14:45 – 15:20

Supported silver clusters as nanoplasmonic transducers for protein sensing

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Transducers for optical sensing of proteins are prepared using silver cluster beam deposition on quartz substrates. Surface plasmon resonance phenomenon of the supported silver nanoparticles is used for the detection. Schematic picture of the sensing approach is shown in Figure 1. It is found that appropriate functionalization of quartz surface and surfaces of clusters are among the key issues for stability of clusters and protein immobilization. These procedures have been optimised. Conditions for coupling of the antibodies to the clusters are developed providing an enhancement of the plasmon absorption band used for the detection. Atomic force microscopy study allows to suggest that immobilization of antibodies on the supported silver nanoparticles has been achieved, thus giving a possibility to incubate and detect an antigen of interest (chicken egg albumin). It is shown that the compliance with the appropriate preparation and immobilization scheme is essential for sensitive optical detection of particular proteins. Thus, by applying the correct protocol the sensing of proteins of interest can be assured using relatively simple optical spectroscopy method.

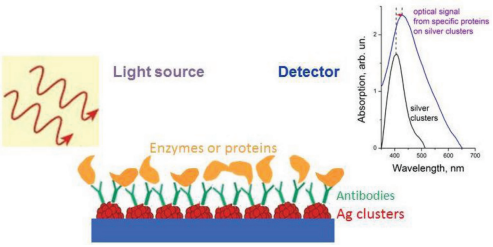

Figure 1 Schematic picture of protein detection