



# TUAT Fluid Dynamics Seminar

## Effects of flexibility and entanglement of sodium hyaluronate in solutions on the elastic instability in micro abrupt contraction-expansion channels



Lecturer: 日出間 るり 准教授

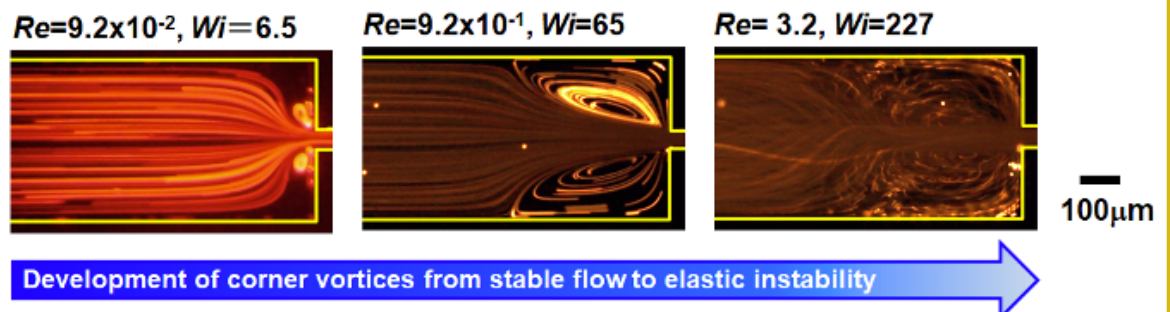
Associate Professor **Ruri Hidema**

神戸大学大学院工学研究科 応用化学専攻

Department of Chemical Science and Engineering, Kobe University

### Abstract

Fluids containing a small amount of polymer induce complex flow behavior, that is, hierarchical flow characteristics affected by a length scale. Elastic instability in a microfluidic device is one of an interesting phenomenon of complex fluids. In this seminar, I will introduce the observation of sodium hyaluronate (Hyaluronic Acid Sodium salt, Na-HA) solution in planar abrupt contraction-expansion microchannels to discuss the effects of polymer flexibility and entanglement on elastic instability. As the rigidity of Na-HA depends on the ionic strength of a solvent, Na-HA was dissolved in water and phosphate buffered saline. The flow regimes of the Na-HA solutions in several planar abrupt contraction-expansion channels were characterized by rheological properties of the solution. It was found that the entanglement of Na-HA in the solution is a more dominant factor affecting the flow regimes than the solution relaxation time and polymer rigidity.



**Date : Thursday, November 5th, 2020**

**Time : 10:00 - 11:00**

**Venue: Online** \*Please visit the following link on time.

<https://meet.google.com/cut-tcuz-ymv>