HIRES RIZ WP

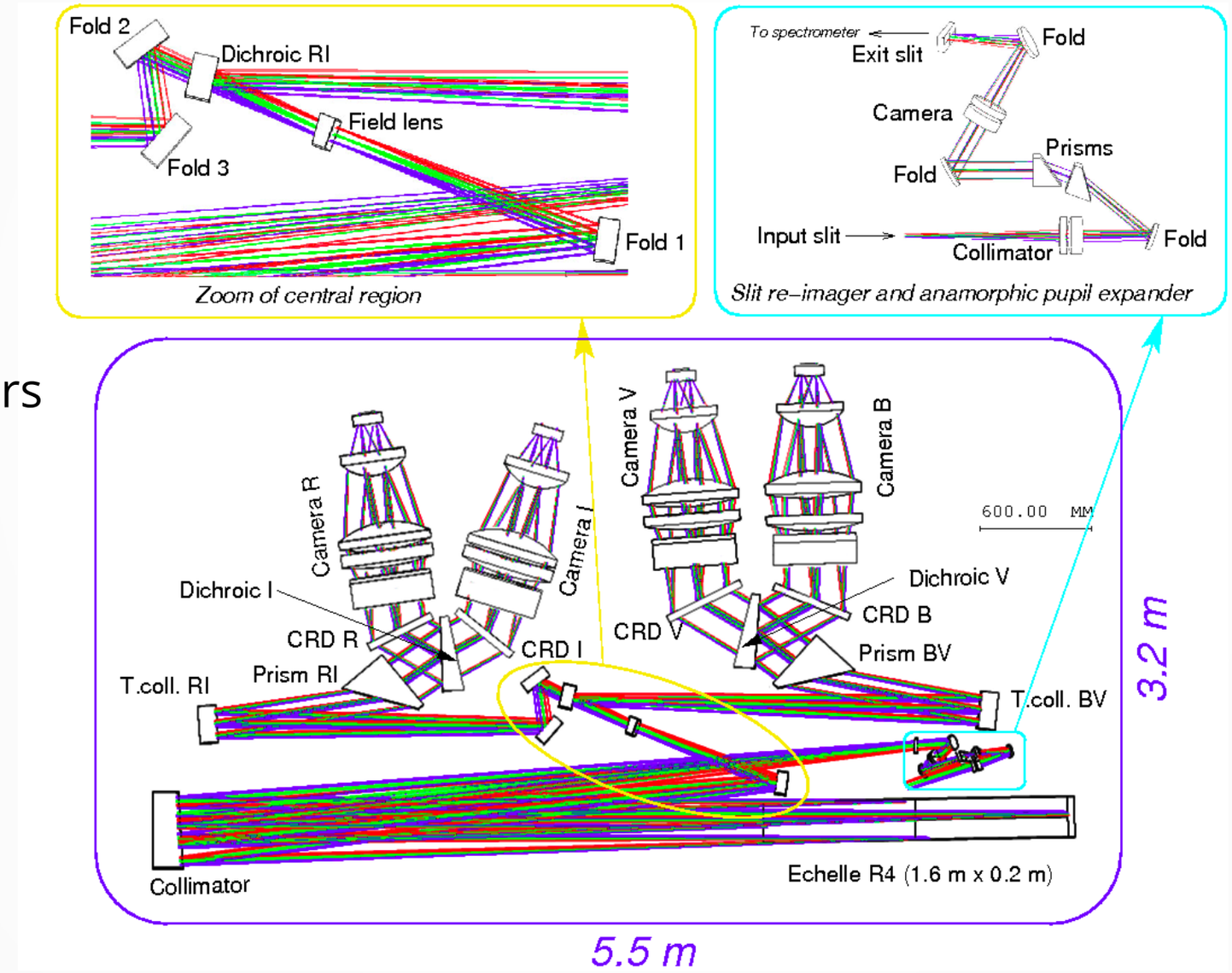
Bruno Chazelas, welcome meeting 2022

What we have to build

- **A fiber-fed visible high-resolution spectrograph with high stability.**

Design : Old VIS arm

