

MAGiC progress update

STAP meeting – 03rd May 2022

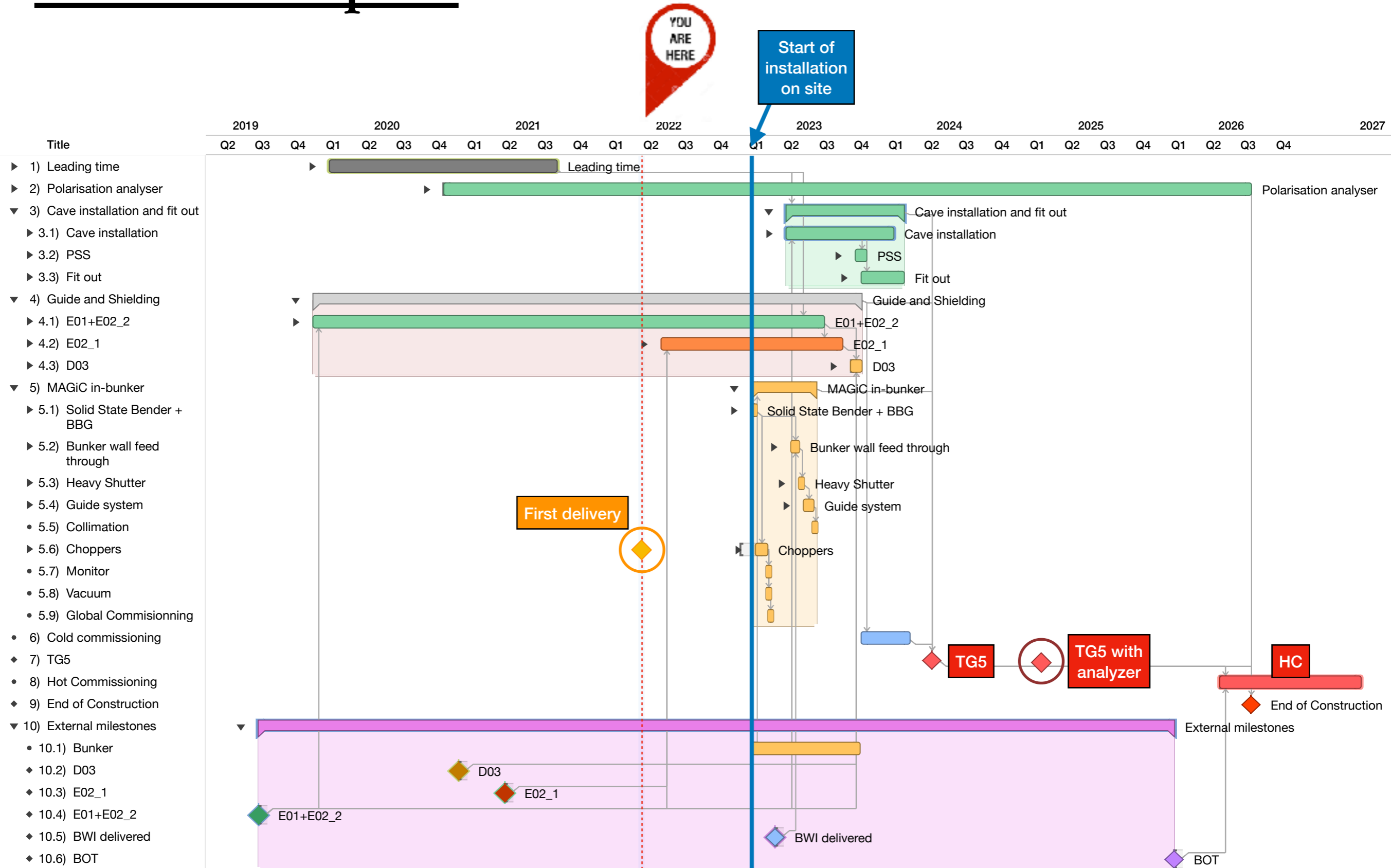
Tendering/review/delivery progress

- Tendering process of all major components in progress
 - > Contract signed for guide system, detectors, monitors
 - > Signature in progress for Polarizer
 - > Analysis in progress for Experimental Cave
 - > Deliveries aligned with ESS major milestones (bunker access)

