OIST OKINAWA INSTITUTE OF SCIENCE AND TECHNOLOGY GRADUATE UNIVERSITY
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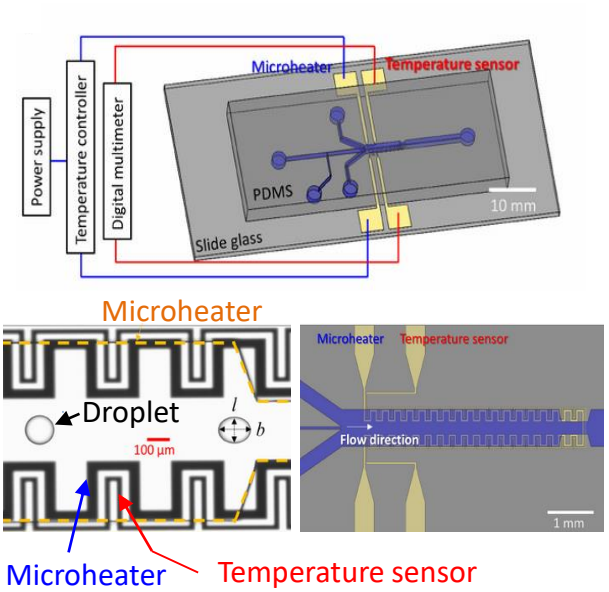
Temperature Controlled Microfluidic Platform

The Problem

Interfacial tension between two liquids is a key fluid handling characteristic in industry. Precise control of temperature is required for an accurate measurement of interfacial tension. Conventional microfluidic tensiometers offer decreased measurement times and reduced analyte volumes in comparison to non-microfluidic tensiometers but do not offer a precise temperature control.



Microfluidic tensiometer, with a serpentine shaped microheater and temperature sensor disposed along the microfluidic channel

The Solution

A temperature controllable microfluidic device for the accurate measurement of temperature dependent interfacial tensions between two immiscible liquids. A localized temperature control system is integrated with the microfluidic platform to maintain accurate temperature inside the device.

Applications

- R&D of surfactants
- Digital droplet PCR
- Food processing

Benefits

- Superior temperature control
- Low analyte volume: 10-100 µl
- Liquid pairs with no density difference

Keywords

Dynamic interfacial tension, microfluidic tensiometer, microfluidic tensiometry, microfluidics, immiscible fluids, surfactants.

Opportunity

- Licensing

Patent Pending

For more information

Business Development Section/Technology Licensing Section
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