SPRING and HELLRIDE – cont'd

Status and activities at KIS

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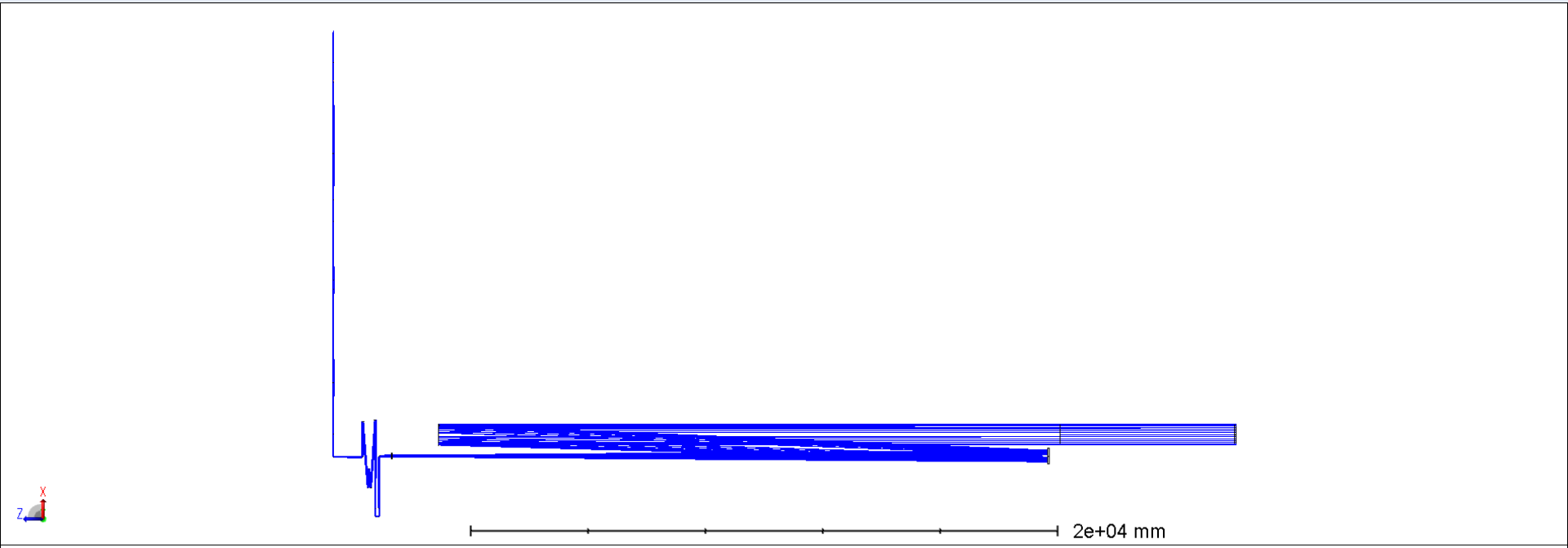
HELLRIDE: Joe `s baby

***HEL**ioseismological **L**arge **R**egions **I**nterferometric **DE**vice*

Dr. Joachim Staiger
18. 9. 1950 – 28. 2. 2017

Vacuum Tower Telescope (VTT)