- Review process
 - > Sub-TG3:
 - # Out of Bunker SM, NBPI, CP Shielding
 - # Next: IB SM, Heavy Shutter, Detector A

- Deliveries
 - > Choppers:
 - > disks, spindles and enclosures
 - > magnetic guide field
 - > Guide system in Q4/22
 - > Cave in 09/23

Installation plan



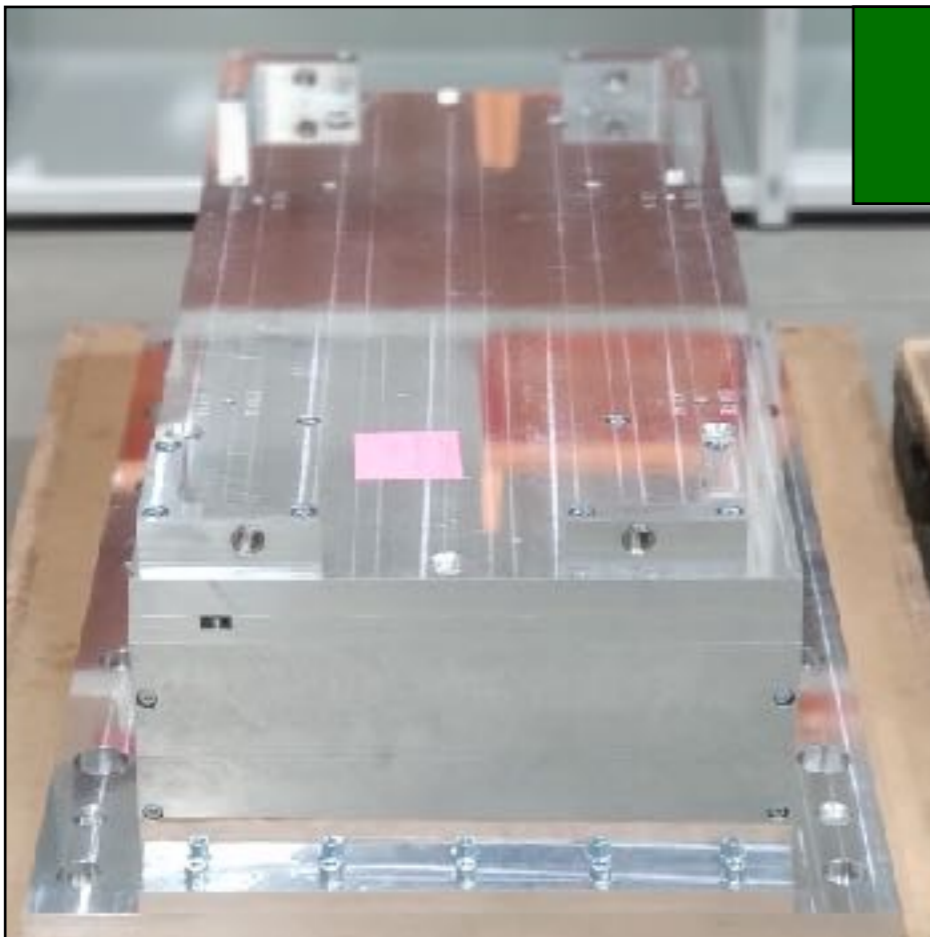
Magnetic Guide field and Choppers

- Magnetic Guide Field: delivery this week



Magnetic Guide field and Choppers

- Magnetic Guide Field: delivery this week
- Choppers
 - Lower enclosures delivered and assembled for all choppers
 - FE enclosure delivered
 - Disc coating of FE CF discs in progress



