



## ZEBR - about us

100% Czech family-  
owned company

30years on the  
market

156 employees

World leader in  
shading automation  
technology

80% of production  
exported

Majority market  
share in its industry

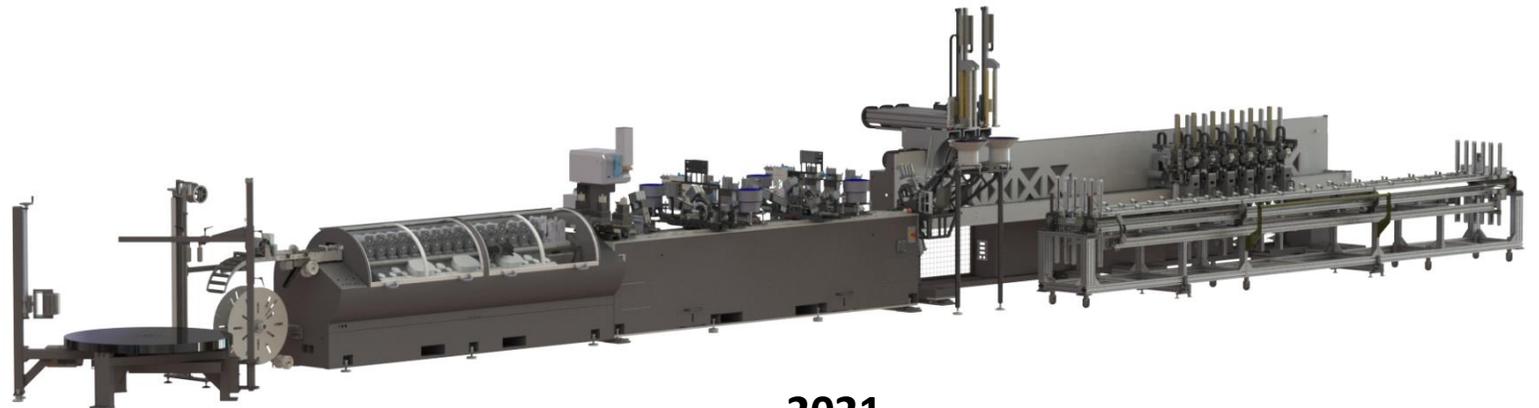


# our DNA

- *Inovations*
- *High precision*
- *Complex solutions*
- *SMART mechanic*
- *No fear*

