

NEXTMEMS 연구실 주요연구 소개

고정상 교수

부산대학교 기계공학부

NEXT Laboratory

Members

- Post-doc. candidate: 1
- Ph.D. candidates: 1
- M.S. candidates: 1



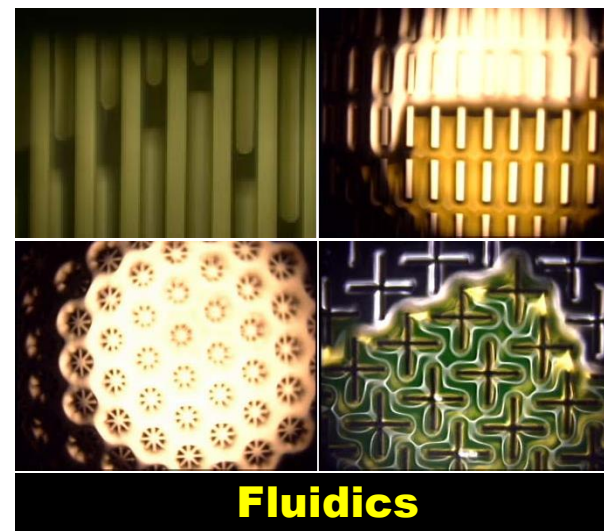
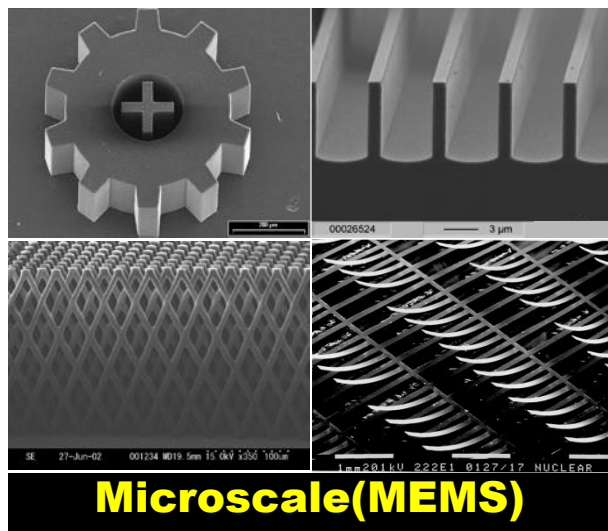
Where?

- 기계기술연구원 208호실
- Web: nextmems.pusan.ac.kr/Tel: 3221

Research Interests in Microfluidics

- Production of micro/nano particles and capsules
- Microfluidic separation technology of particles
- Frictional drag reduction by using air bubbles
- Sensing technology for harsh heat and mass transfer

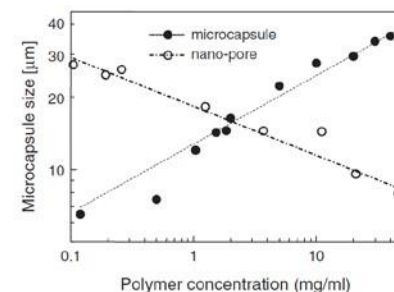
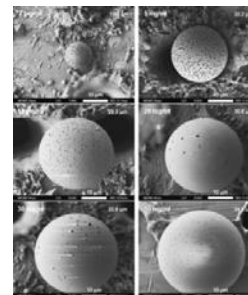
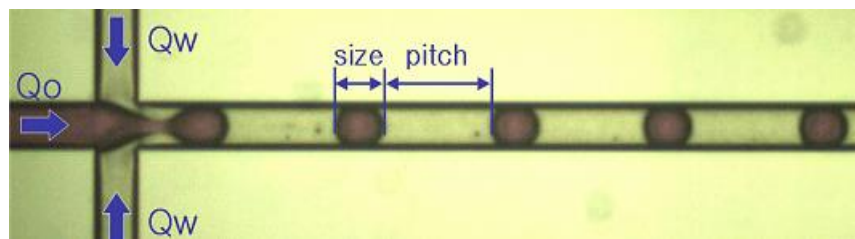
◆ Definition of Microfluidics