BC

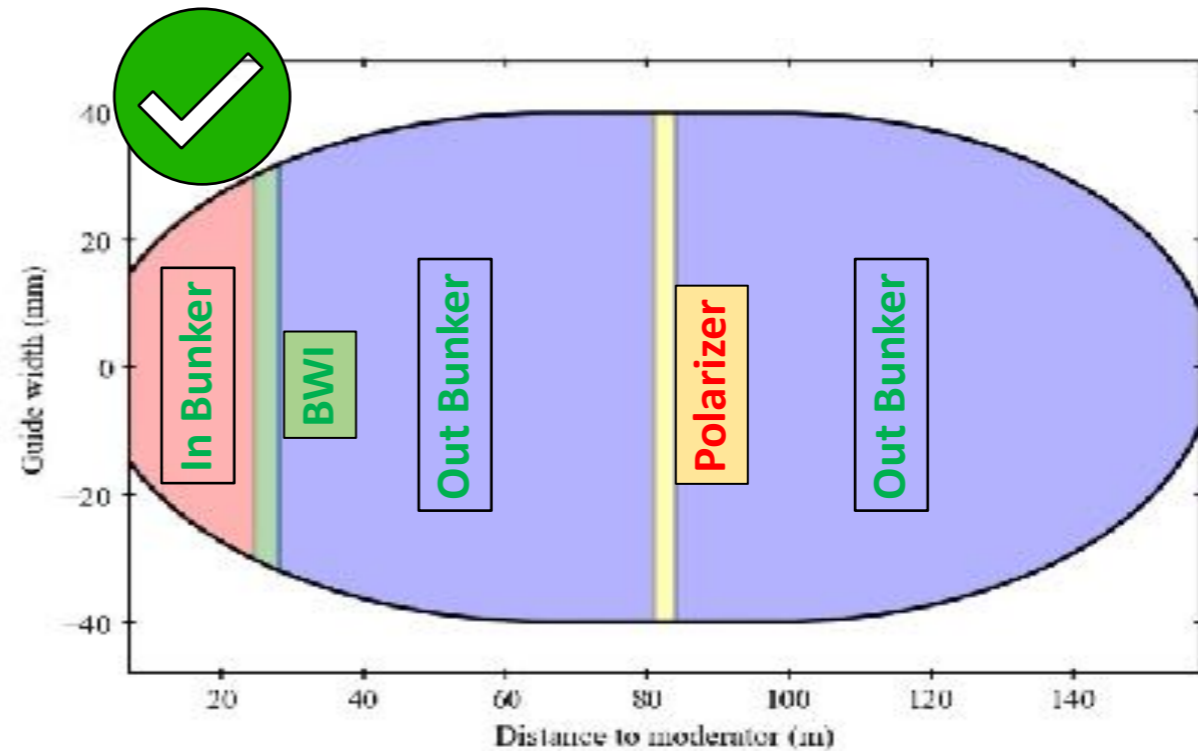


FE



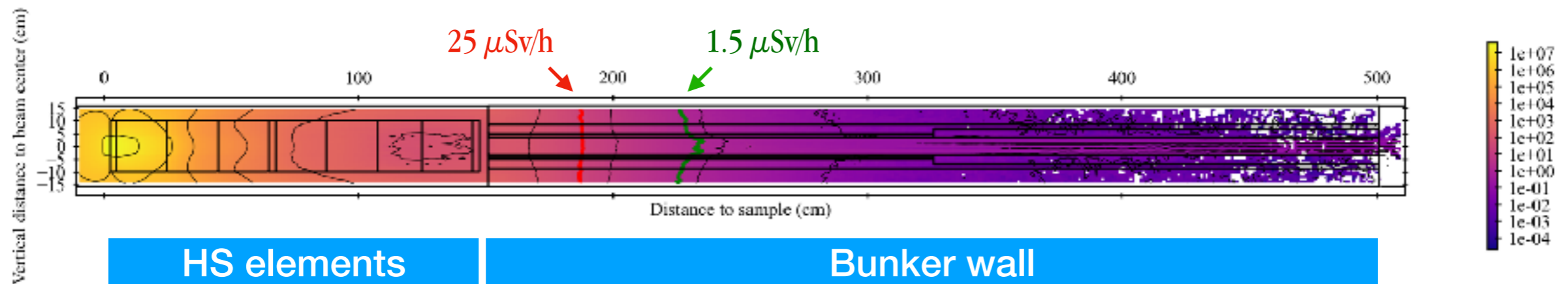
