Abstract
With the nanofilm_refspec the reflection of light $R$ (range: UV...VIS) from an air-water interface can be detected. This spectrum covers the applications from protein to dye-containing monolayers.

Besides the spectral detection of the reflection ($\Delta R$ over wavelength) a time-based measurement ($\Delta R$ over time) is also easily performed.

The nanofilm_refspec is completely PC controlled. The software makes measurements easy, controlled via function tree and Direct-Control-Button. The script language allows the automation of complex measurements and specific organization of the function tree.

The software interface to Langmuir troughs allows measurement versus trough parameters ( $\Delta R$ over surface pressure, area, etc.). The adaptation to troughs from Accurion and KSVNIMA is included, adaptation to other troughs available on request.

Benefits
- Optimized for the liquid/gas interface
- Internal reference with shutter
- Adaptation to Langmuir troughs
Technical specification:

- **light source:** tungsten & deuterium lamp
- **spectral range:** 240 nm ... 1000 nm
- **max. resolution:** $\Delta R = \pm 0.002 \%$
- **spectral measurement:** $\Delta R(\lambda)$
- **kinetic measurement:** $\Delta R(\lambda)$, time
- **trough measurement:** $\Delta R(\lambda)$, trough parameter
- **Communication parameter e.g.:**
  - with LB-troughs: surface pressure
  - (KSVNIMA) area/molecule

Adaption of trough control is included (KSVNIMA as standard, other troughs on request)

Typical samples:

- dye monolayers
- fatty acids
- proteins interacting with charged/uncharged lipids
- LB-films on solid structures
- liposomes interacting with lipid films

Examples of application in literature:

Effect of the Molecular Methylene Blue Aggregation on the Mesoscopic Domain Morphology in Mixed Monolayers with Dimyristoyl/Phosphatidic Acid.

Influence of the Environment on Photoinduced Electron Transfer: Comparison between Organized Monolayers at the Air-Water Interface and Monolayer Assemblies on Glass.
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