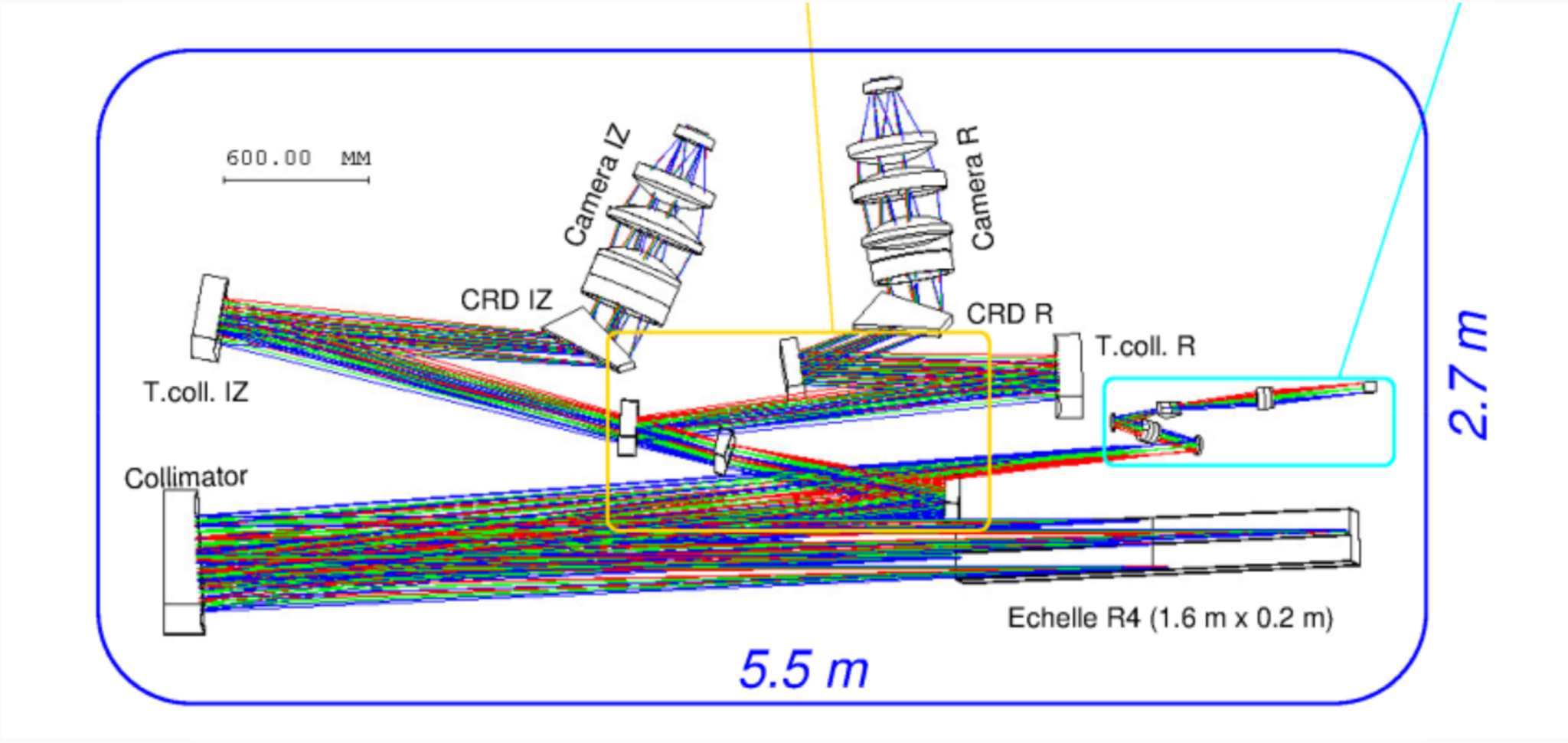
4x4k Detectors



Change from Phase A

- **New wavelength separation scheme :**
  - **R :** 0.62-0.75
  - **IZ :** 0.75-0.95
- **New location of this arm :** Coude Room
- Cameras have to be made of lenses

