The excitation of surface plasmon polaritons (SPPs) using prisms is well-known [1]. Prism coupling can be described as three-layer configuration, two dielectric media with different permittivities $\varepsilon_d$ and the metallic layer with the permittivity $\varepsilon_m$. The SPP is excited at the interface between the dielectric with the lower permittivity and the metal. The dielectric with the higher permittivity is used to increase the momentum of the impinging light which can excite the SPP. One can differentiate between the Otto [2] and the Kretschmann configuration [3]. In the Otto configuration the dielectric with the higher permittivity is used as top layer, the dielectric with the lower permittivity is located in middle and the metal is used as the bottom layer. In the Kretschmann configuration the middle and the bottom layer are interchanged. Internal total reflection occurs if the critical angle of incidence $\Theta_{\text{crit}}$ (between the dielectric media) is exceeded. At the interface an evanescent field appears and the light is reflected. In Otto configuration the distance between the top and bottom layer has to be small enough so that the extension of the evanescent field can reach the bottom layer. In Kretschmann configuration the middle metallic layer has to be small enough to keep the attenuation of the crossing light acceptable.

The momentum of the evanescent field is suitable to excite the SPP. Figure 1a illustrates the excitation mechanism for the Otto configuration. Note: A prism or half cylinder is necessary to achieve internal total reflection. In Fig. 1b the reflection factor $R$ is plotted as function of the angle of incidence $\Theta$. The dashed line indicates the two-layer system and the continuous line indicates the plasmon resonance which is calculated by Eq. (1).

The excitation of the SPP results from the dip in the continuous line, shown in Fig. 1b. Here the momentum of the evanescent field matches the momentum of the SPP and leads to a bounded surface wave that propagates along the dielectric metallic interface.

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