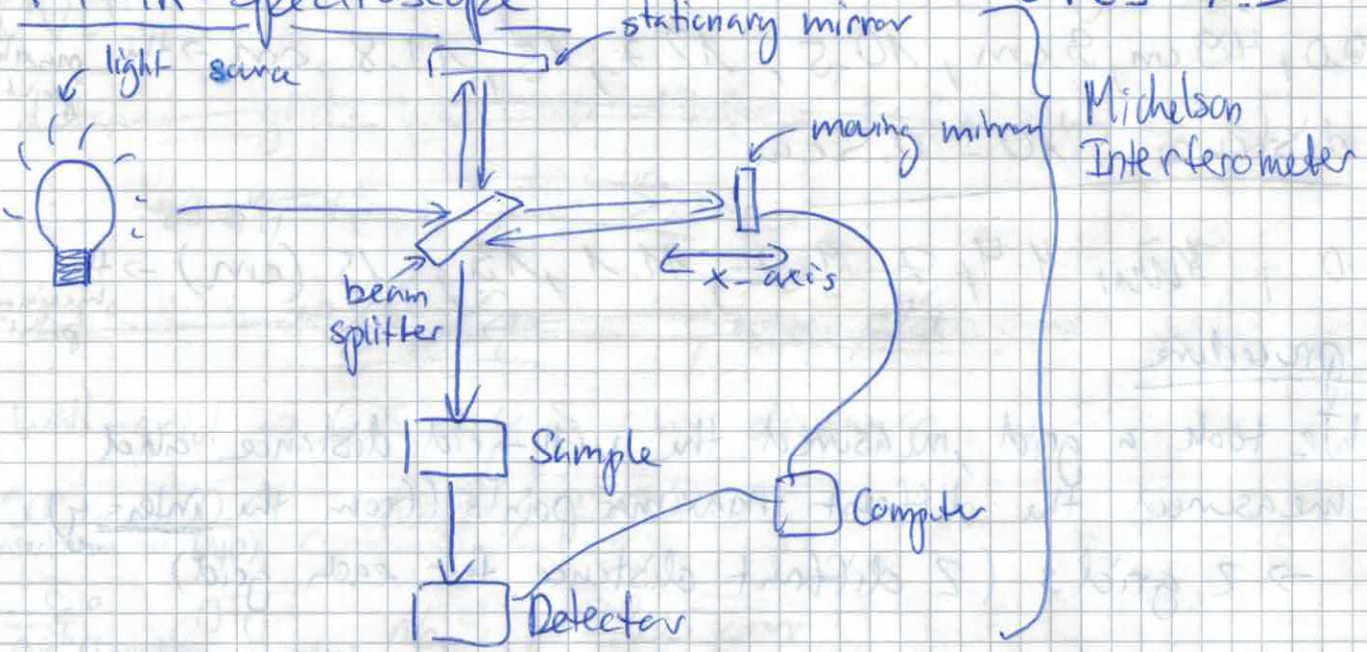
IRS, 30.3.21, Labpartner: Dasmin Schleiss, Elin Sebesta

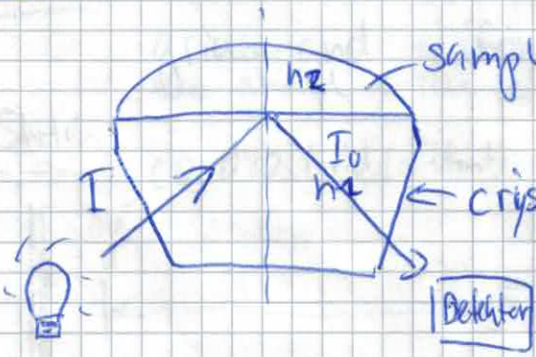
- IR spectroscopy has great value in chemistry. Molecules are excited to vibrations and rotations by absorption of photon energy. The vibrations and rotations are specific for certain molecule bands and their environment. IR spectroscopy can be used for element identification by comparing the obtained spectra to literature references.

- all measurements are made with BRUKER Alpha FT-Spectrometers equipped with ATR and Transmission modules → computer program: OPUS 7.5

FT-IR-Spectroscope



ATR-method



30.3.21, Dasmich
Elin Sebe

Settings

- Resolution: 2 cm^{-1}
- Sample scan time: 16 scans (measurement time > 35 s)
  Background " " : "
  Save data from 4000 cm^{-1} to: 400 cm^{-1}
  Result spectrum: Absorbance
- Spectra extended ATR correction → standard

① Background was measured

② Ethanol sample with ATR technique was taken
↳ Cas No.: 64-17-5 → saved as Ethanol

③ Benzoesäure was measured and then a IR spectrum was taken.
↳ over 99% pure, 1243 g → saved as Benzoesäure

Test Reproductibility B

- 3 times with Ethanol an IR Spectrum was taken
  ↳ like ② → LM from the HCl Shop (not pure)
  → the sample was replaced after the measurements
  → (B1, B2, B3_Ethanol#.dpt)
- 3 times with the Benzoesäure (like from ③)
  → saved as B1, B2, B3_Benzoesäure.dpt.

Plastics D → 3 IR Spectra were taken from 3 unknown ~~to~~ said materials

1) ~~Handschuh~~ D1_Handschuh sample was taken
2) D2_~~Sample~~ PET " "
3) D3_~~S~~CD " "

30.3.21, Jasmin, Elin Sebes

C DMSO exposed to ambient air

- A fresh sample of DMSO was prepared
  < 0.03% H_2O
  VWR 23500,7.60
- 10 absorption spectra were measured by waiting 3 min in between (without changing the sample)

→ saved as C1..10_DMSO.dpt

E

→ deion. → absolut, > 99.8%

13 H_2O//Ethanol solutions were prepared and an IR spectra was taken

1. 100% H_2O (distilled) 100 µl H_2O
2. 100 µl H_2O 10 µl Ethanol
3. " 20 µl E
4. " 40 µl E
5. " 60 µl E
6. " 80 µl E
7. " 90 µl E
8. " 100 µl E
9. " 150 µl E
10. " 200 µl E
11. " 300 µl E
12. " ~~300~~ 400 µl E
13. 100 µl Ethanol

→ saved as E1..E13.dpt

→ Samples E_Rum, E_Weisswein, E_Anise
→ 40.0% / → 13.5 % → 35%
→ ~~IR~~ IR Spectra were taken

F
→ saved as F_Ltz0

1. an IR Spectra from Ltz0 (deion.) was taken (100 µl)
2. " " D_2O, 99.9% pure (10 µl)
CIL, Inc
DLM4-10