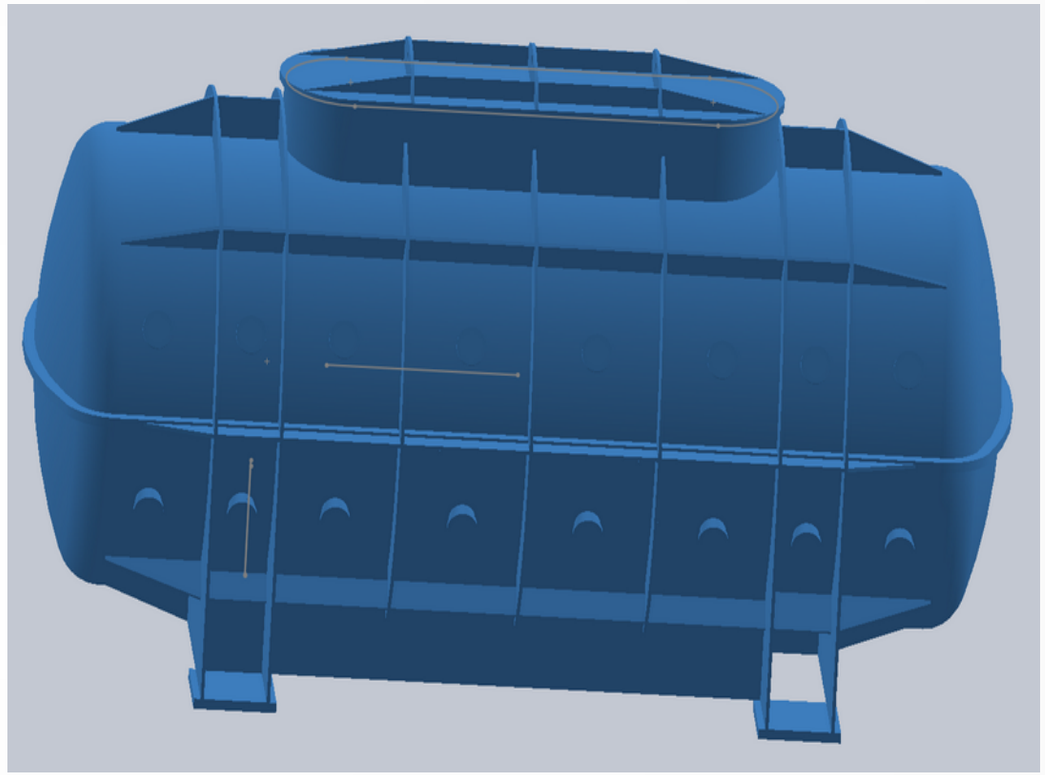
New Design


600.00 MM
Camera IZ
Camera R
CRD IZ
CRD R
T.coll. IZ
T.coll. R
Collimator
Echelle R4 (1.6 m x 0.2 m)
5.5 m
2.7 m

Design Principles

Reproduce concepts from HARPS / ESPRESSO :

- Vertical design
- Under vacuum
- Thermally controlled
- Detector cryostat in a differential vacuum