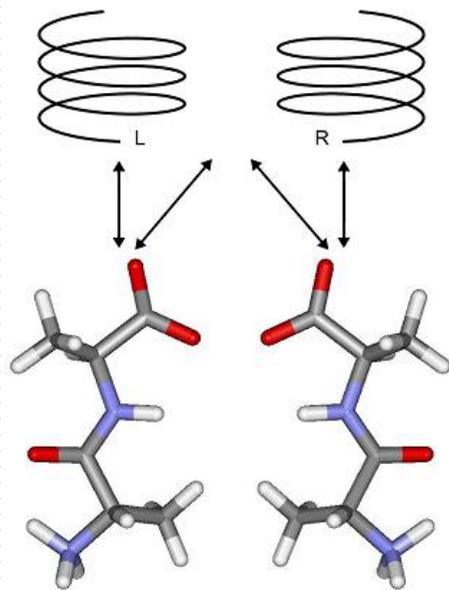


1995



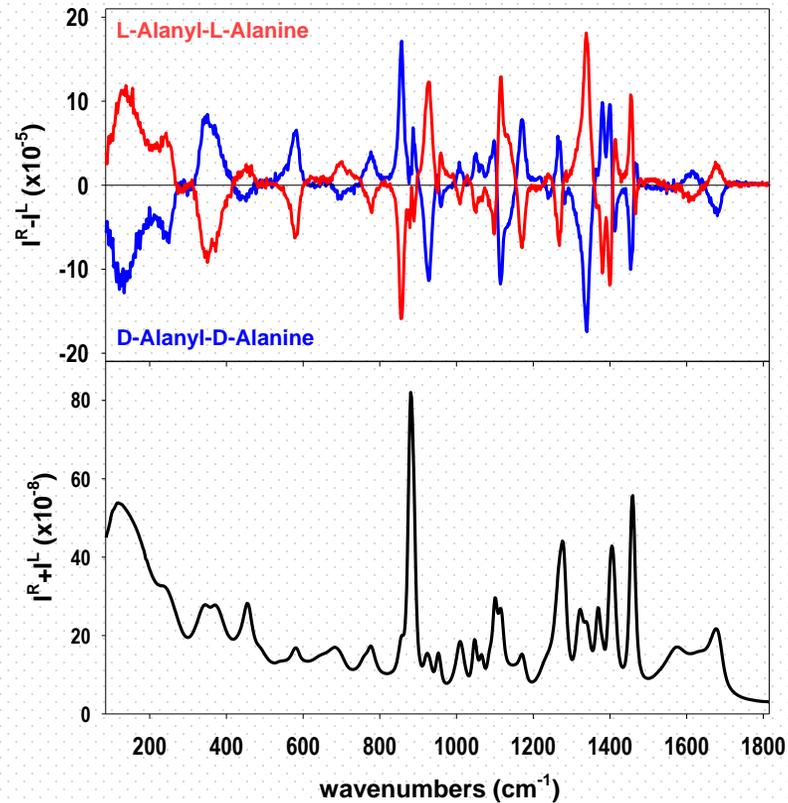
2021

# ROA Raman optical activity



L-alanyl-L-alanine

D-alanyl-D-alanine

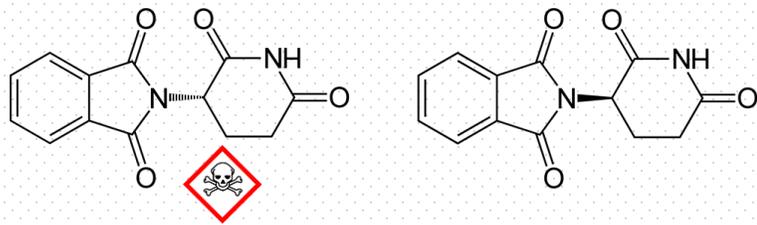


-measures the small change in Raman signal when chiral molecules interact with left- and right-handed circularly polarized radiation

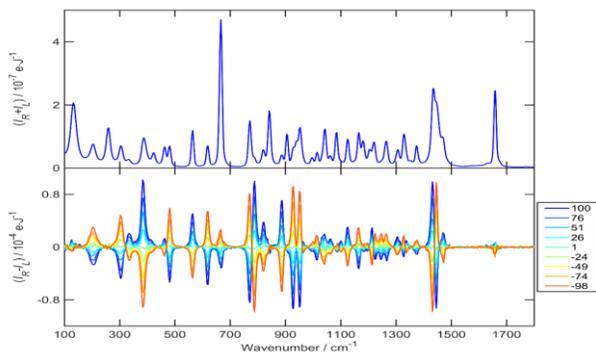
- allows determination of the absolute configuration

- provides information on the spacial arrangement of chiral molecules in solution

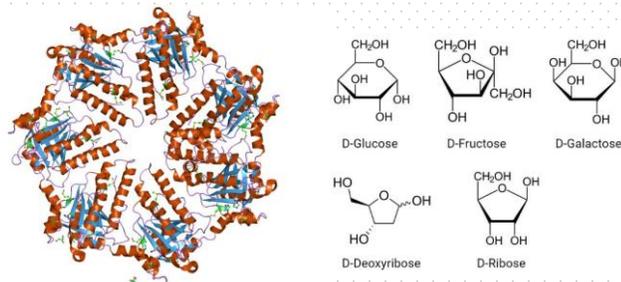
# ROA potential of use



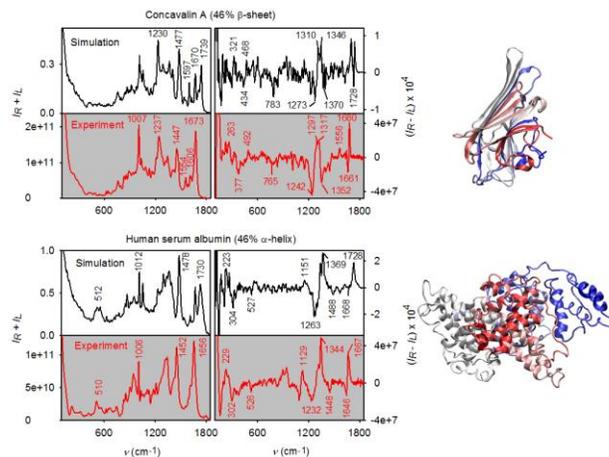
determination of absolute and spatial configuration