HELLRIDE in the VTT



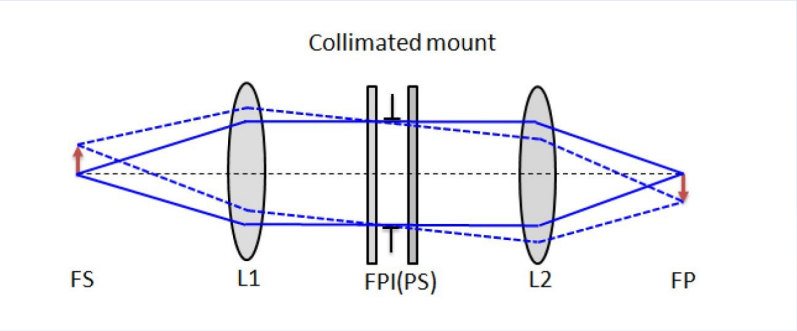
3D Layout

VTT with HELLRIDE
28.04.2019

D. Soltau
KIS

HellrideOG1-1.zmx
Configuration 1 of 1

The old discussion: telecentric vs. collimated



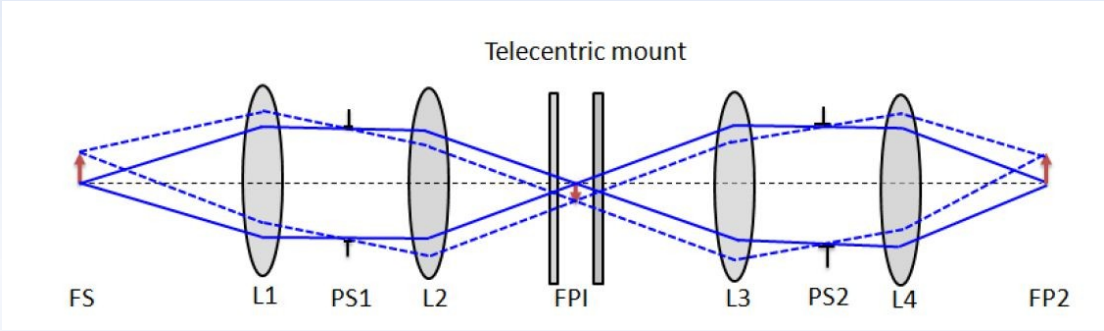
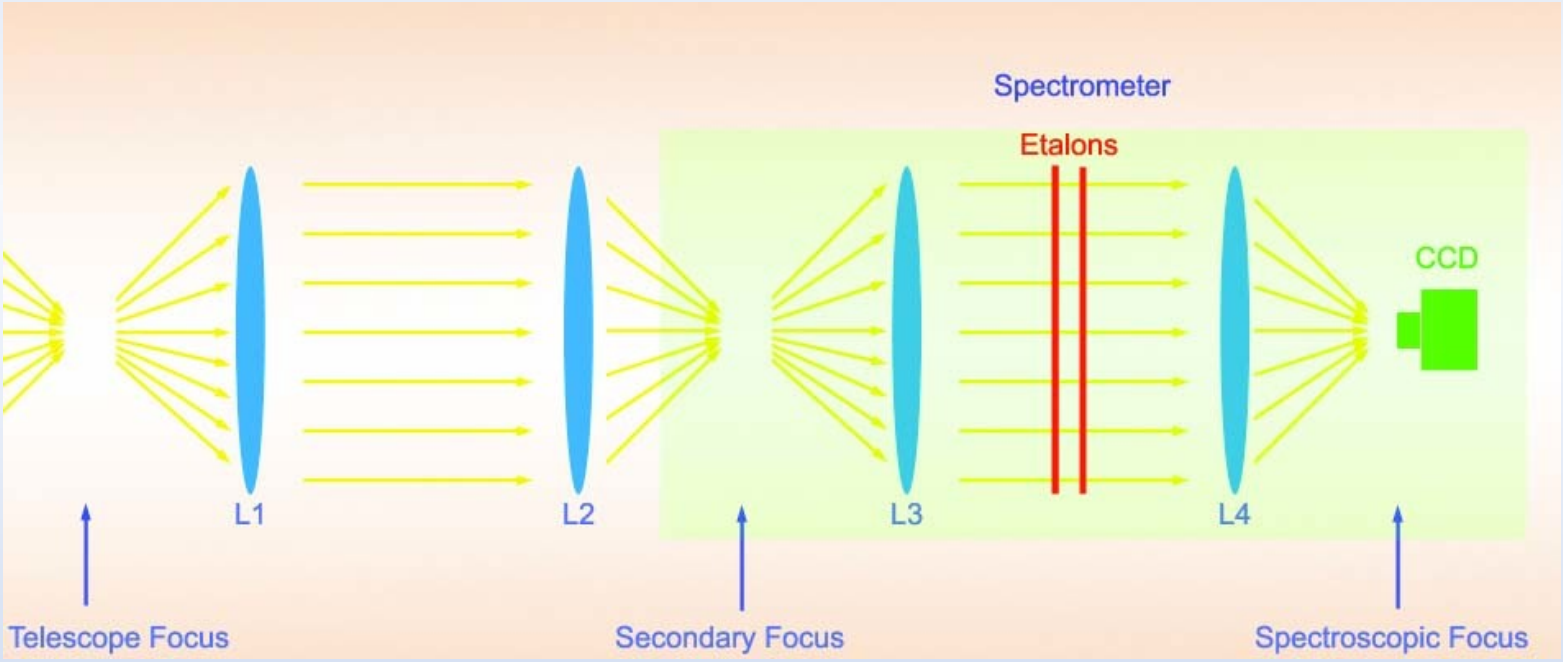


Table 2: Comparison between the collimated and telecentric optical configurations of FPIs.

