"Soft Matter" Department
Institut de Physique de Rennes

Arnaud Saint Jalmes

18 permanent members + 12 PhD, postdocs…

5 research axis

- biomolecules at liquid interfaces
- chemical engineering at interfaces for smart materials
- digital microfluidics
- foam mechanics : multiscale approach
- disordered dispersed media

3 transverse topics

- self-organization from the molecular to the macroscopic scale
- non-linear dynamics at liquid interfaces
- waves in disordered out-of-equilibrium systems

tools and skills

+ interfacial and bulk rheometry + light scattering techniques (DLS, DWS…) + two-photon microscopy + ellipsometry, interferometry + X-ray scattering + BAM, PM-IRRAS + opto-electro-acoustic techniques for dispersion characterization + high speed camera and image analysis + milli-microfluidic platform

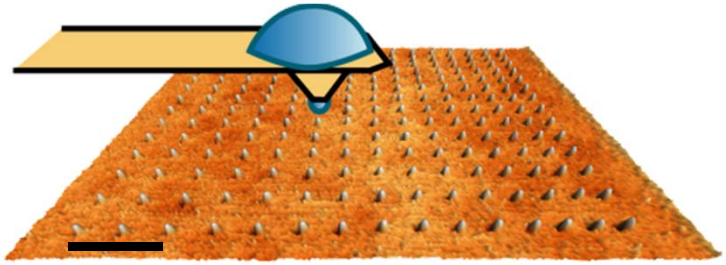
« soft matter » departement webpage on : www.ipr.univ-rennes1.fr

Nanosciences Group, CEMES –CNRS, Toulouse
Thierry Ondarçuhu (ondar@cemes.fr)

Aim: Explore wetting and fluidics at the nanoscale

Liquid nanodispensing

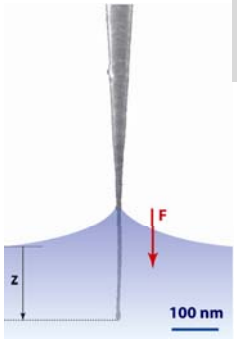
AFM-based method allowing to manipulate ultra-small liquid quantities (10^{-15} L to 10^{-18} L)



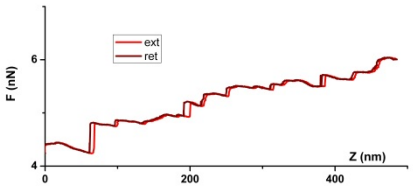
1 µm

NanoLett (2006) 6, 2368; **Langmuir** (2011) 28 1870, **Soft Matter** (2012) 8, 4995

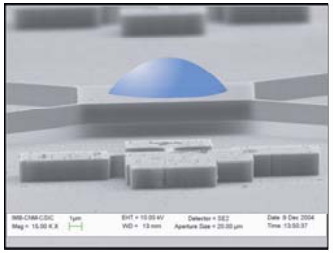
Wetting at nanometer scale

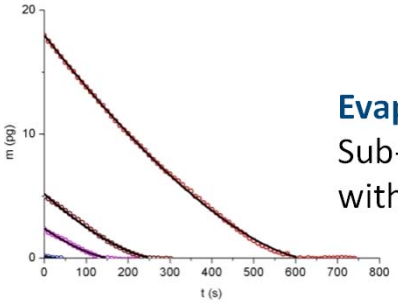


Phys. Rev. Lett. (2011) 106, 136102
NanoLett (2006) 5, 1544



Carbon nanotube AFM tips dipped in a liquid interface:
- static and dynamic properties of nanomeniscus
- contact angle hysteresis at the nanometer scale





Evaporation of "femtodroplets"
Sub-micron droplets evaporation monitored with an ultra-sensitive mass sensor.

J. Phys. Chem. B (2007) 111, 13020