

Abstract Submitted  
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**Long Range Surface Plasmon Fluorescence Spectroscopy** AMAL KASRY, WOLFGANG KNOLL, Max Planck Institute for Polymer Research — Surface plasmon modes, excited at the two sides of a thin metal layer surrounded by two (nearly) identical dielectric media interact via the overlap of their electromagnetic fields. This overlap results in two new-coupled modes, a short and a long-range surface plasmon (LRSP). We demonstrate that combining the LRSP optics with fluorescence spectroscopy can result in a huge enhancement of the fluorescence signal due to the enhanced optical field of the LRSP at the metal dielectric interface, and to its increased evanescent depth into the analyte. This was demonstrated for the detection of the fluorescence intensity of chromophore labeled protein bound to the surface sensor. Beside that, some fundamentals were studied leading to some interesting difference between SPFS and LRSPFS.

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