



Observing Modes and User Access

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Potsdam Echelle Polarimetric and Spectroscopic Instrument



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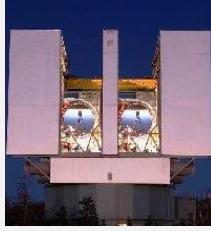
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Visual high-resolution spectrographs at 8-10 m telescopes

Telescope	SALT	Keck I	VLT Kueyen	HET	Subaru	LBT
						
Diameter [m]	9.2	10	8.2	9.2	8.2	2×8.4
Spectrograph	HRS	HIRES	UVES	HRS	HDS	PEPSI
Maximum R ($=\lambda/\Delta\lambda$)	65,000	84,000	110,000	120,000	160,000	320,000
Wavelengths [μm]	0.37– 0.89	0.3 – 1.0	0.3 – 1.1	0.39 – 1.1	0.3 – 1.0	0.38 – 0.91

- (Only) **P.I. instrument** at LBTO
- No in-kind credit
- **MoU AIP-LBTO** from 2006:
 - AIP:** AGw #3+4 early delivery plus two derotator flanges
 - LBTO:** equivalent of 143 kUSD support and 120 hours commissioning time
- **Instrument delivery** in 3 stages in 2013 & 2014 & 2015



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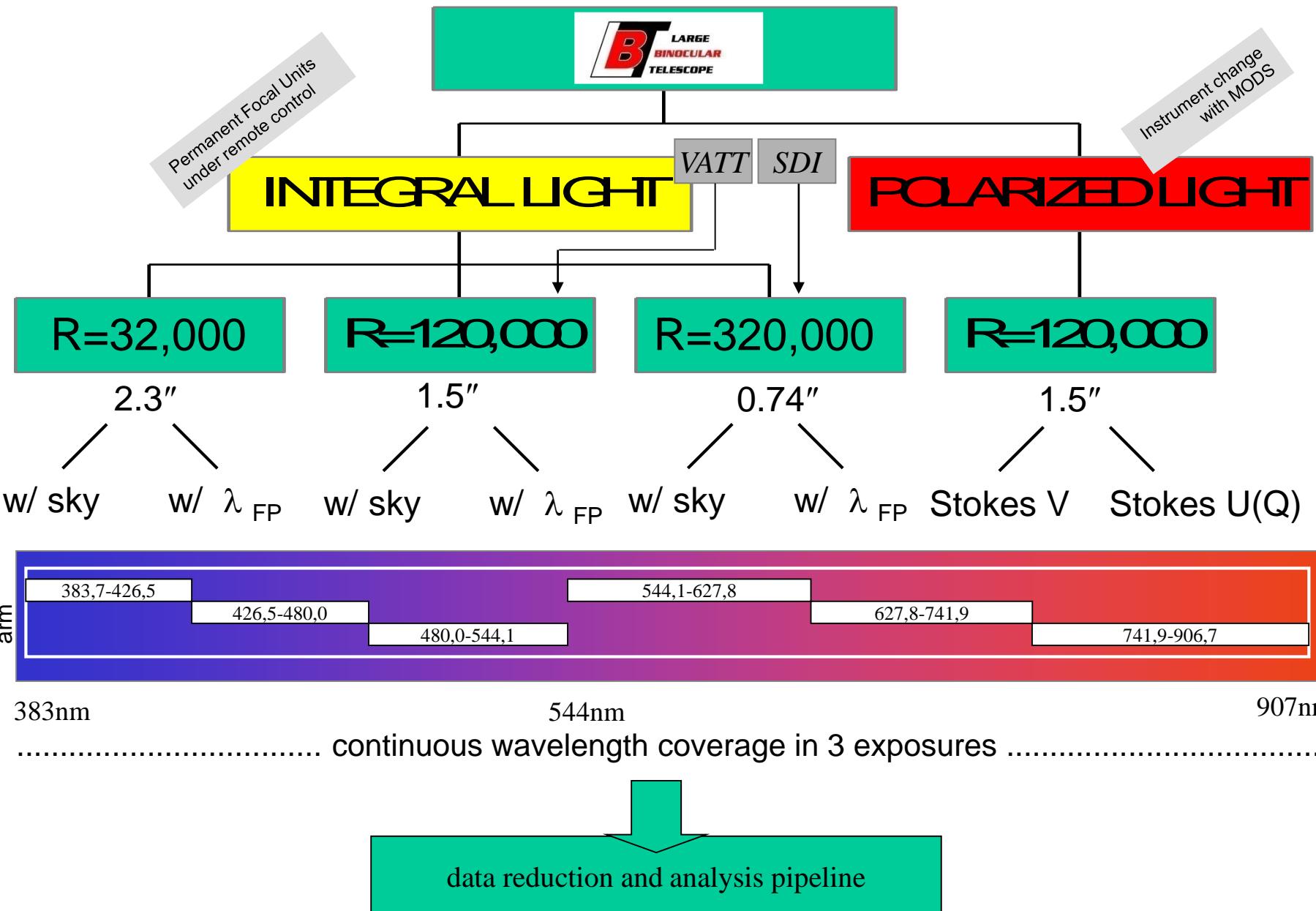


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Overview PEPSI observing modes





P.I. key science topics



1. Cosmic magnetic fields (of point sources).
2. Stellar granulation and surface structure of cool stars: constrain 3-D stellar model atmospheres.
3. Nucleosynthesis: detect e.g. U, Th, Pb ... in UMPDs.
4. Mixing and dredge-up processes: ${}^6\text{Li}$ in active cool stars, in particular planet-hosting stars.
5. Exoplanet characterization: mass, atmosphere, biosignatures.
6. Fine-structure constant α and p/e-ratio μ from quasars.