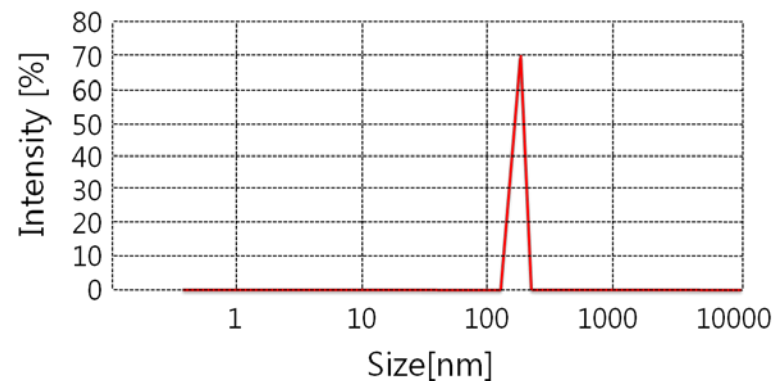
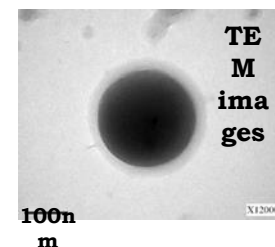
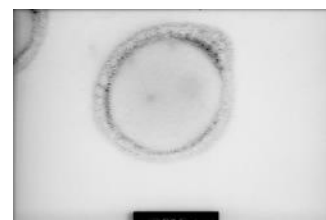
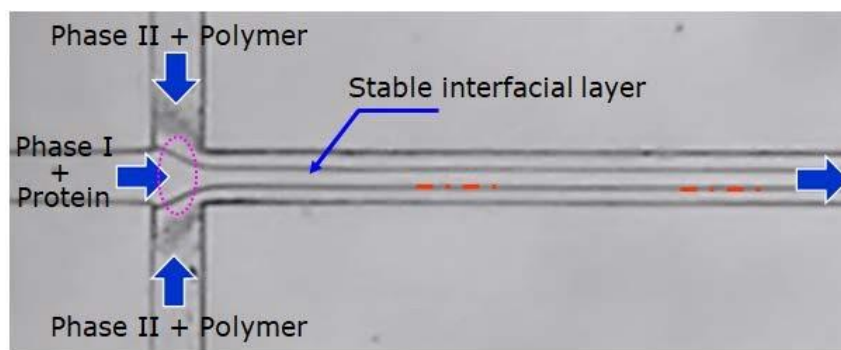
- Microfluidics is to expect and describe the behavior of a fluid in microscale under physical laws. It uses scale effect but continuum hypothesis is still available.

I. Production of Micro/Nano Particles/Capsules

● Immiscible droplet phase flow in microchannel

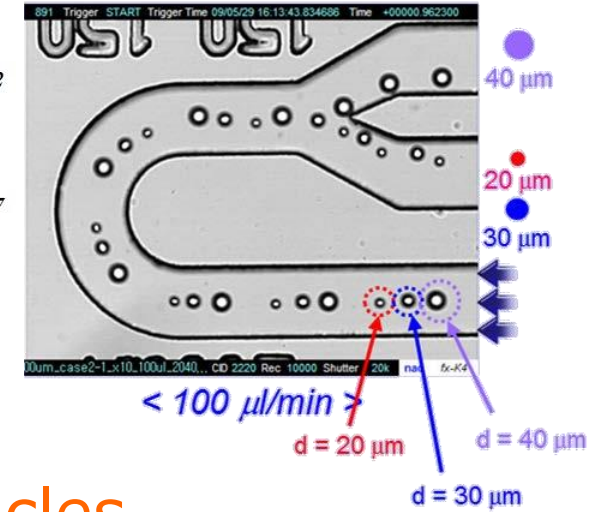
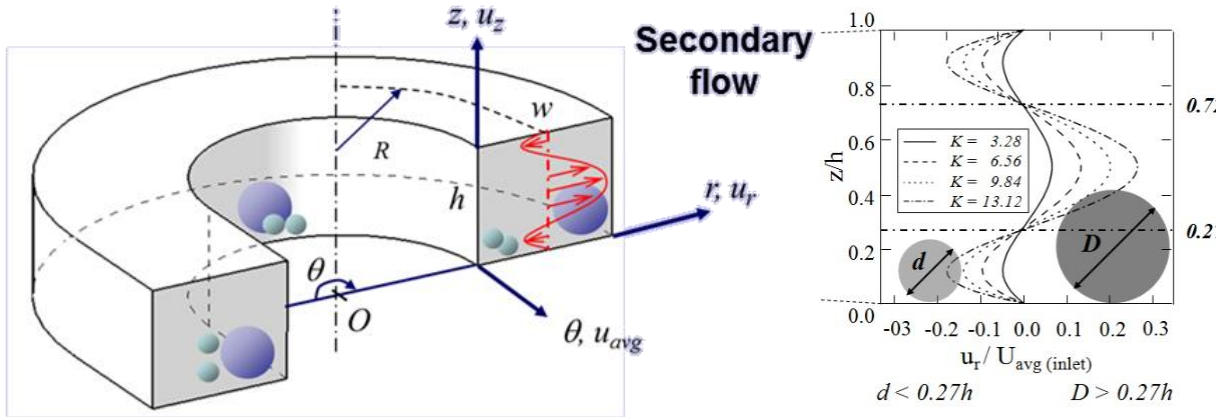


