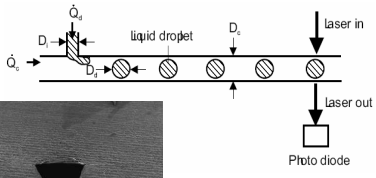
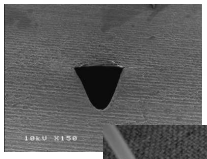
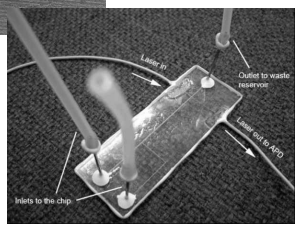
Fluid flow sensor

- The micro-fluidic community has recently discovered the potential usefulness of micro-droplets in sensing, mixing, etc
- A micro-fluidic chip fabricated with laser etching in polymer has been equipped with an optical counting mechanism



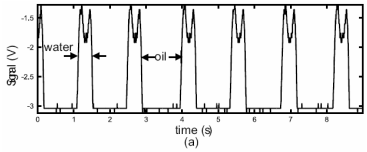


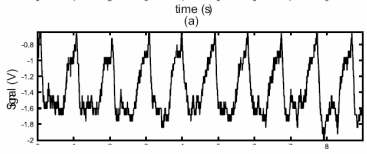


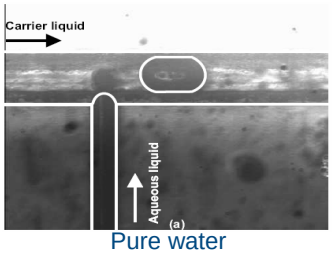
"Optical Detection for Droplet Size Control in Microfluidic Droplet-Based Analysis Systems", NT. Nguyen, S. Lassemono, F. Chollet, Sensors and Actuators B, (2006)

Fluid flow sensor - measurement

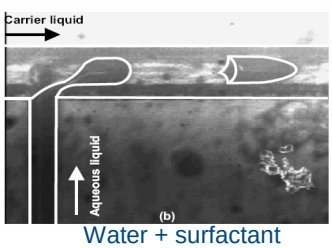
- The signal easily counts the passage of bubbles between the fiber
- A closer look show that even the profile of the bubble can be retrieved







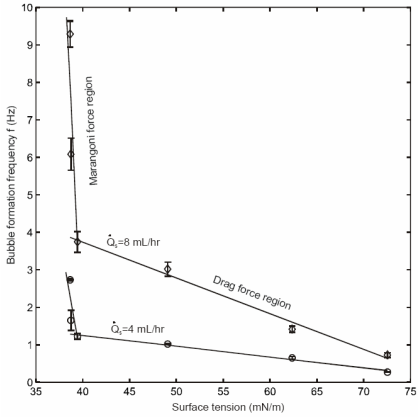
Pure water



Water + surfactant

Fluid flow sensor - application

- The frequency and shape of the bubble depends on the surface tension
- The system can be used to measure easily the surface tension and for example the concentration of detergent in water (US patent granted)



"A microfluidic sensor for dynamic surface tension measurement", Nam-Trung Nguyen, Sumantri Lassemono, Franck Chollet, Chun Yang, IEE Proceedings Nanobiotechnology, (2006)