Two long-term key-science projects:

1. **The PEPSI deep spectrum project.** Single, high R, high S/N spectra of selected key targets.
2. **ZDI of „The Sun in Time“** by using stars in a time series of open cluster stars of various ages.



How can I use PEPSI?



1. PI-collaborative modus: P.I. does the observations and the data reduction; collaborator brings the telescope time; **joint & quick publications**; individual negotiations w/P.I.; start **2015B**.
2. LBTC-partner modus: partner pays for usage, „currency“ is nights; **12 hours/year/12.5%** to P.I.. Includes partner-observer training for instrument and data-reduction pipeline. Start: **2016A**.
3. Facility modus: LBTC compensates in *tbd* nights over, say, 10 years. Earliest start **2017A**.

#1&2 do not include the polarimeter use. Polarimeter would be added by 2017A.

Talk to me or send e-mail to kstrassmeier@aip.de



First PEPSI item that arrived on the mountain 06/2006





Followed by the „bridge“ 2006-2007

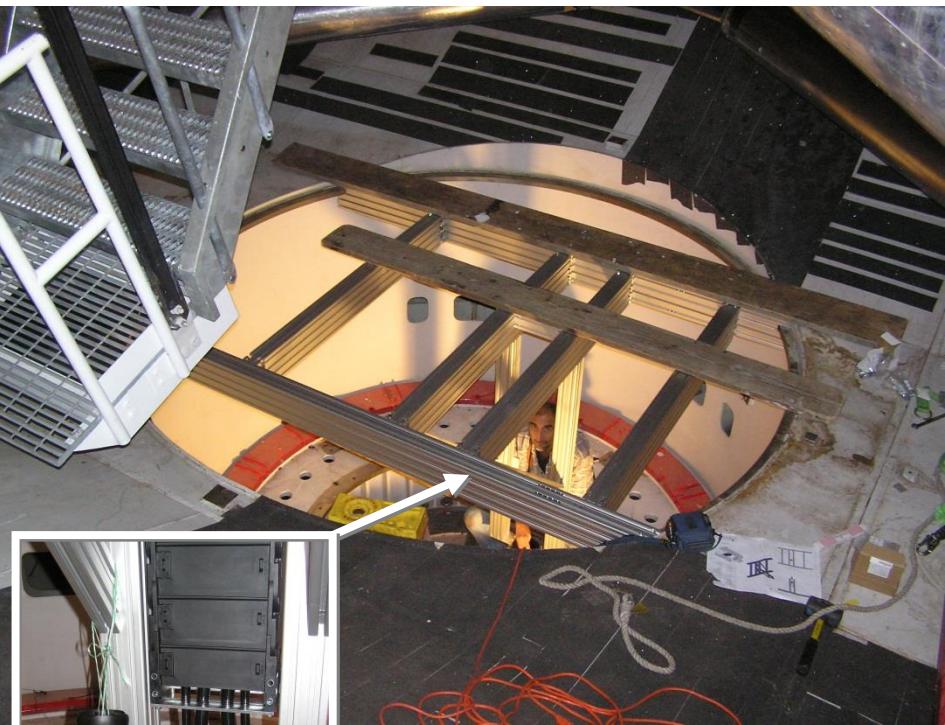




Fiber-train installations 2008-2010



Energiekette für
Faserkoppelung



Faserderotator
Vorbereitung

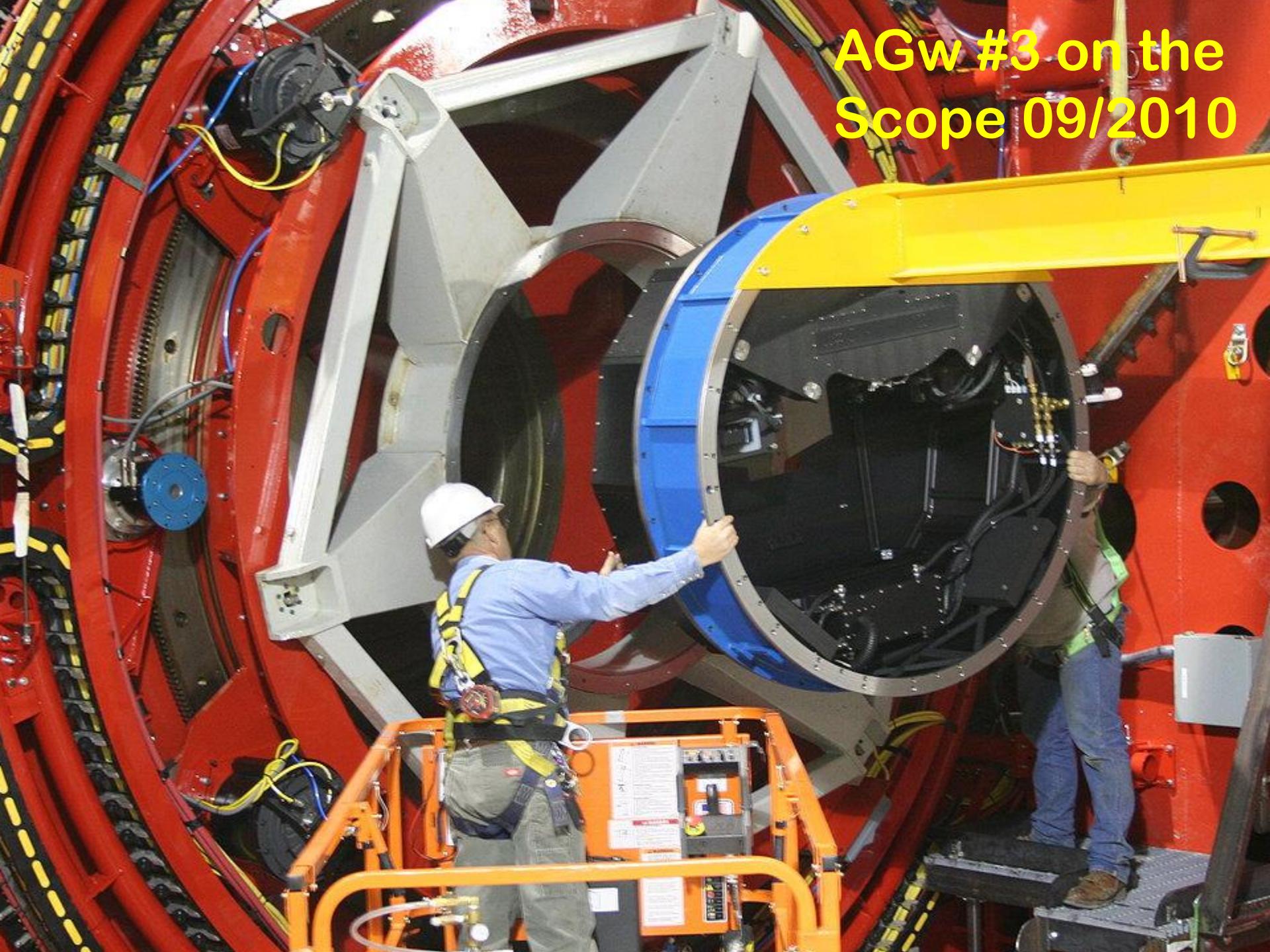


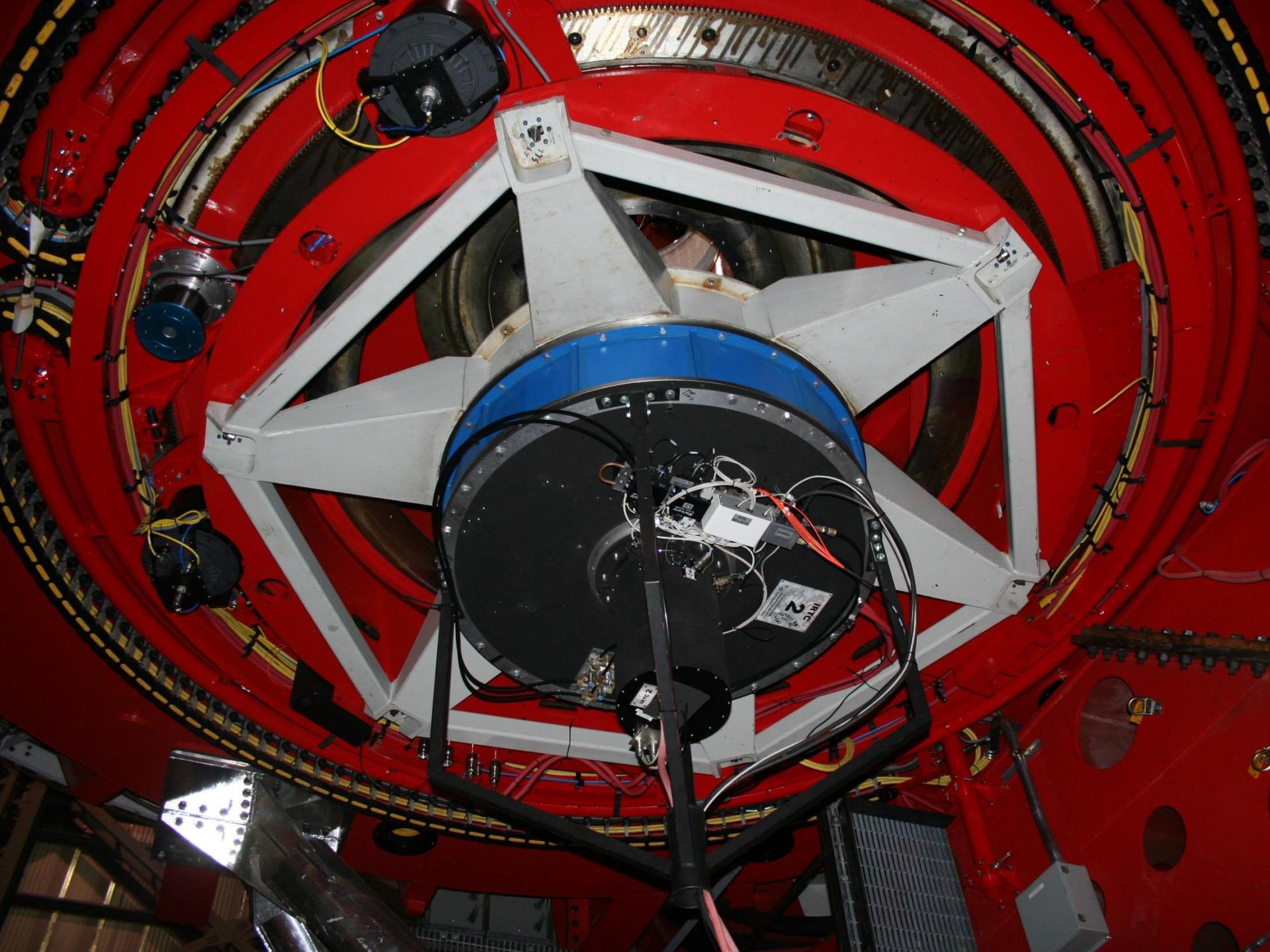
SDI – Solar Disk Integration Telescope 10/2009