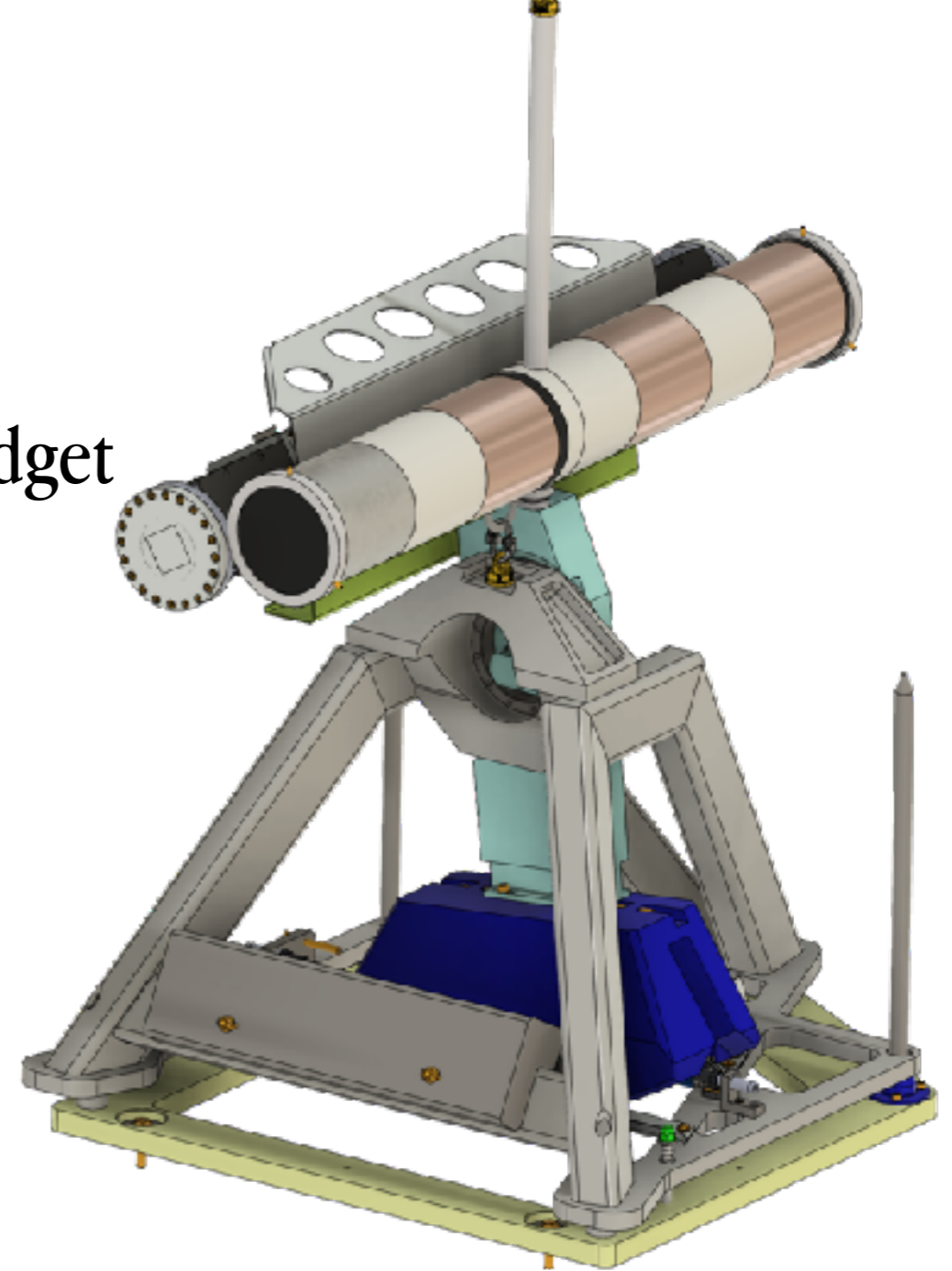
Guide system

