



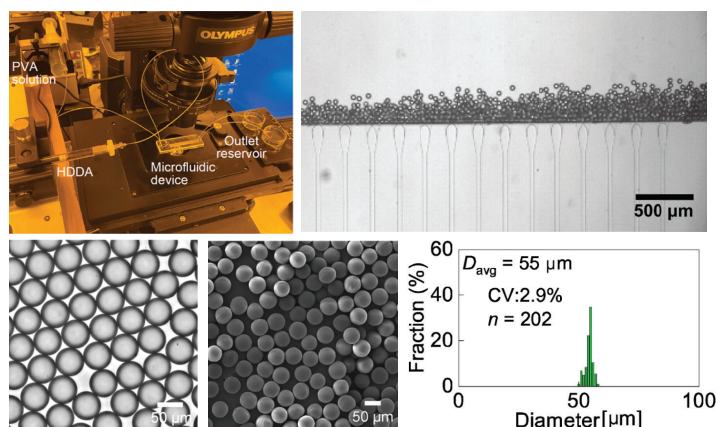
Micro-Nano Fluidic Engineering

Industrial Mechano-System Research Core, FIRST

<http://www.nis.first.iir.titech.ac.jp>

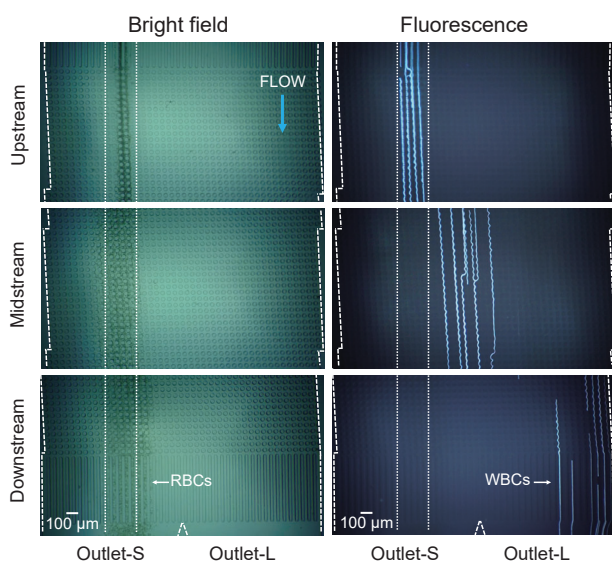
- Droplet microfluidics
- Preparation of novel nano/micro particles
- Microfluidic large-scale integration
- Particle separation

Our group is working on the development of new micro-nanofluidic devices and their applications. For examples, our recent research topics include large-scale integration of droplet makers on a chip for industrial applications, an actively-tunable step-emulsification device, synthesis of polymeric microspheres carrying drugs, and micro-pillar devices for separation of particles.



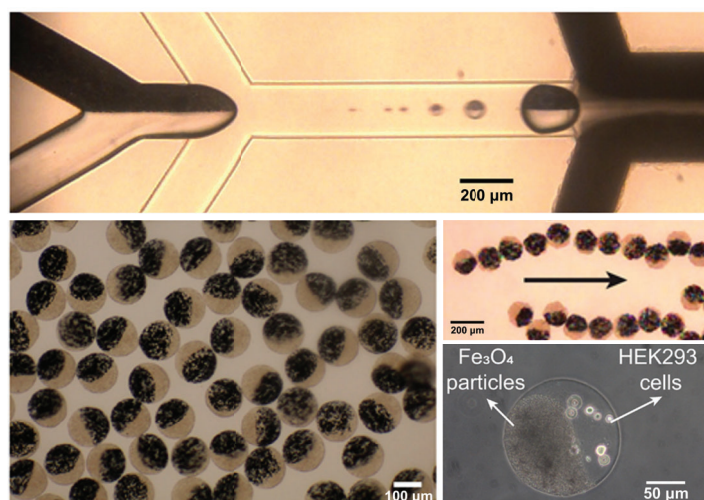
Generation of monodisperse emulsion drops

- Development of novel microfluidic droplet generators
- Numbering-up technology for mass production



Particle separation via micro-pillar arrays

- Continuous separation of bioparticles (blood subtypes, tumor cells, etc.) in a microfluidic device
- Development of novel microfluidic devices using 3D printers



Synthesis of functional nano/micro particles

- Magnetic field-responsive Janus microspheres
- Polymeric microspheres carrying drugs