AGw #3 on the
Scope 09/2010







**PEPSI 32TB SAN
implemented 10/2012**

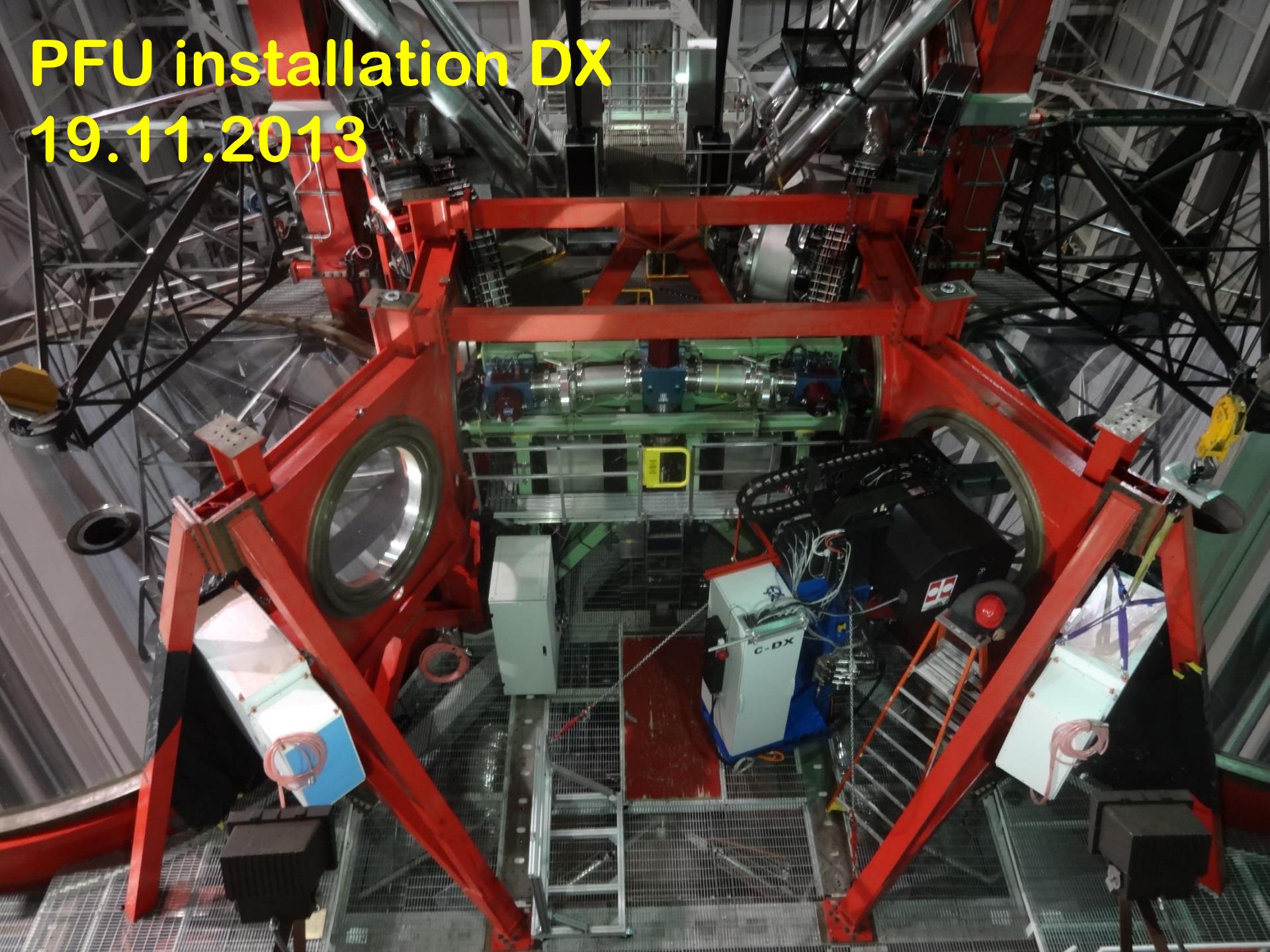


PFU arrival on the mountain
4.11.2013

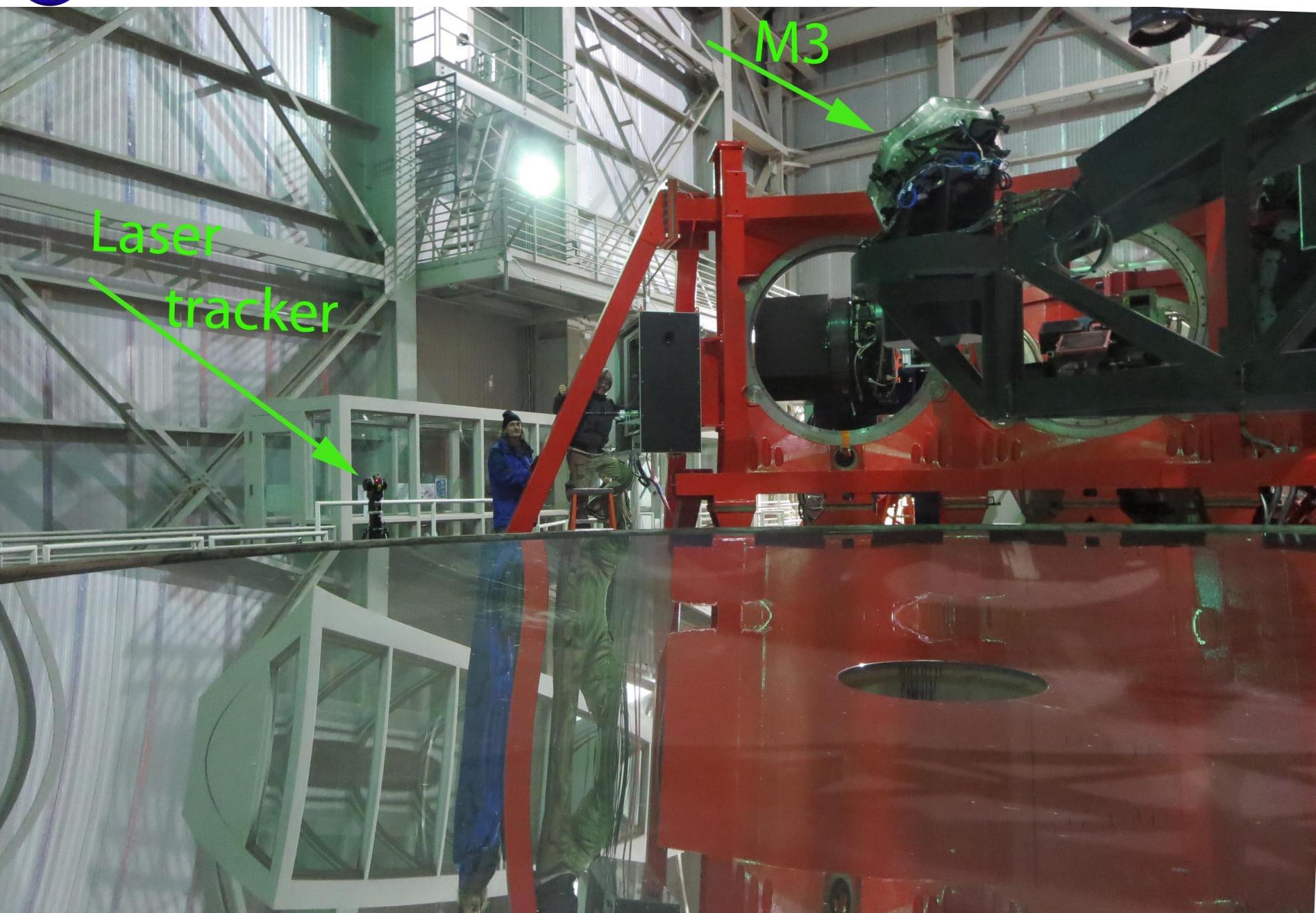
PFU installation SX
18.11.2013



