

## Overview

### Label Free Interaction studies of high spatial resolution

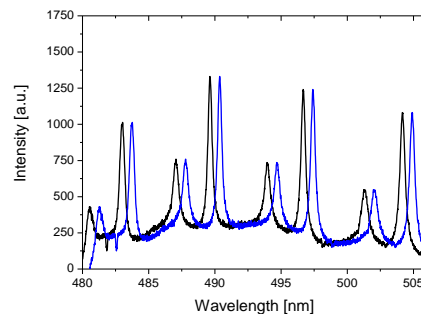
Label-free kinetic binding studies of Biomolecules or of surface processes are today usually performed by Surface Plasmon Resonance (SPR), Quartz Crystal Microbalance (QCM), or Bio-Layer-Interference BLI on planar surfaces connected directly to the measuring device. We have developed a new method, allowing the same studies with much smaller analyte amount and tiny sensors not connected to the device. Hence, such studies can be performed with high spatial resolution in small cavities like microfluidics or inside of three dimensional cell arrays. Spherical Microparticles of high refractive index exhibits an optical phenomenon called Whispering Gallery Modes (WGM) once light is trapped within them. Due to multiple total reflection, resonant light waves circulate up to 10 000 times inside the particles and watches always the surrounding of the particle. If few molecules are attached to the particle surface, the particle diameter and the refractive index is changing resulting in a wavelengths shift of the WGM (spectra on the right).

We have developed an instrument (WhisperSense, see below) which measures the wavelength shift over time with an optical resolution of 10 picometer. Although the functionalized sensor surface area is more than 10 000 times smaller than in case of SPR or QCM, the sensitivity is comparable. Hence, 300 femtogram of protein are enough for full saturation of the surface.

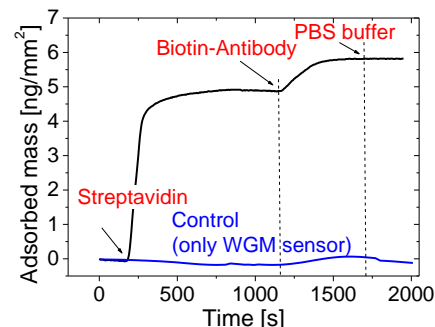
We offer label-free kinetic investigations of surface processes with WGM such as bio-interactions (Antigen-Antibody, DNA, RNA), formation of polymer coatings (Layer-by-Layer), stability of surface coatings or drug release from surfaces etc. The pre-(bio)-functionalization of our produced 10 µm sensor beads can be performed according Your desires.



Microfluidic-Well-Array, partly filled with Sensors



Sensor spectrum before (black) and after adsorption



Kinetics of Streptavidin adsorption on biotinylated surface

### Prices for kinetic measurements

1 sample:	300 €
2 samples:	500 €
4 samples:	850 €



### Key features:

- Label free
- Small biosensors
- High accuracy
- Multiplexing
- High statistical safety
- Sensor particles separated of instrument

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