

3D printed - open source - plasmonic bio-sensors

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Two concepts of instruments for a detection of bio-molecules and their binding kinetics based on spectroscopy of metallic nanoparticles are presented. 3D-printing techniques were used to fabricate diverse parts of their optical and fluidic setup

Detection of biomolecular binding, the adsorption of thin bio-films or conformational changes of macromolecules is of high interest in various fields of biology, medicine and pharmacy. One possible detection method is based on the optical spectroscopy of metallic nanostructures exhibiting localized surface plasmon resonances (LSPR). It is a label-free approach with high sensitivity in comparison to other detection techniques. The reliable readout of the spectral position of the LSPR with very low noise is one of the key challenges in the biomolecular sensing process. Here we show two different ways for a cheap and quick fabrication of measurement devices with the help of 3D printed parts.