PFU installation DX
19.11.2013



PEPSI Alignment DX 20.11.2013





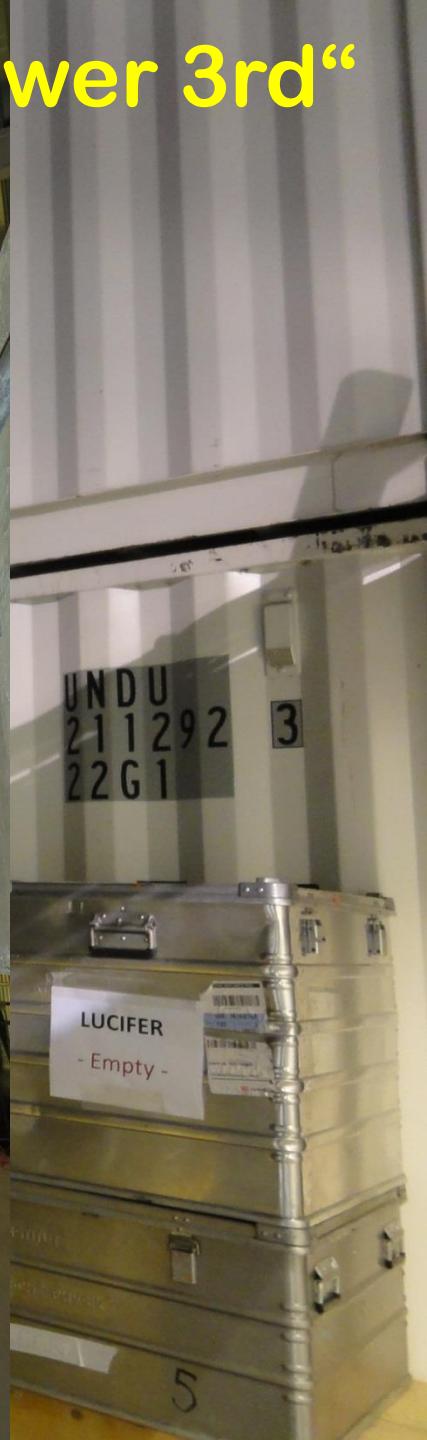
Spectrograph room prep at LBTO 2012-14



11/2012

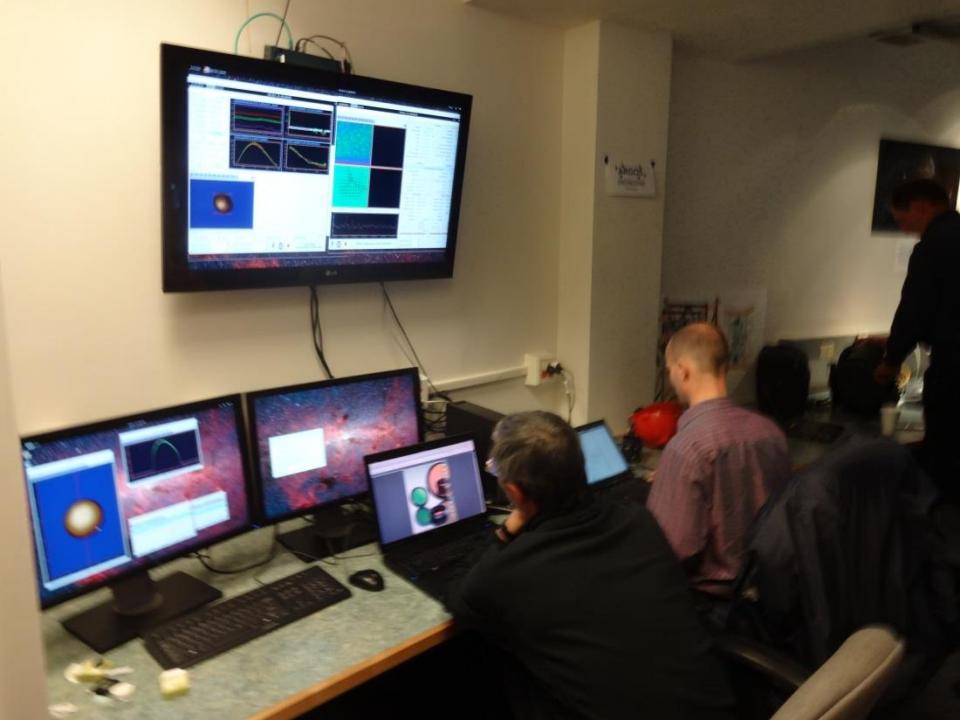