- Lot 1
 - CDR with SNAG done
 - subTG3: 20th May
- Lot 2
 - CDR with SNAG done
 - subTG3: 20th May
- Lot 3
 - CDR with Mirrotron done
 - sub-TG3 passed => manufacturing started
- Lot 4
 - Offers received on April 20th
 - Analysis done => signature to come



Heavy Shutter

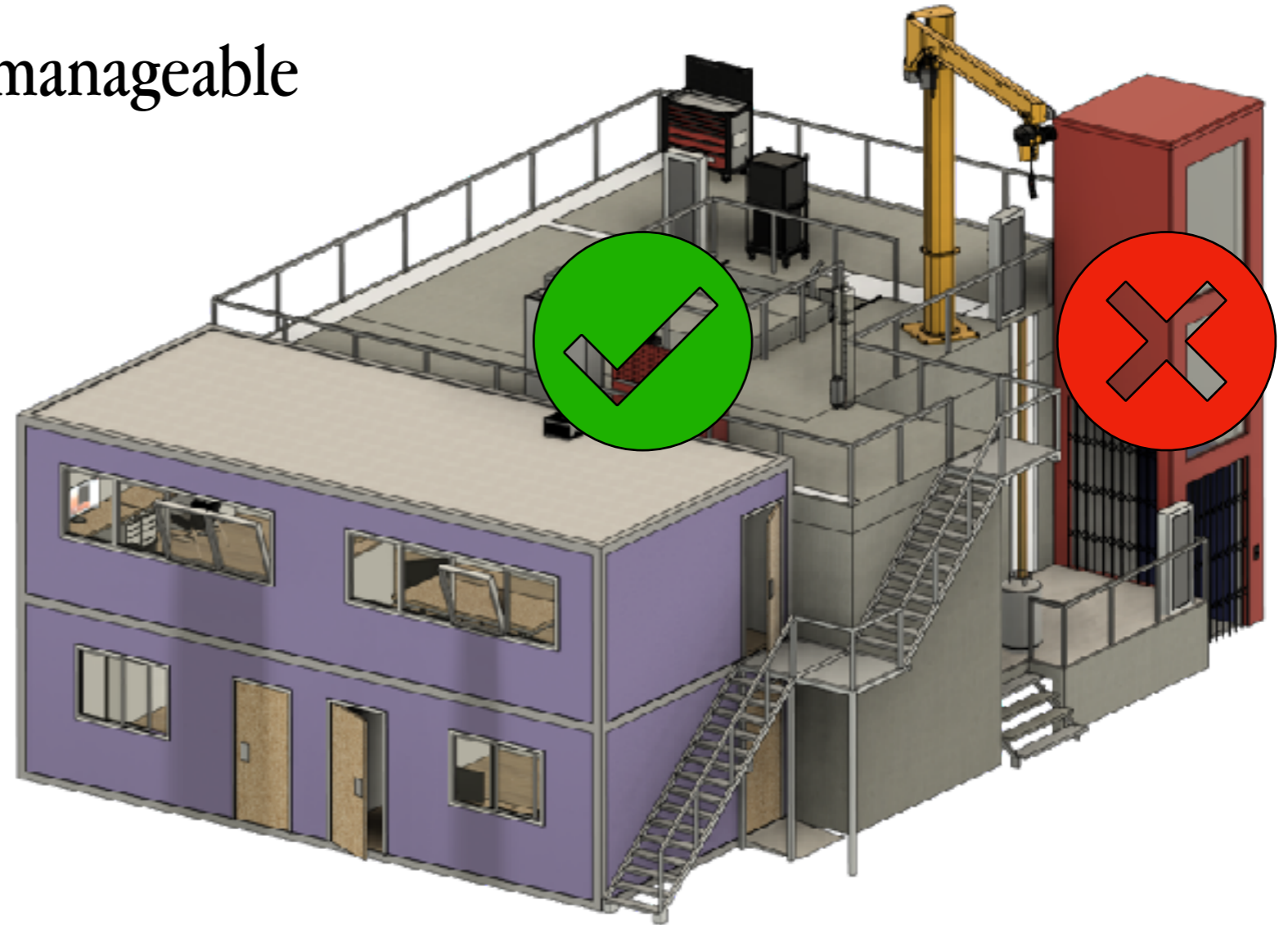
- Tender released with May 25th deadline
- Budget quote received already: well within budget
- sub-TG3 on May 20th
- Documentation to ESS on Friday
- CEP/CUP integration not done