	Collimated	Telecentric
Wavelength shift across the FOV	yes	no
Wavefront distortion	large	small
Influence of dust on the image	low	large
Alignment sensitivity	large	low
Blocking ghost reflections	difficult	easy
Influence of plate shape	broadening	wavelength shift
Spectral line broadening	No	Yes

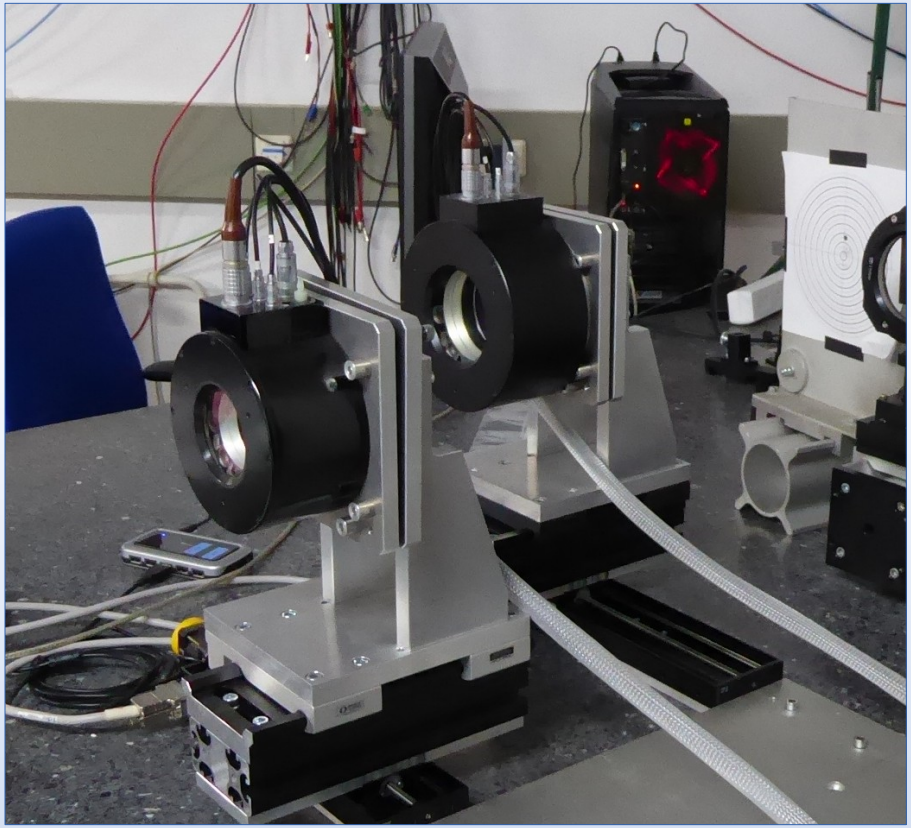
taken from Ravindra et al., 201

HELLRIDE optical layout



taken from Staiger (2013)

