

RES-TEC 1Pager – Winspall

Manual „Simulation“ of Scan data from blank reference substrate

1. Angle of total internal reflection TIR:

Adjust refractive index of prism and / or adjust the refractive index of the covering medium used (e.g. a liquid).

2. Slope between angle of total internal reflection TIR and Surface Plasmon Resonance

($TIR < \Theta < SPR$, only if chromium adhesion layer is used)

Adjust layer thickness of the chromium layer

3. Shape of reflectivity curve below TIR ($\Theta < TIR$)

Adjust thickness of gold layer

4. Depth of surface plasmon resonance SPR

Adjust real part of dielectric constant of the gold e'

5. Width of SPR at half height

Adjust imaginary part of dielectric constant of the gold e''

Hint: Rescale scan data after each simulation step.

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6. Angular position of SPR minimum

Thickness and refractive index of deposited layer (at constant reference values)

Automatisches „Fitting“ of scan data

- A. Perform a rough manual simulation of the data as described above before you attempt the automatic „fitting“ routine
- B. Gold parameters: d , e' , e''
- C. Chromium Schichtdicke: d (if needed)
- D. Gold parameters: d , e' , e''
- E. Thickness and refractive index of deposited layer (at constant reference values)