

**Development of collinear transmission plasmonic biosensor for detection of HIV-1**

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**ABSTRACT:**

Surface Plasmon Resonance (SPR) which is widely used to study interactions between different types of biomolecules, has emerged as a technique of choice for rapid and quantitative analyses. However, there are still some challenges on the use of the classical SPR optical configuration. The prism-based configuration setup requires precise alignment of light onto the sample surface and the oblique reflection angle plane yield optical aberration. In this work we have built, characterized and optimized a simple collinear transmission geometry plasmonic system for the detection of HIV-1. Here, a continuous wave laser at 785 nm with power output of 300 mW was used as light source and a 40X objective lens coupled to a CCD camera was used to collect and detect the transmitted intensity change. Furthermore, a white light source was used to study the wavelength dependency of the sample. We present our findings which may be useful to develop biomedical devices for point-of-care diagnostics and healthcare applications.