● Multi-laminated flow in microchannel

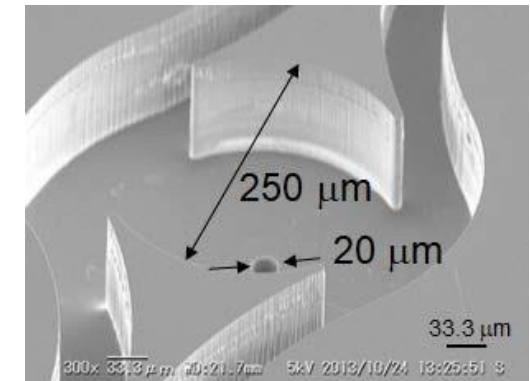
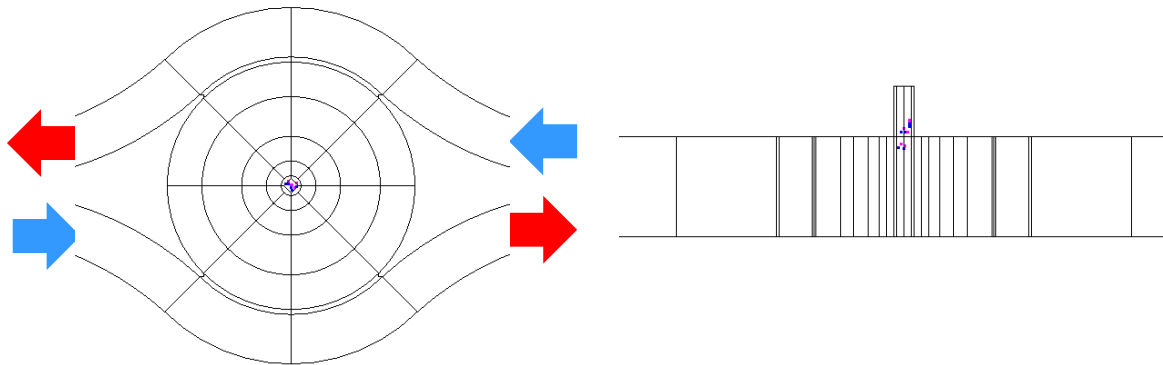