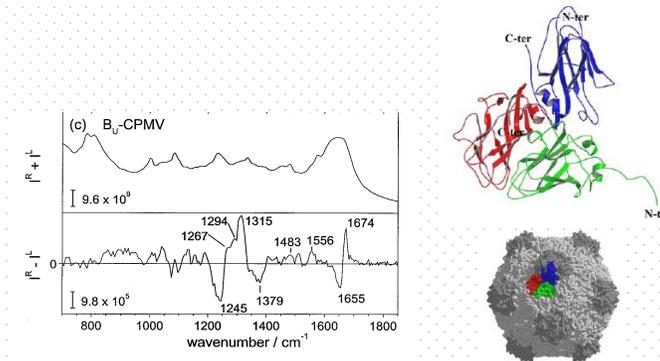
determination of enantiomeric excess



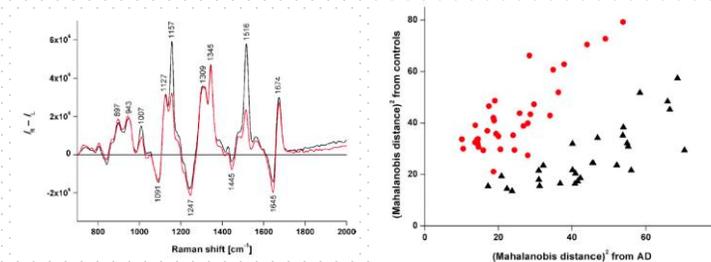
Homochirality



study of complex protein structures



study of viruses



clinical diagnosis of diseases

# Motivation

RNDr. Josef Kapitán, Ph.D

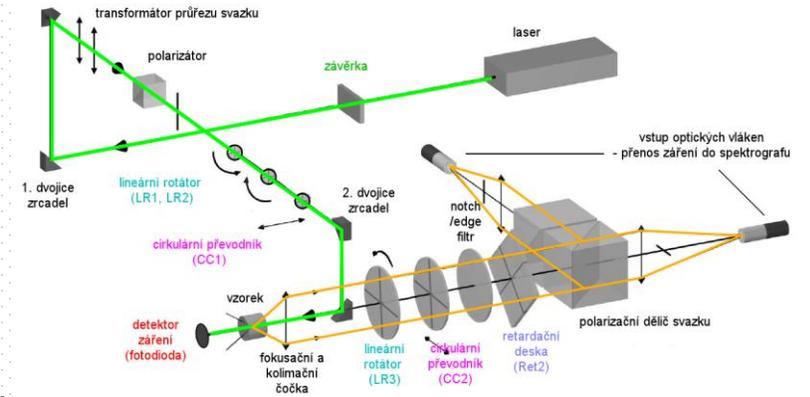
Target:

To implement a spectrometer for measuring Raman optical activity for:

- Industrial applications (pharmaceutical industry, medical applications)
- basic research

Spectrometer characteristics:

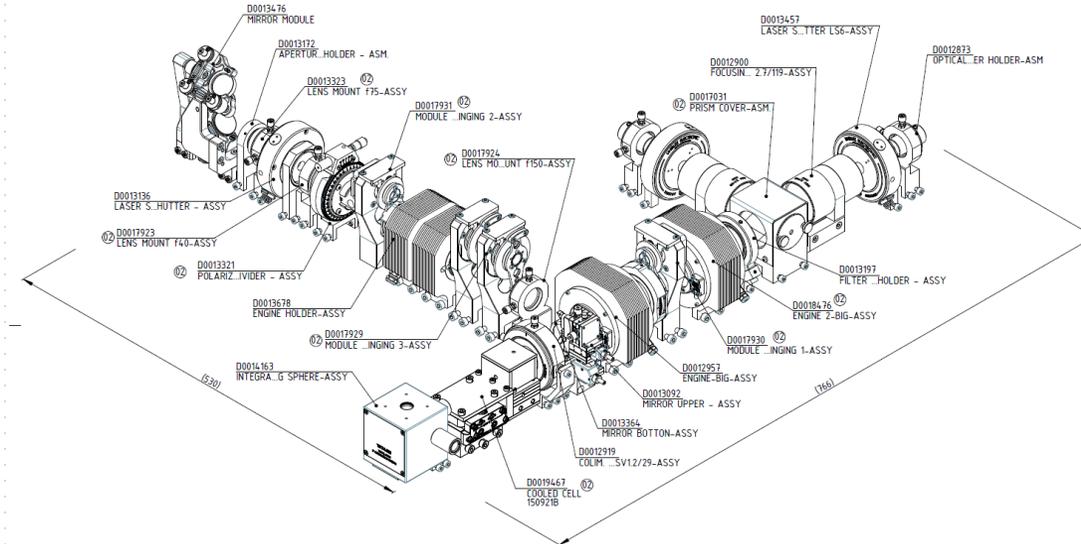
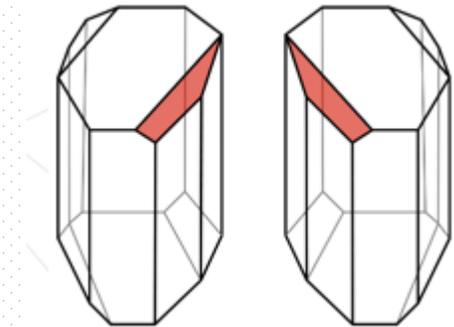
- Usability in industrial and medical environments (no clean room and high temperature stability required)
- artefact-free spectra
- reliability
- serviceability (ideally with remote access)
- internal diagnostics
- better data acquisition parameters: spectral range, higher signal:noise ratio



