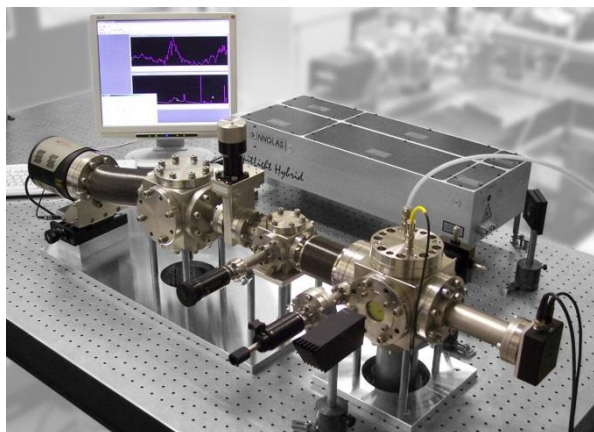


Table-Top NEXAFS Spectrometer

Laser-
Laboratorium
Göttingen e.V.



- ▶ Table-top lab system
(alternative to synchrotron experiments)
- ▶ Extremely high surface sensitivity
- ▶ “Fingerprint” of molecules / elemental analysis
- ▶ Polychromatic measurement
- ▶ Especially suited for Carbon K-edge

Specifications

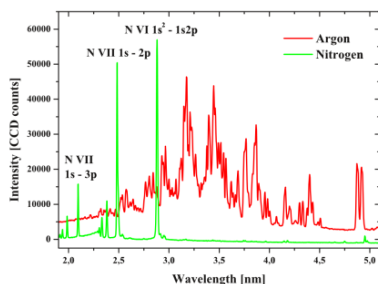
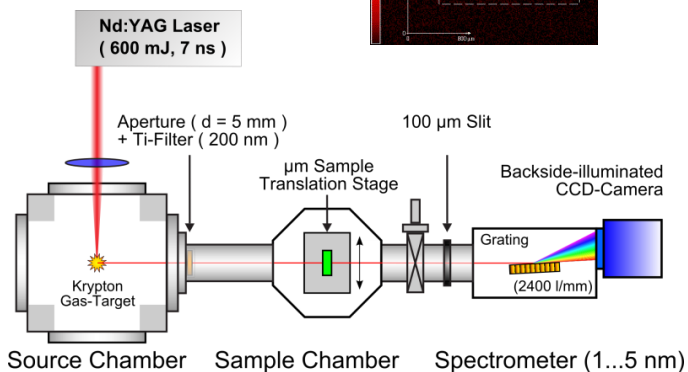
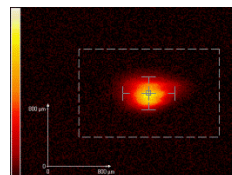
Source

- ▶ Wavelength: 1...20 nm
- ▶ Pulse duration: 6 ns
- ▶ Plasma shape: nearly spherical
 $\varnothing \sim 300 \mu\text{m}$
- ▶ Repetition rate: 10 Hz

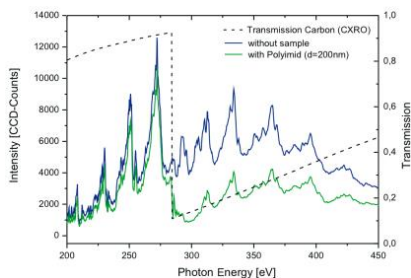
Spectrometer

- ▶ Spectral range: 1...5 nm
- ▶ Spectral resolution: $\lambda/\Delta\lambda \sim 300$

- ▶ EUV plasma ($\varnothing \sim 300 \mu\text{m}$),
recorded with a pinhole
CCD-camera



- ▶ Emission spectra of laser-produced XUV plasmas for different target gases. Broad-band and narrow-band radiation can be obtained.



- ▶ Emission spectra of a Krypton plasma used as a broad-band emitter at the Carbon K-edge, without and with Polyimid sample

Applications

- ▶ Chemical analysis of organic samples
- ▶ Investigation of absorption edges for various elements (C, N, O, Ca, K, Ti)
- ▶ Spectrally resolved transmission / reflectivity measurements ($\lambda = 1...5 \text{ nm}$)
- ▶ XUV metrology
- ▶ Pump-probe experiments of dynamic processes