

# Microfluidics and BioMEMS

## CHEM-E8135 (5 cr)

Teachers: University Lecturer Ville Jokinen, Professor Sami Franssila

Microfluidics is a multidisciplinary field combining physics, chemistry, materials science and biology. It is used for handling miniature liquid samples on chips for example for:

- Chemical analysis (separation, detection) on chip
- Handling and manipulating single cells or populations
- Medical diagnostics devices

**Learn to analyze fluid flow and forces in the microscale.**

Keywords: diffusion, adsorption, superhydrophobicity, surface tension, laminar flow, Reynolds number

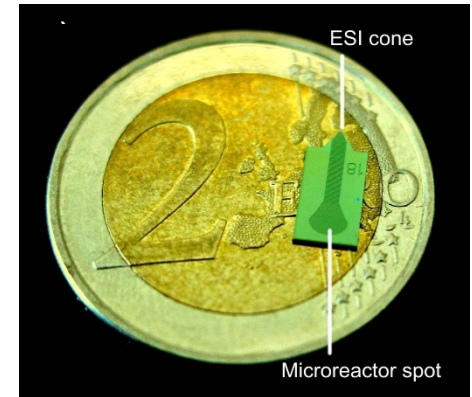
**Learn to design microfluidic chips:** channels, mixers, reactors, droplet generators, gradient devices. On this course you will design one chip!

**Learn about the lab-on-a-chip and the organ-on-a-chip concepts.**

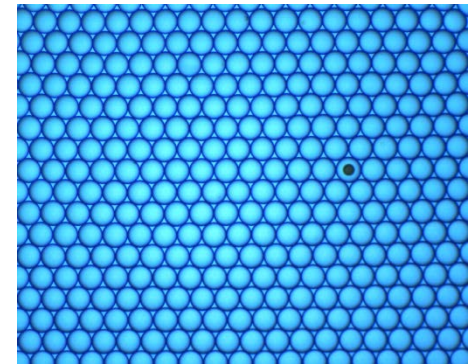
Aalto University, Micronova, Tietotie 3, Otaniemi

Small Lecture Hall (enter from Tietotie, walk past Cafe and turn right)

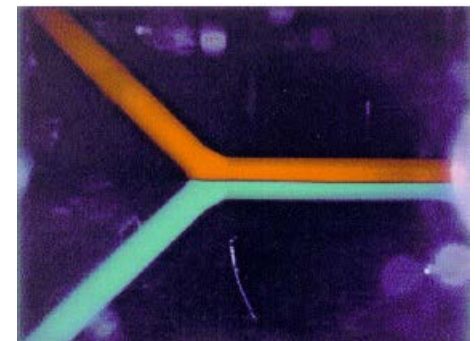
***Wednesdays 14:15 – 16:00 from 9.1.2018 to 27.3.2018 (periods 3-4)***



Analytical microchip



Microdroplets



Parallel laminar flows