# Cooperation ZEBR+UPOL+MEOPTA 2012-2015-2019-2022



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# Distribution of tasks

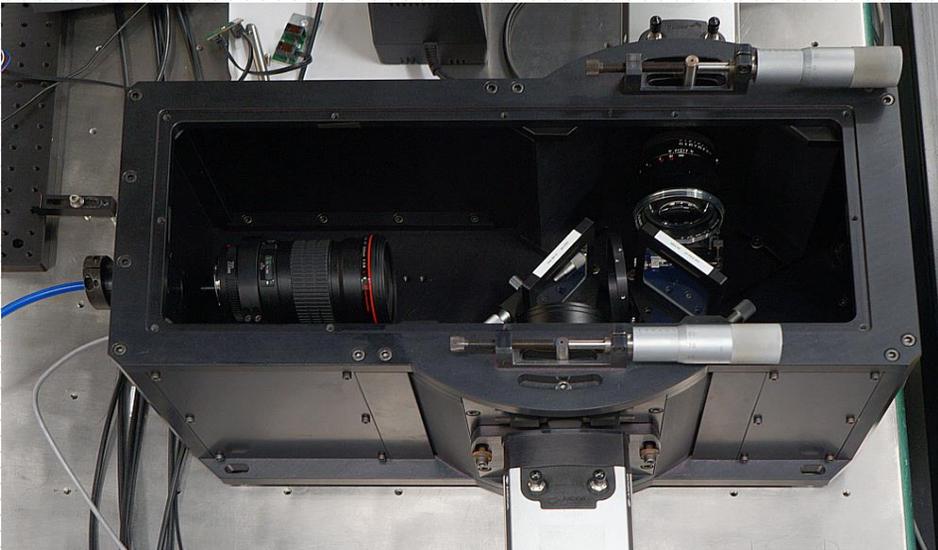
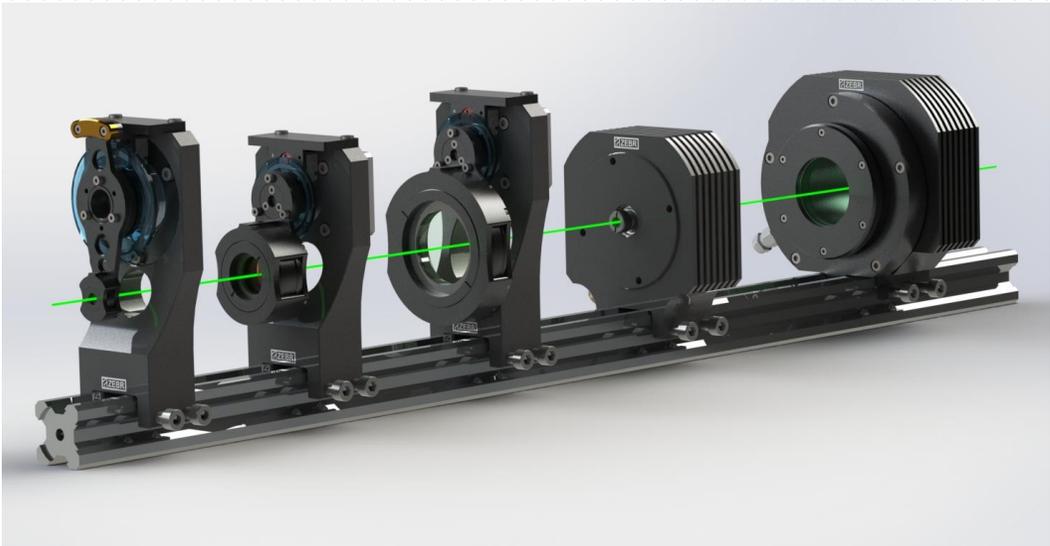