2 Etalons

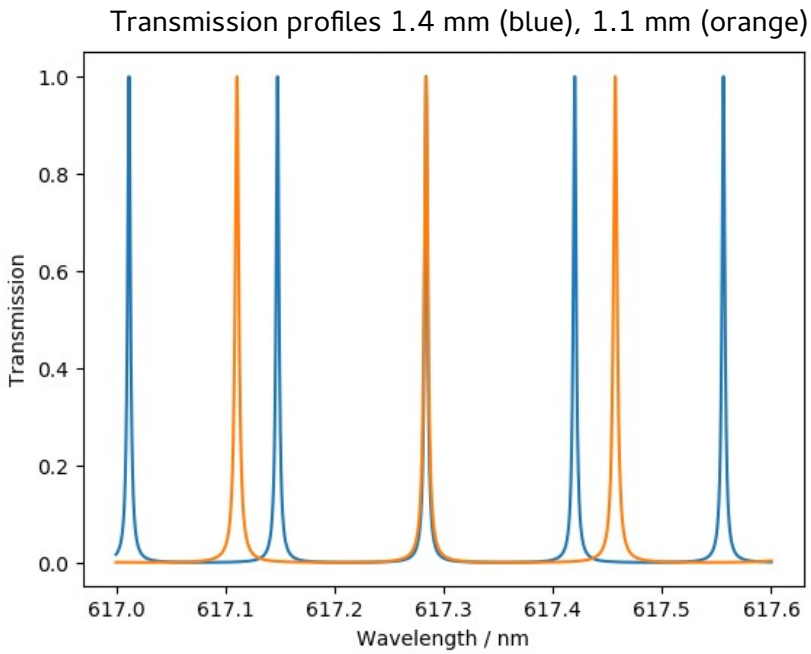


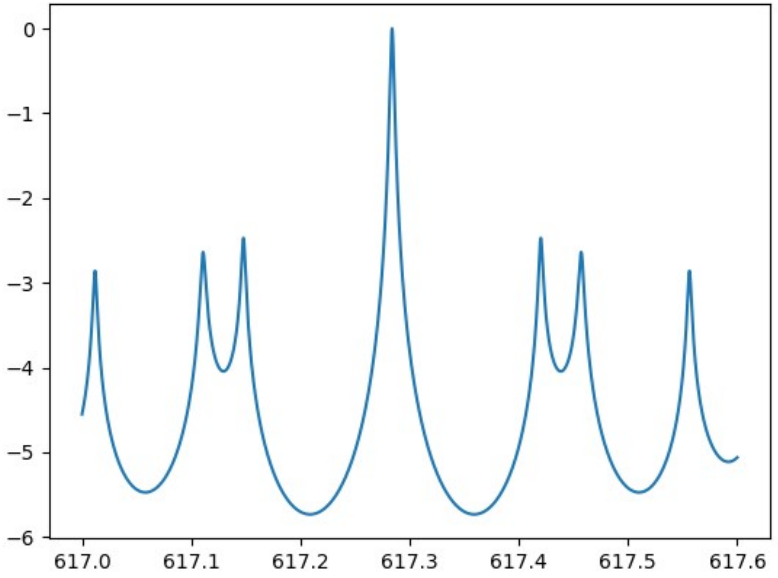
Manufacturer: IC Optical Systems

Spectral Range: 530 nm – 860 nm

Gaps: 1.4 , 1.1 mm

2 Etalons





FSR = 0.12 nm, 0.15 nm, Finesse = 46, 510 − 860 nm,

Many prefilters possible

Fig. 7. Matrix filter shifter ready for observation.

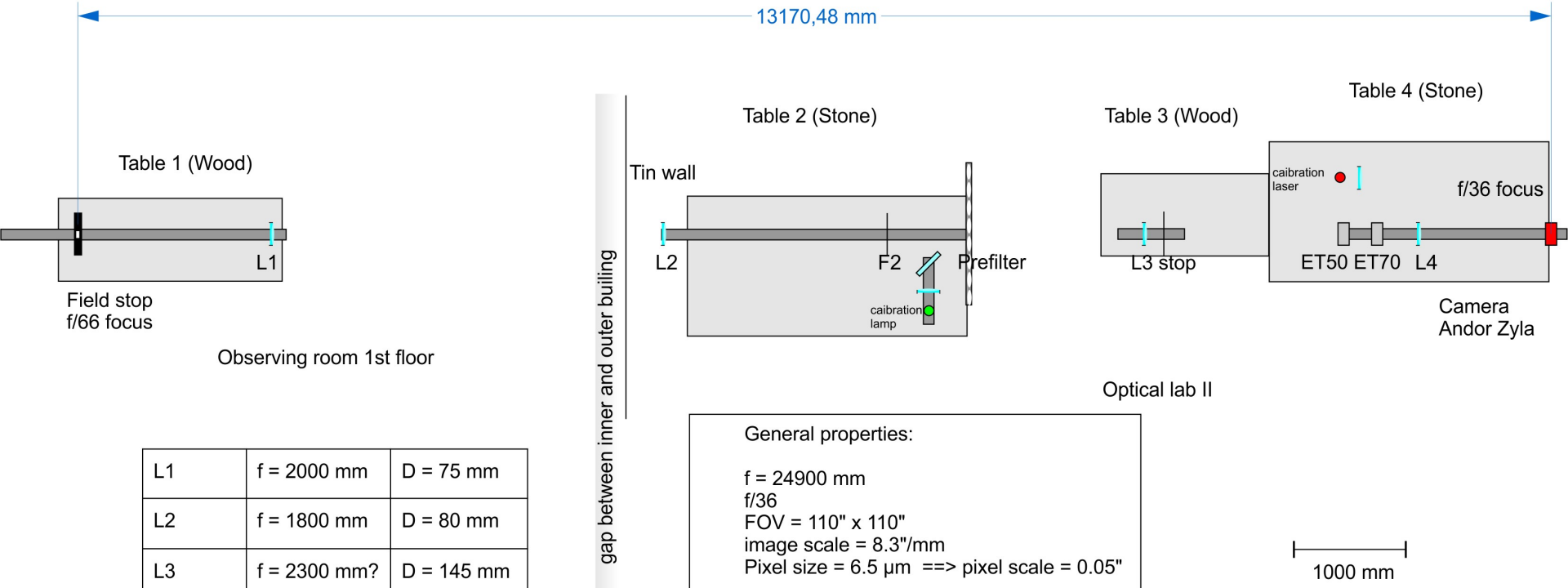
Table 1. Scanned spectral lines.

