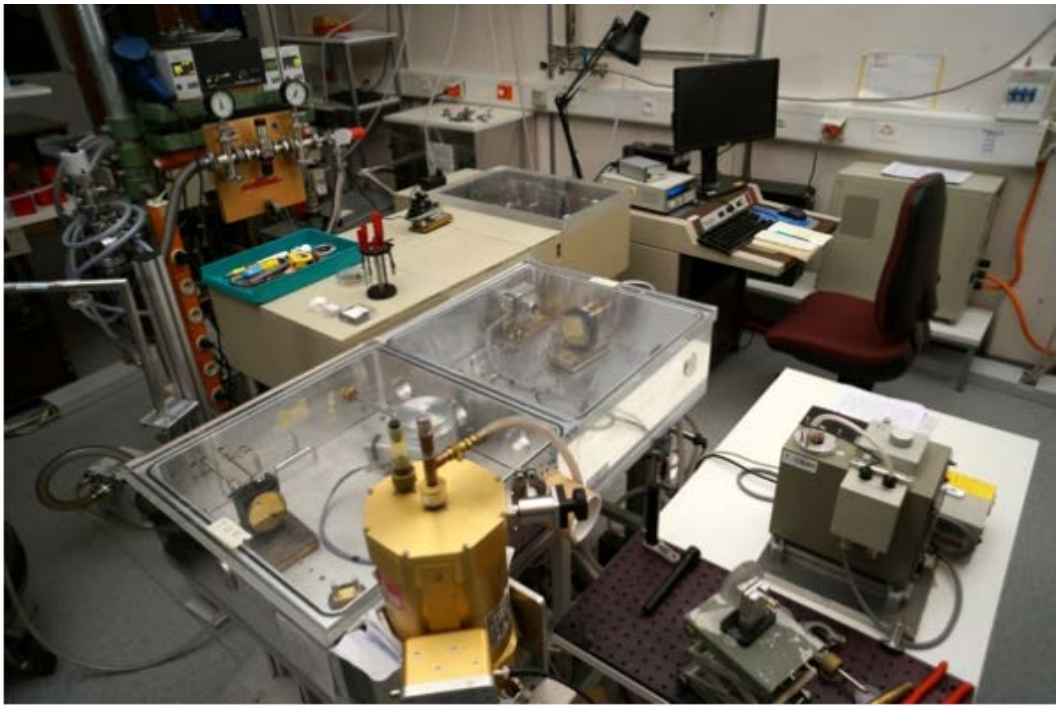
Infrared Ellipsometer



Setup IR Ellipsometer

Covering the far-infrared (40-700 cm^{-1}) and mid-infrared (400-4000 cm^{-1}) ranges, the *"Elli"* is the workhorse of our ellipsometry lab. It is based on Bruker IFS 113 Fourier-transform infrared spectrometer with external He cooled bolometer as the detector. For the mid- and far- infrared ranges we use different sets of beam-splitters, polarizers and retarders. CryoVac cryostat provides temperature range of 10-350 K.

The ellipsometry chambers, attached externally to the spectrometer, are evacuated to avoid absorption of the IR light in atmosphere. The angle of incidence can be changed manually in discrete 2.5 deg steps in the range of 65 to 90 deg by repositioning the detection-branch mirrors in the chamber.

The ellipsometer is working in polarizer, optional retarder, sample, rotating analyser mode. The optional retarder is based on internal reflection in ZnSe (mid-infra) or Si (far-infra) prism - otherwise gold coated mirror is flipped into the reflection point. We have recently implemented ZnSe rotating compensator for the mid-infrared range.

Options:

- In-situ photo doping of the sample through side window in the cryostat and chamber.
- In-situ sample rotation for anisotropic materials.
- High-temperature stage for temperatures above 350 K, we can safely reach 700 K.