- The main idea of the device
- Device control system
- Electronics
- Software
- Experiment coordination
- Testing and feedback

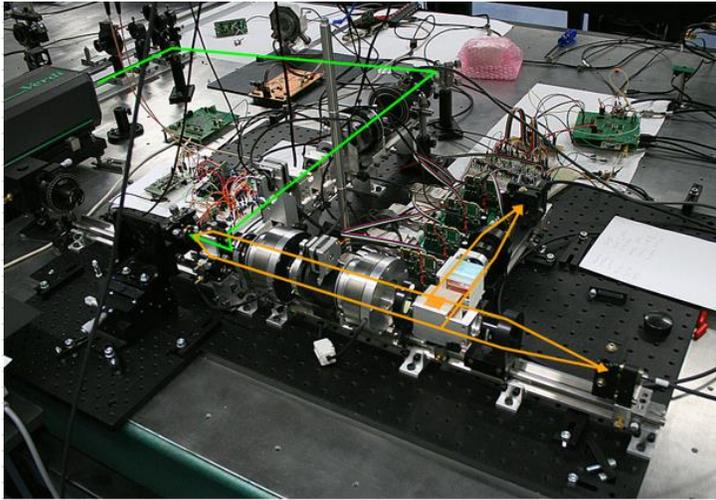
- Special optics development
- Mechanical design of the device
- BOM and costing
- Business model and strategy

- Motorisation of optical elements
- Development of the hollow shaft motor
- Design and manufacture of the spectrograph housing
- Development of XY sliders

# Key elements designed in ZEBR



# Milestones



Laboratory setup  
2016



Functional prototype  
2018



Commercial prototype 2022

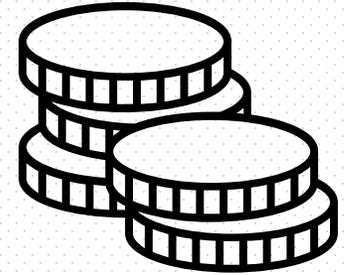
# Commercialization:



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- Change in the commercialisation model
- Important decisions - a critical moment in the whole project.
- New collaboration agreement and new business model
- First unit sold in 2022

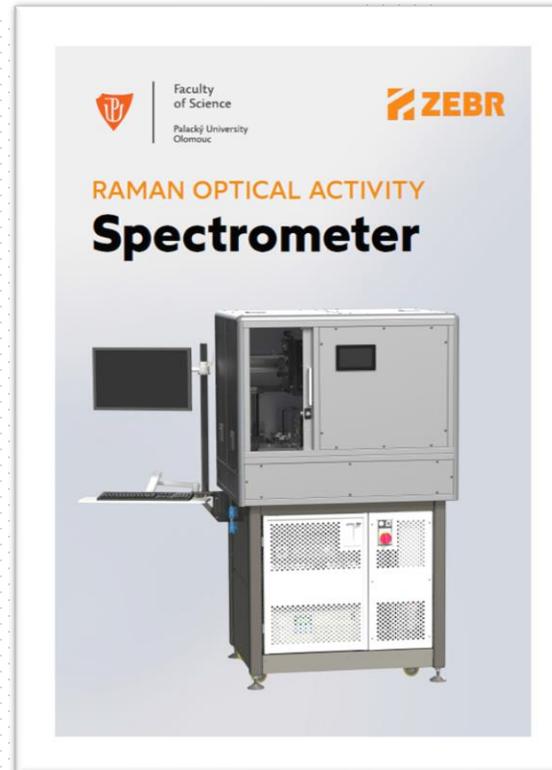


# Present situation

- We are working hard to produce the first ordered piece for the Institute of Organic Chemistry
- We are trying to incorporate as many good ideas and small improvements as possible
- We have established a spectroscopy working group within the **optical cluster** and are deepening cooperation and sharing experiences (VŠB Ostrava, Lightigo)
- We are looking for alternative suppliers, investing in testing (currently from our own resources (UPOL, ZEBR))
- Not even the first unit has been produced yet and we are already working on a number of significant improvements
- We are creating sales materials, calculating costs, approaching other potential buyers.
- We are planning the background for further follow-up activities