Change from Previous design

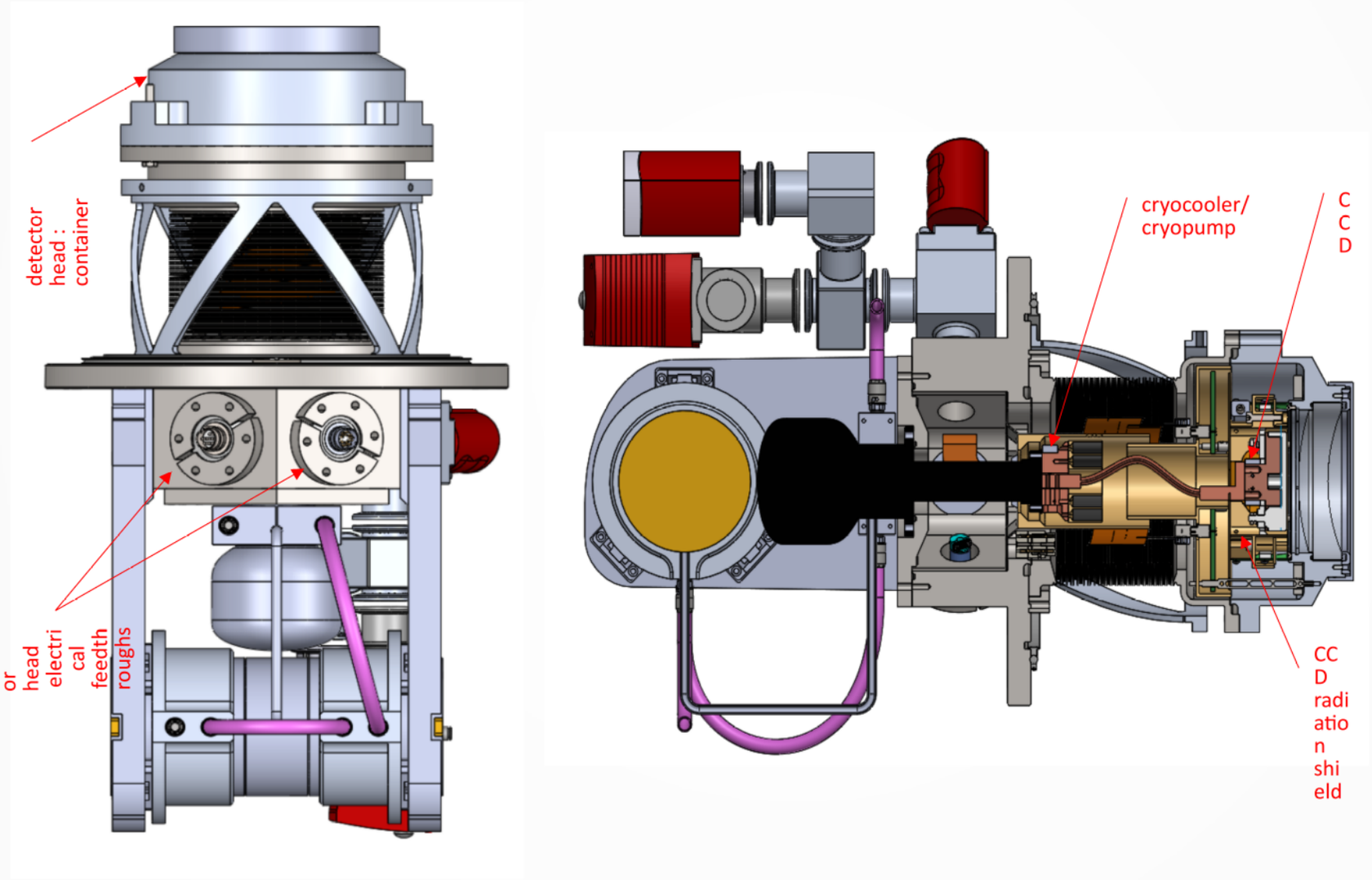
Cryostats designed by ESO : Continuous Flow Cryostat.

- Difficult to reproduce without the key person
- Some time maintenance is difficult
- Use of LN2

OGE stated to design cryo-cooler cryostats

- First a simple camera cryostat (NECAM on the Euler telescope)
- Now a differntial vacuum system for a 4K detector for RISTRETTO
- Will study the possibility to develop one for HIRES