Experimental Cave

- Offers received on April 24th
- Two offers above budget but manageable

- Analysis in progress
- Meeting on 6th of May
- Negotiation round to come
- 15 months project duration



- No offer for the elevator
- Individual tender to be released

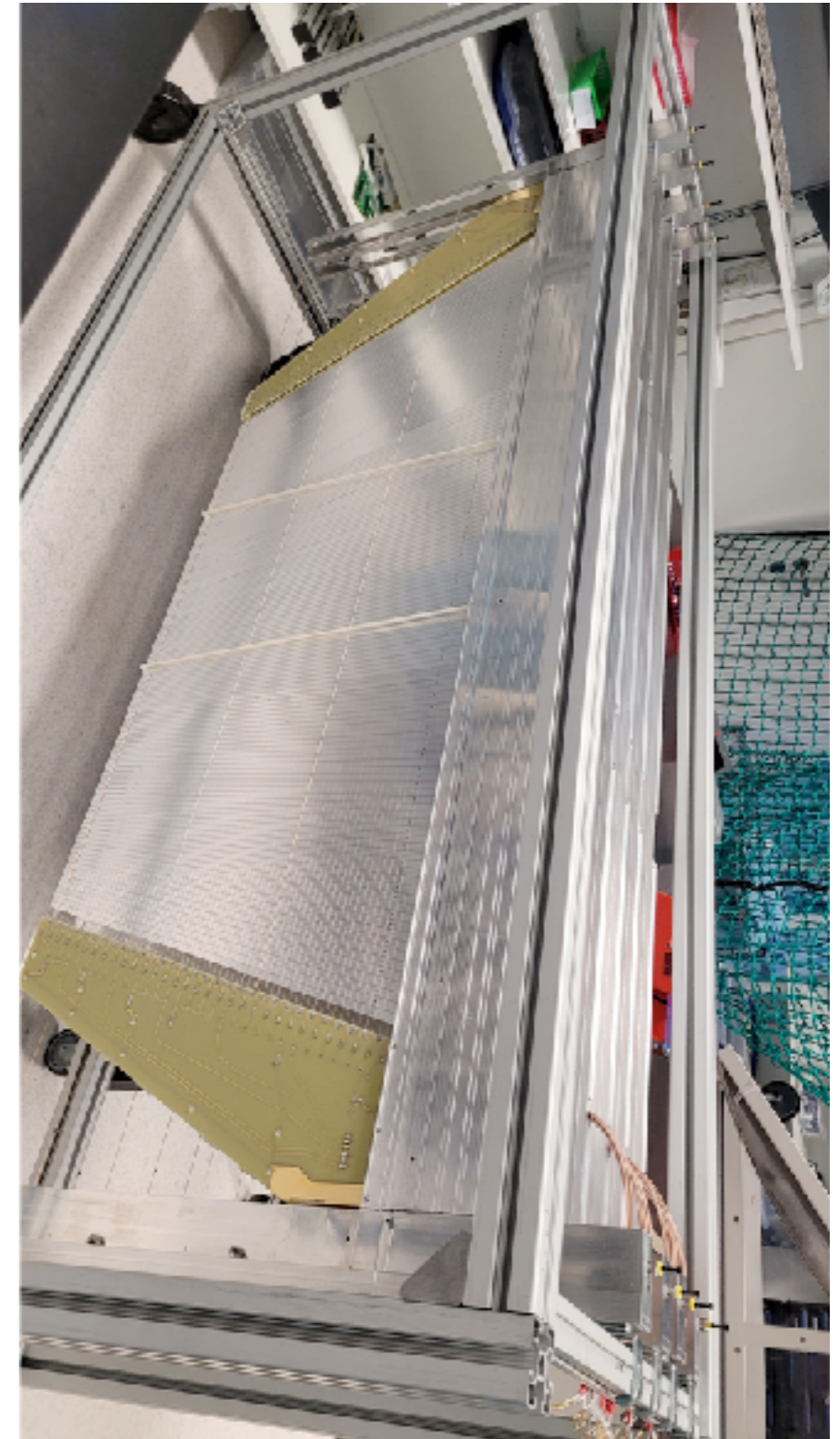
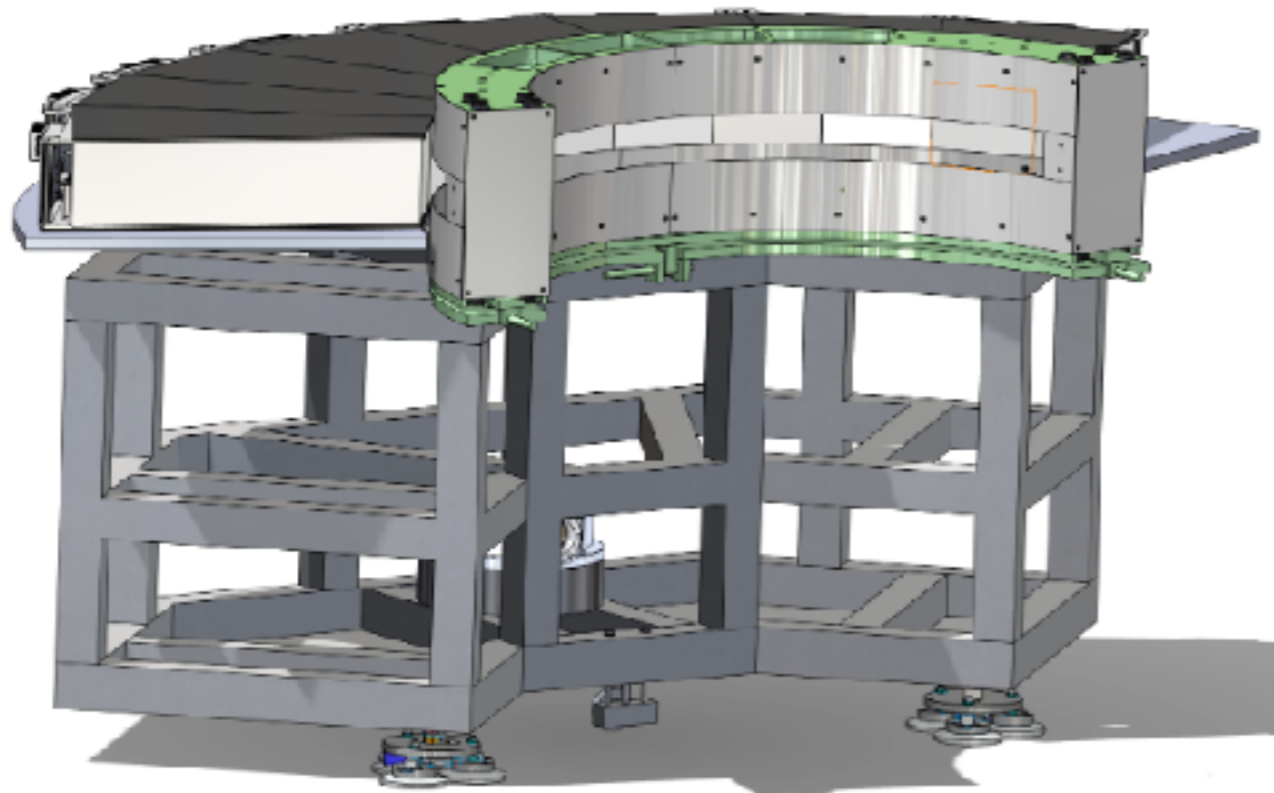
Detectors