Polarimeter storage at LBTO „lower 3rd“



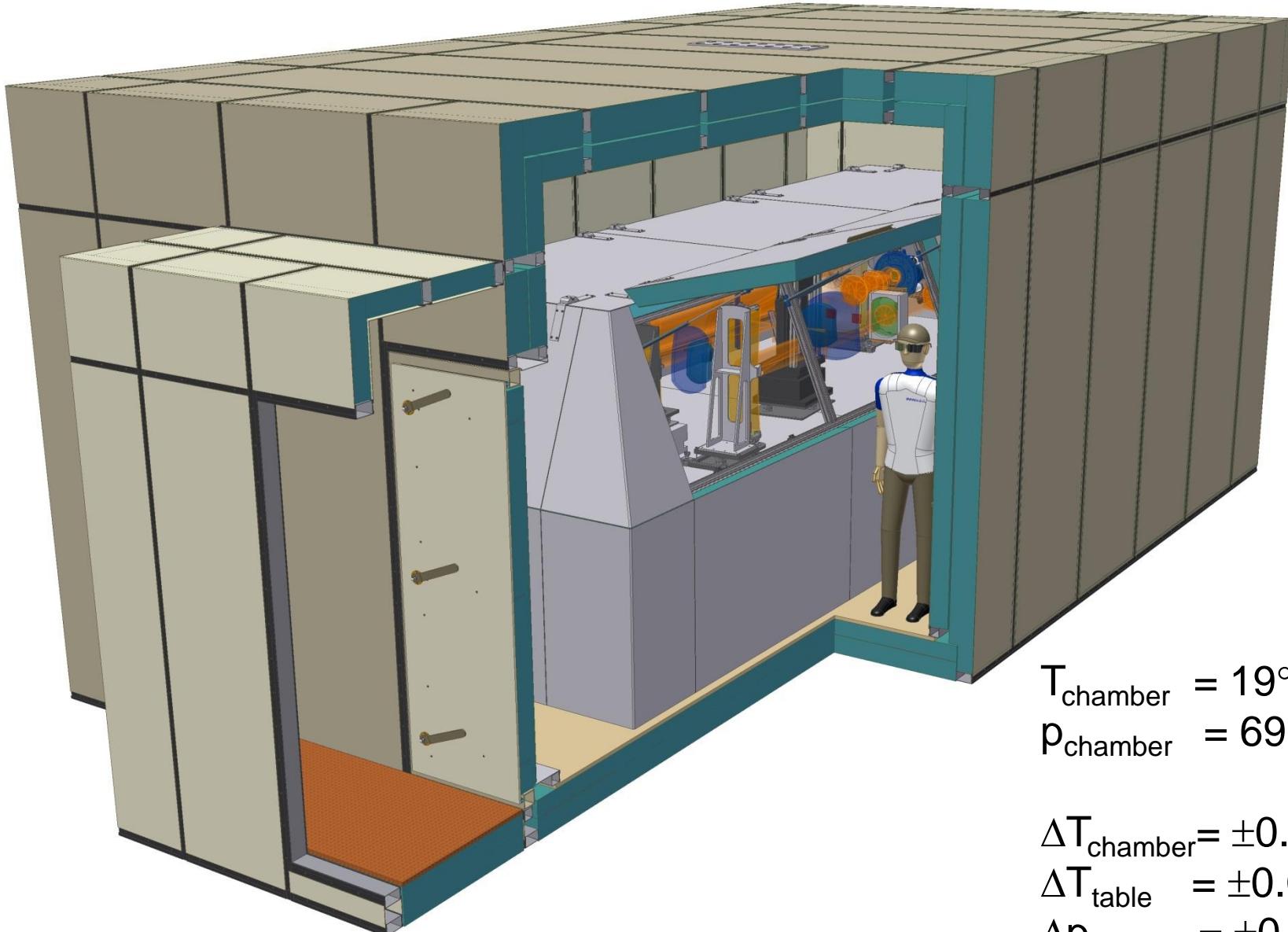


PEPSI control section in LBT operator room 2013+





Spectrograph: Chamber



$$T_{\text{chamber}} = 19^\circ\text{C}$$

$$p_{\text{chamber}} = 690 \text{ mbar}$$