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# Experiences :



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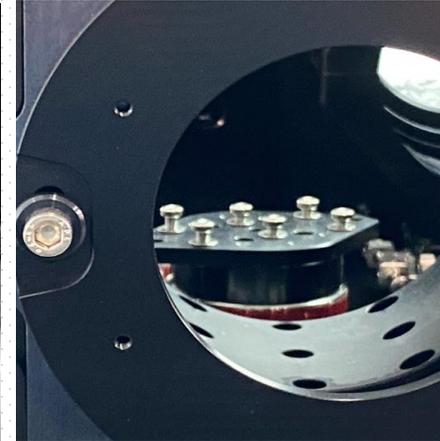
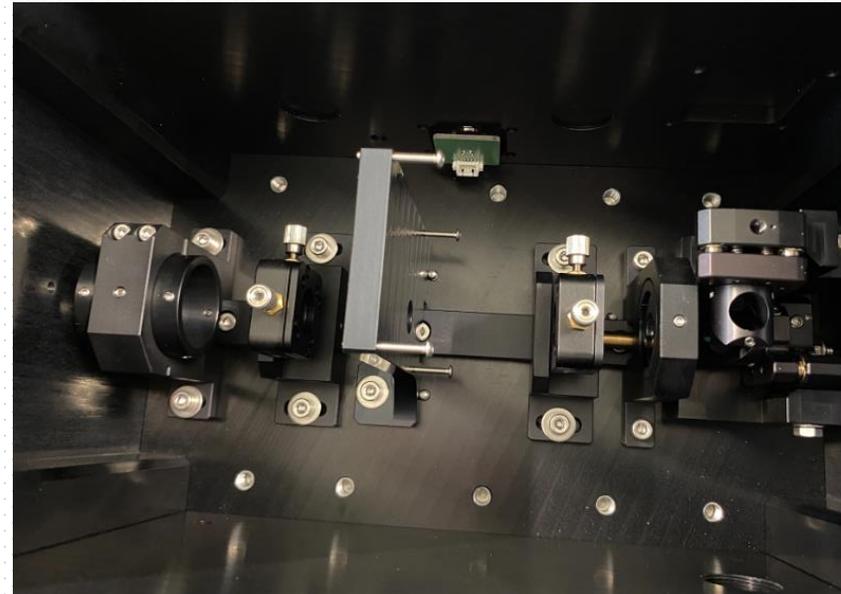
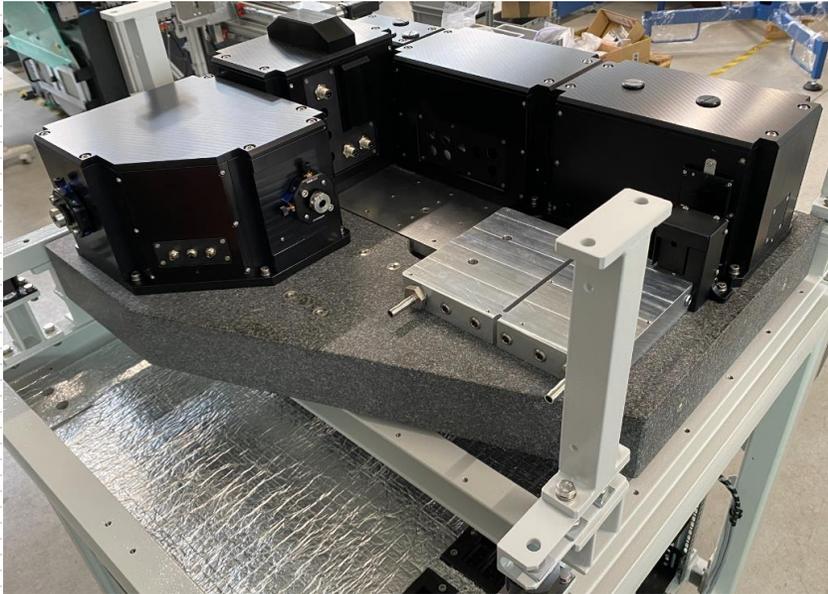
- The most important thing is a common goal (in the case of a company it is usually a new product)
- Collaboration must work in both - professional and personal base
- Each party must be willing to make sacrifices and share risks
- Think like a start-up

# We did it !

to be delivered in May 2023



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# Thank you for your attention and cooperation

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