Wavelength [nm]	Element	Scansteps
517.2	Mg I	20
538.0	C I	15
538.1	Fe I	15
538.2	Ti I	15
543.4	Fe I	10
557.6	Fe I	20
589.0	Na D 2	30
589.6	Na D 1	30
630.1	Fe I	20
630.15	Telluric	15
630.2	Fe I	15
632.8	He-Ne Laser	15
656.3	Hα	50
709.1	Fe I	20
777.1	Fe I	20
777.2	Fe I	10

taken from Staiger (2011)

Current situation

Hellride setup
1:50
DS 31.3.2019



L1	f = 2000 mm	D = 75 mm
L2	f = 1800 mm	D = 80 mm
L3	f = 2300 mm?	D = 145 mm
L4	f = 1185 mm	D = 80 mm

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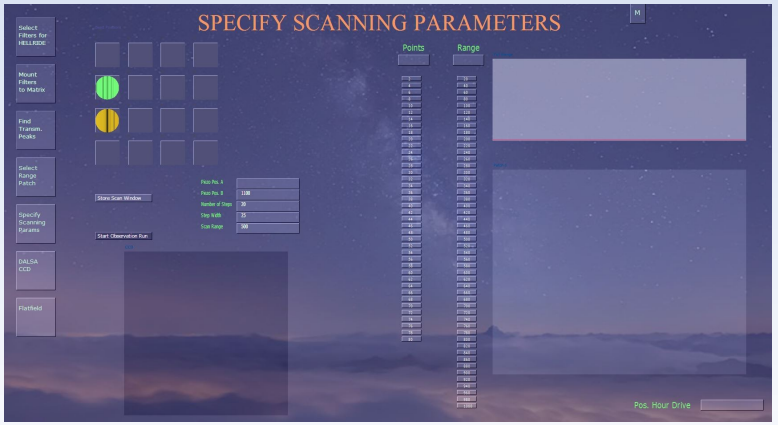
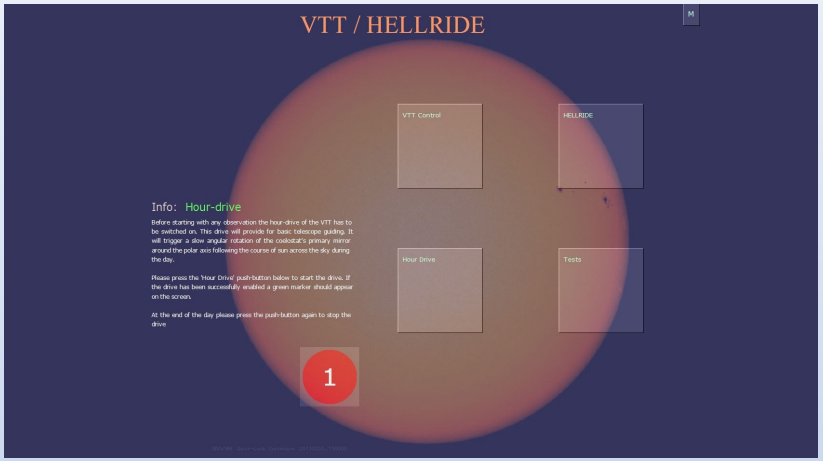
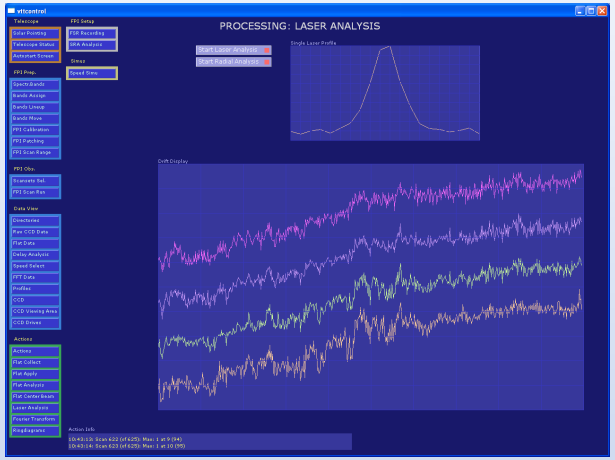
HELLRIDE reloaded …