$$\Delta T_{\text{chamber}} = \pm 0.01^\circ\text{C}$$

$$\Delta T_{\text{table}} = \pm 0.005^\circ\text{C}$$

$$\Delta p_{\text{chamber}} = \pm 0.01 \text{ mbar}$$



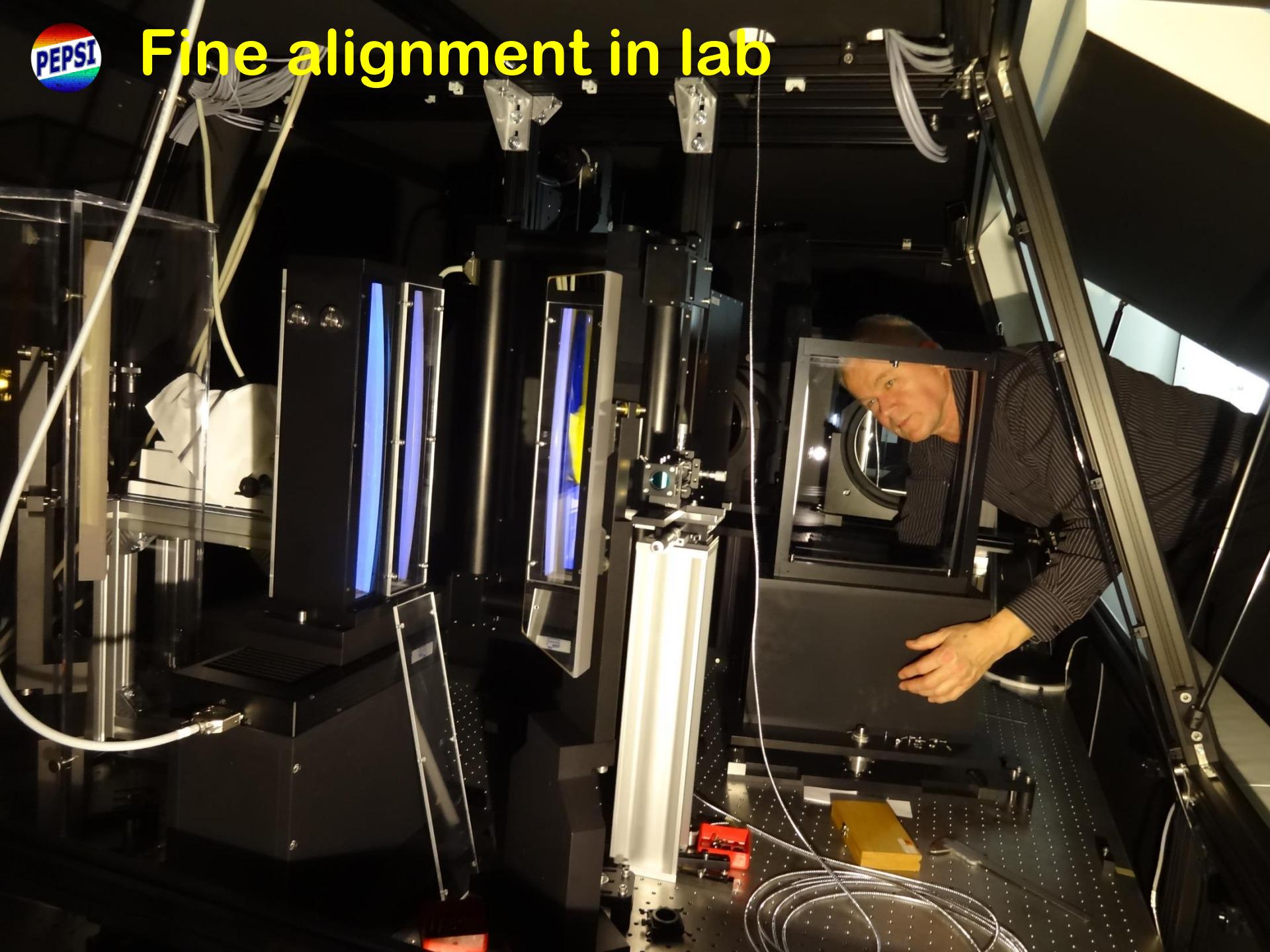
Lab inspection

