

## **Micro and Nanofluidic devices as sensors and lab-on-a-chip platforms**

Irene Fernandez-Cuesta

INF, AG-IFC, UHH

### **Abstract**

In our group, we use a variety of micro and nanofabrication methods to make devices with integrated sensors (mechanical, electrical, optical) which we use for detecting and analyzing biomolecules. These devices contain micro and nanochannels, and can be used as lab-on-a-chip platforms to extract and analyze DNA single molecules from biological fluids, or to detect and count protein aggregates or viruses. They can also be integrated with suspended elements, like membranes or nanochannels, used as mechanical resonators, or as observation windows liquids in vacuum conditions. And the devices can be adapted and made using biocompatible materials, to extend their applications for cell analysis or as substrates to allow for molecular motor adsorption, to propel filaments on them.

Keywords: Nanoimprinting, nanochannels, DNA, single-molecule, nanofabrication