taken from Staiger (2013)

Can we reanimate HELLRIDE?

PRO

- Hardware is there
- Telescope time is available
- Postdoc is hired (Hemanth Pruthvi starts in May)

CON

- It is hard to follow anybody else's software
- Joe's software is very individual

Full Disk imaging at the VTT

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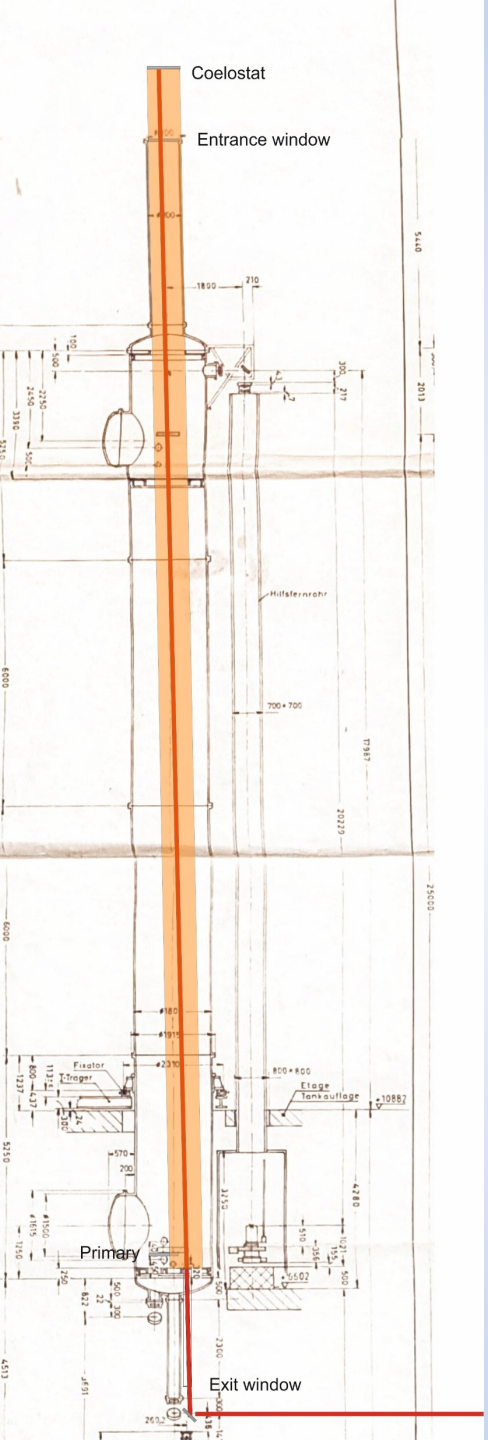
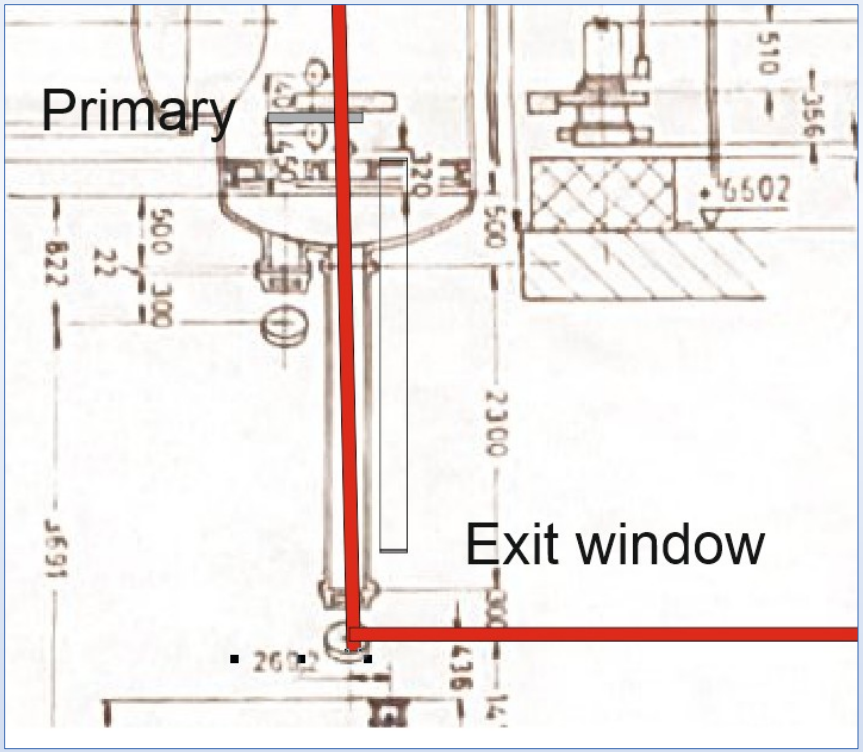