08/2013



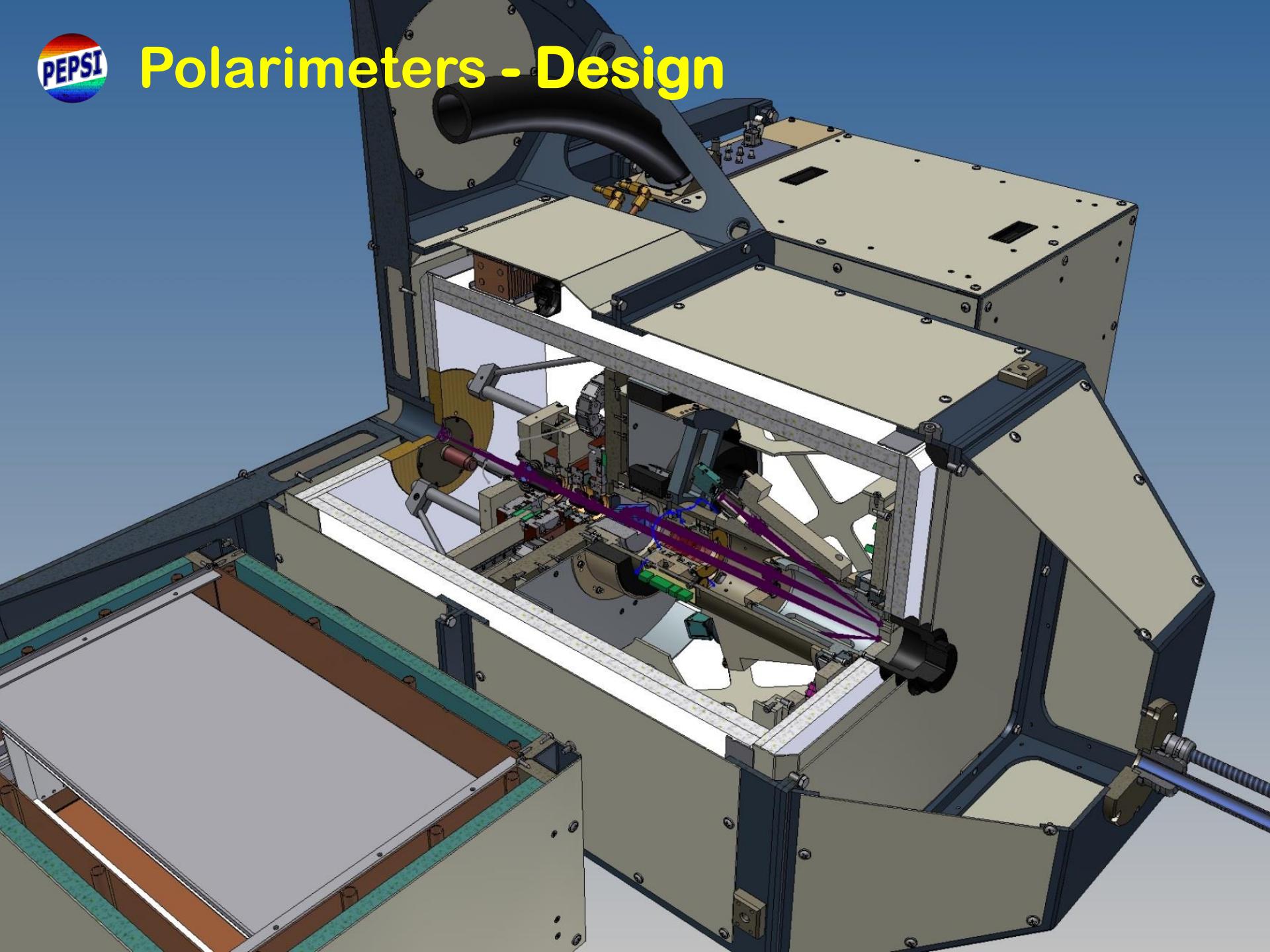


Fine alignment in lab



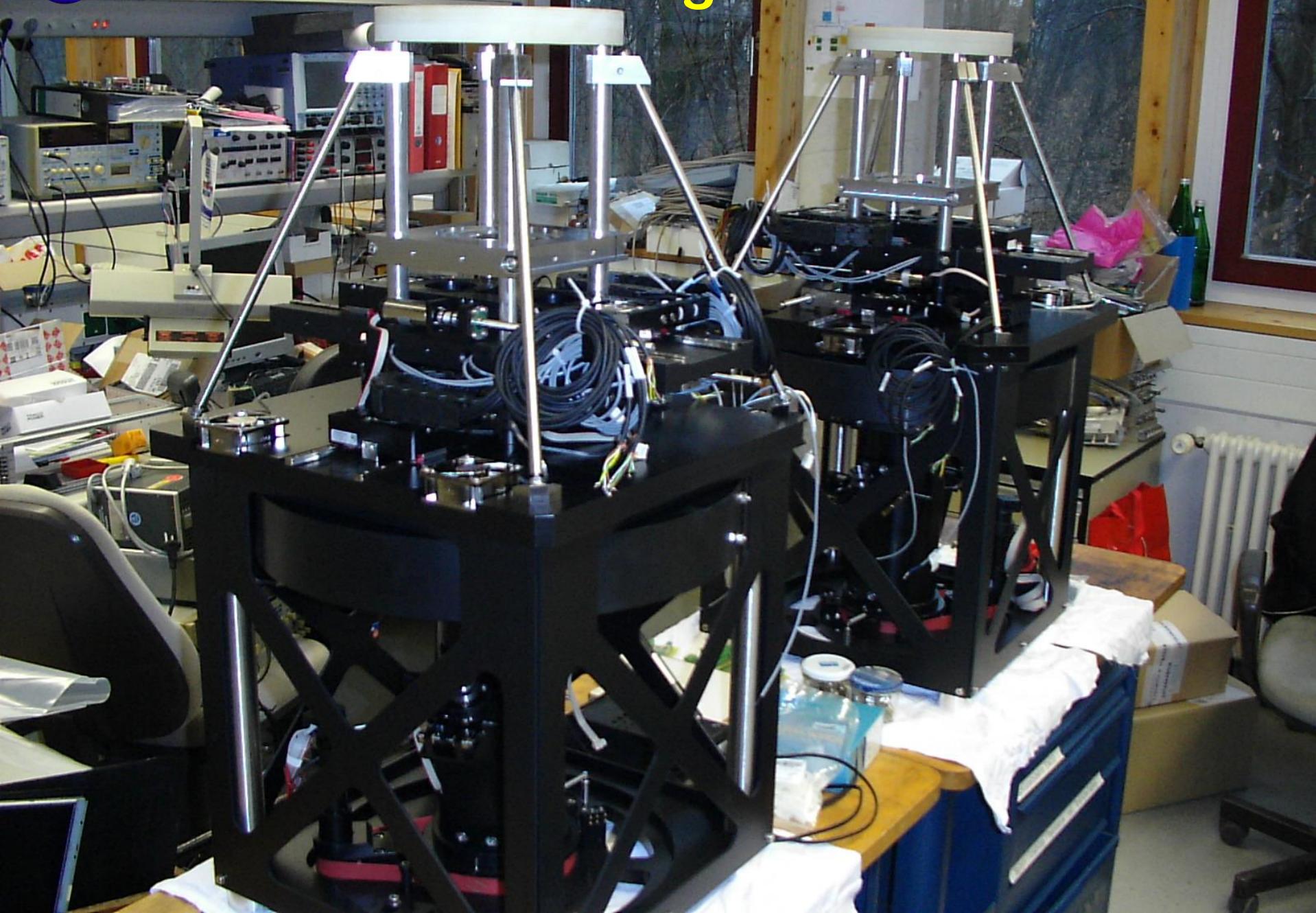


Polarimeters - Design





Polarimeter lab integration 2014





VATT-PEPSI fiber pulling, 25.-28.3.2014