II. Microfluidic Separation of Particles

Size-selective separation of microparticles

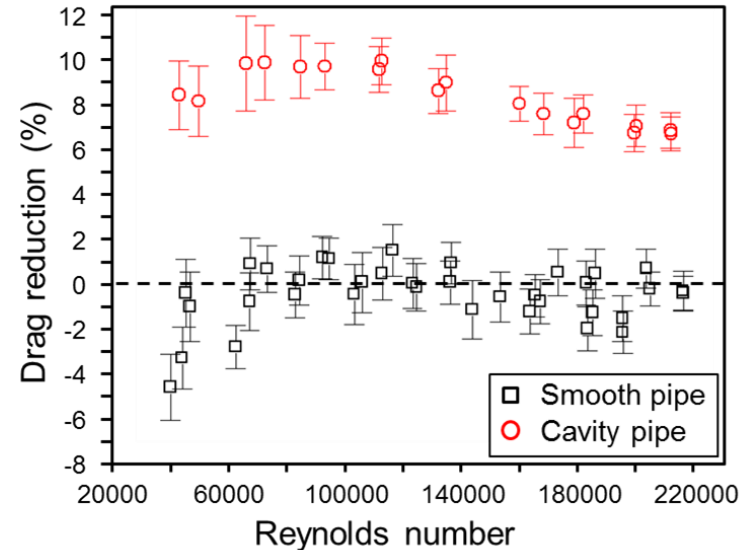
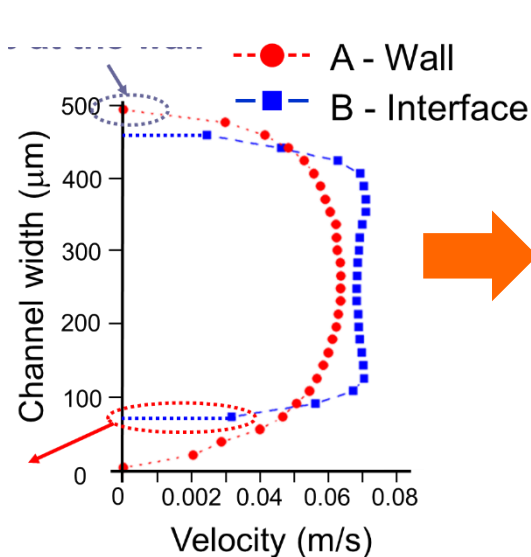
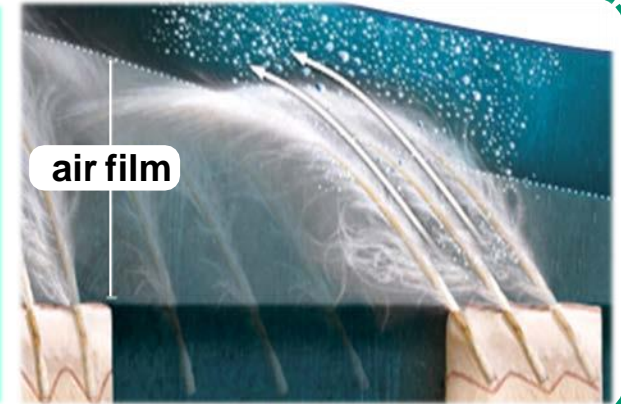
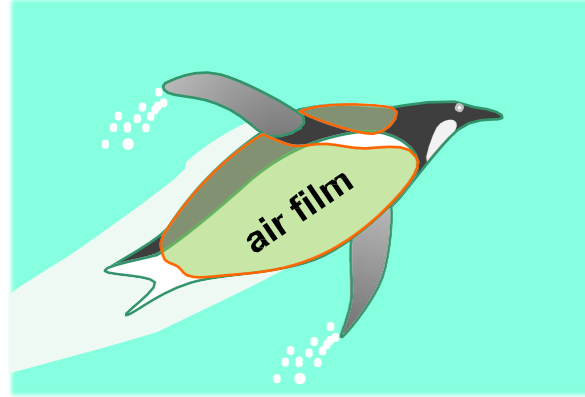


Microfluidic centrifuge of nanoparticles



III. Research on Frictional Drag Reduction

● Drag reduction by using slip on air bubbles

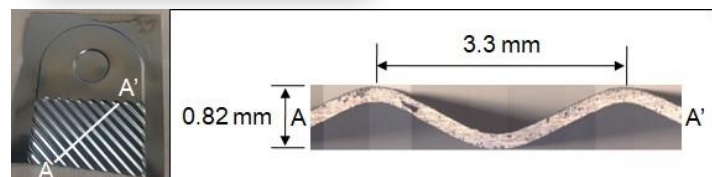
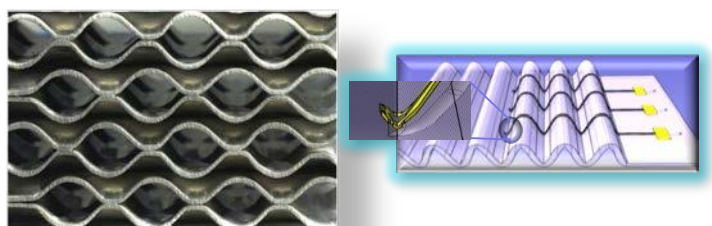


IV. High Temperature / Pressure & Ice Sensor

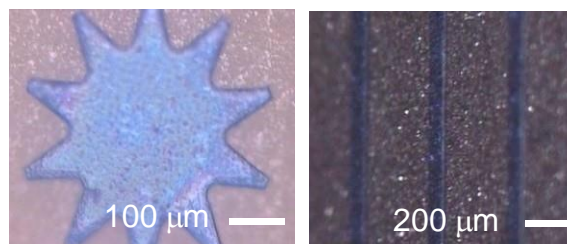
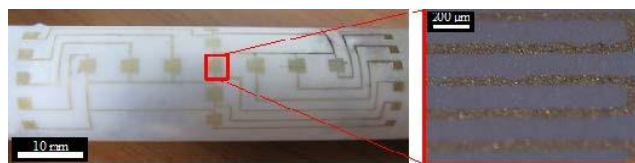


- Temperature up to 1200K
- Pressure up to 50bar
- Extreme fluid flow up to 8 kg/s
- Large thermal stress

● P. sensor



● T. sensor



● Ice sensor