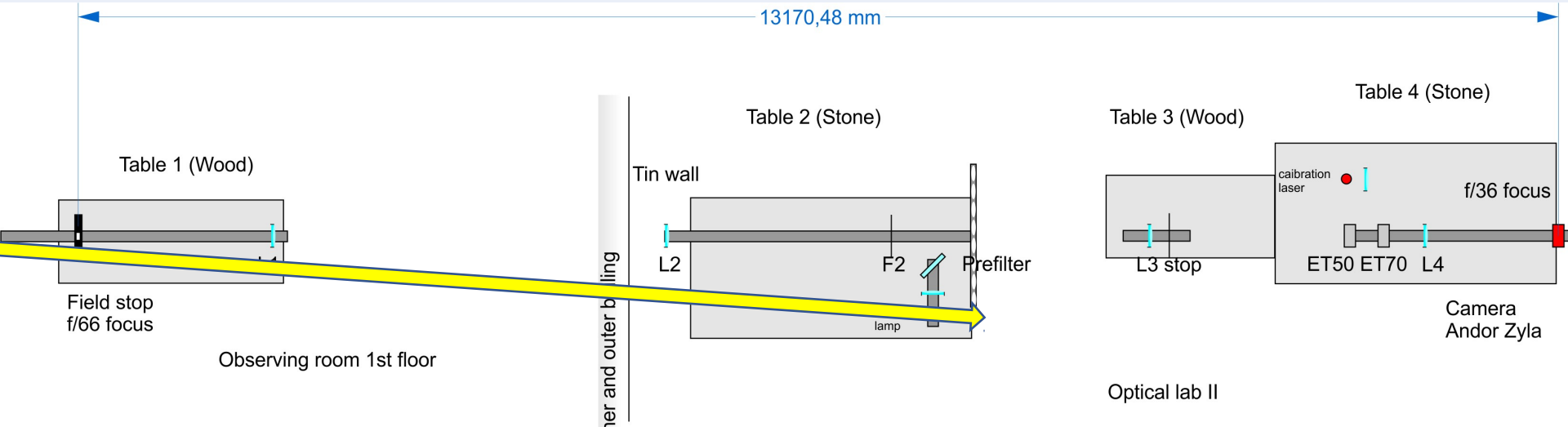


Full Disk Imaging at the VTT

D = 100 – 120 mm

Comfortable laboratory conditions

Could serve as a testbed for SPRING FDTs, Dopplerimagi



Summary

- HELLRIDE is still there and waits for reanimation
- VTT provides laboratory space for a full disk setup inside an optical laboratory

- Discussions, collaboration and ideas are welcome