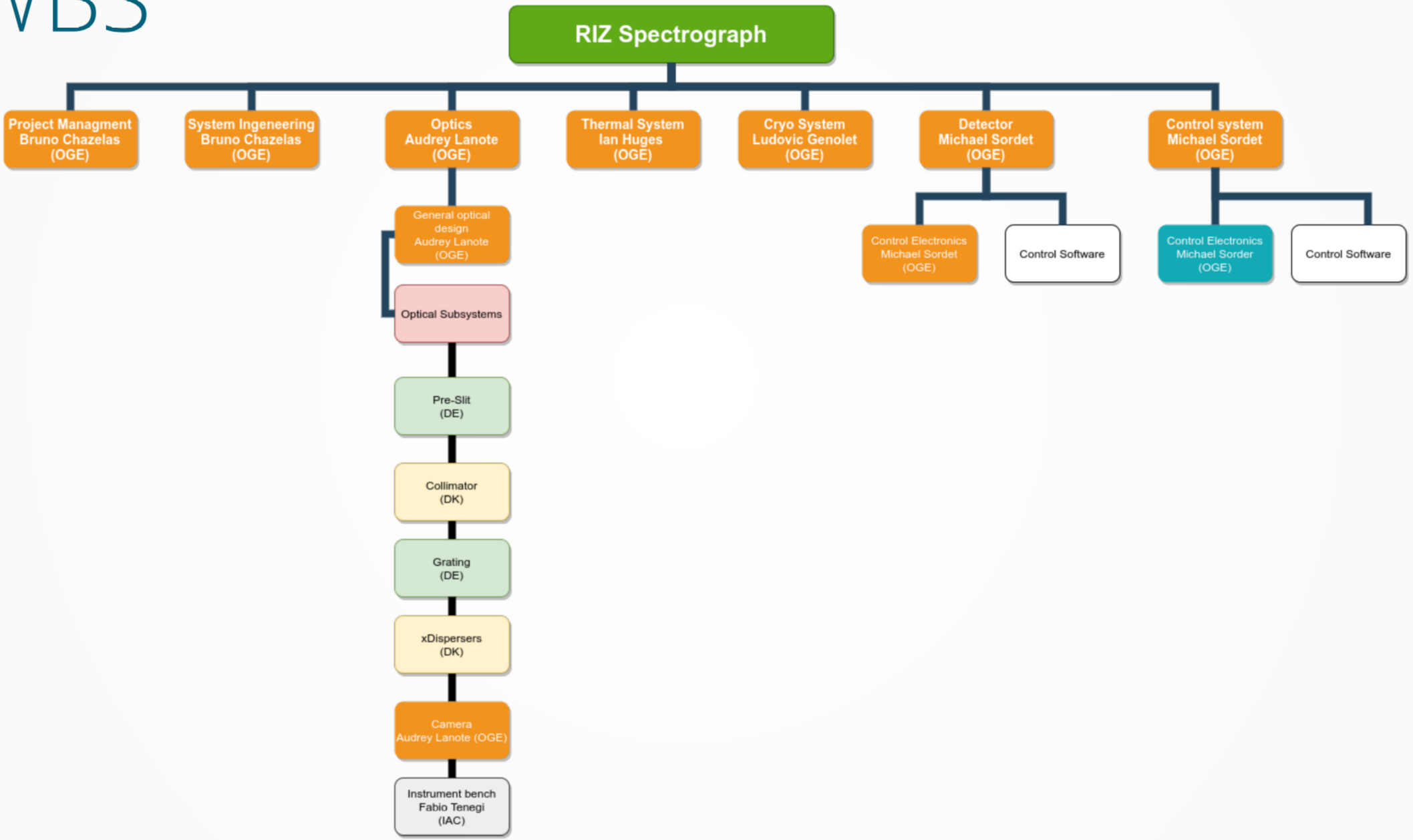
RISTRETTO Differential vacuum cryostat



Team

- OGE (CH)
- AIP (DE)
- IAC (ES)
- NBI (DK)

WBS


RIZ Spectrograph
Project Managment
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(OGE)
System Ingeneering
Bruno Chazelas
(OGE)
Optics
Audrey Lanote
(OGE)
Thermal System
Ian Huges
(OGE)
Cryo System
Ludovic Genolet
(OGE)
Detector
Michael Sordet
(OGE)
Control system
Michael Sordet
(OGE)
General optical design
Audrey Lanote
(OGE)
Optical Subsystems
Pre-Slit
(DE)
Collimator
(DK)
Grating
(DE)
xDispersers
(DK)
Camera
Audrey Lanote (OGE)
Instrument bench
Fabio Tenegi
(IAC)
Control Electronics
Michael Sordet
(OGE)
Control Software
Control Electronics
Michael Sorder
(OGE)
Control Software

Synergy With UBV

- Instrument are very similar
- Try to maximize collaboration
- Example
  - Cryostats (OGE)
  - Grating mount (IAP)

Schedule Prioryty

- Complete the WBS and find the missing bits (control software ?)
- Check the optical design

Design questions from phase A and Experience

- Choice of material for the optical bench
- Would it be possible to have the camera bodies Vertical instead of random angles (or horizontal but keep the grating the way it is)
- Choice of detector
- And probably many more