prof. A. Shum at 3917 7904.

Research area: Thermofluids