- Detector B : manufacturing completed as of March 20th !








Detectors

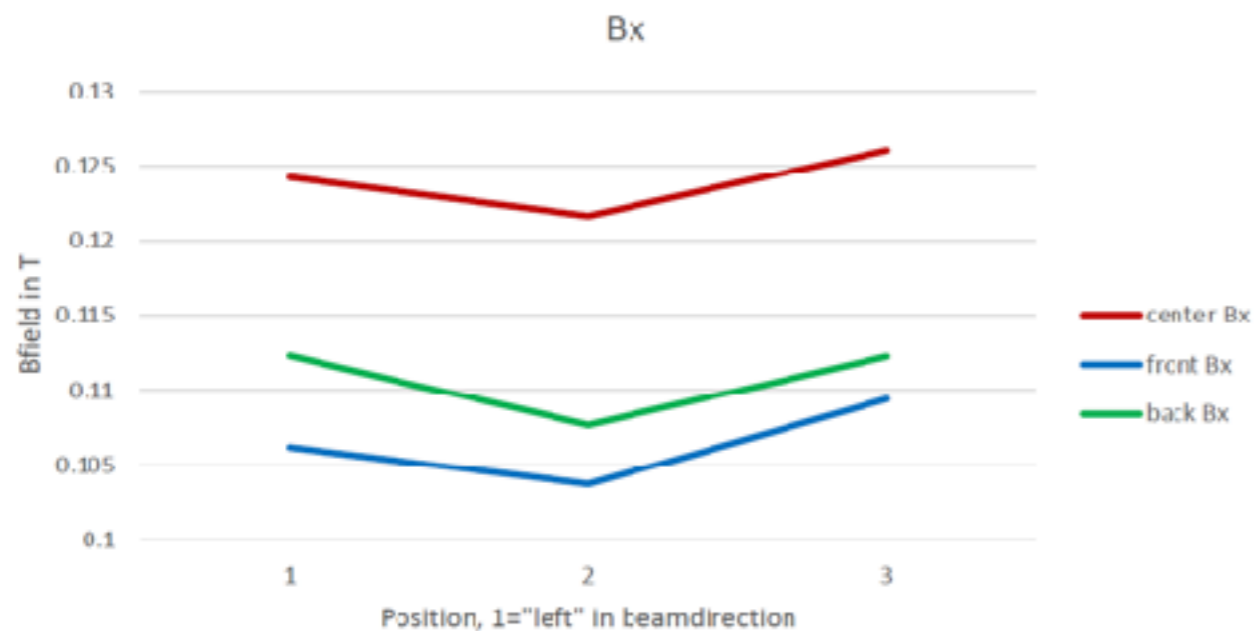
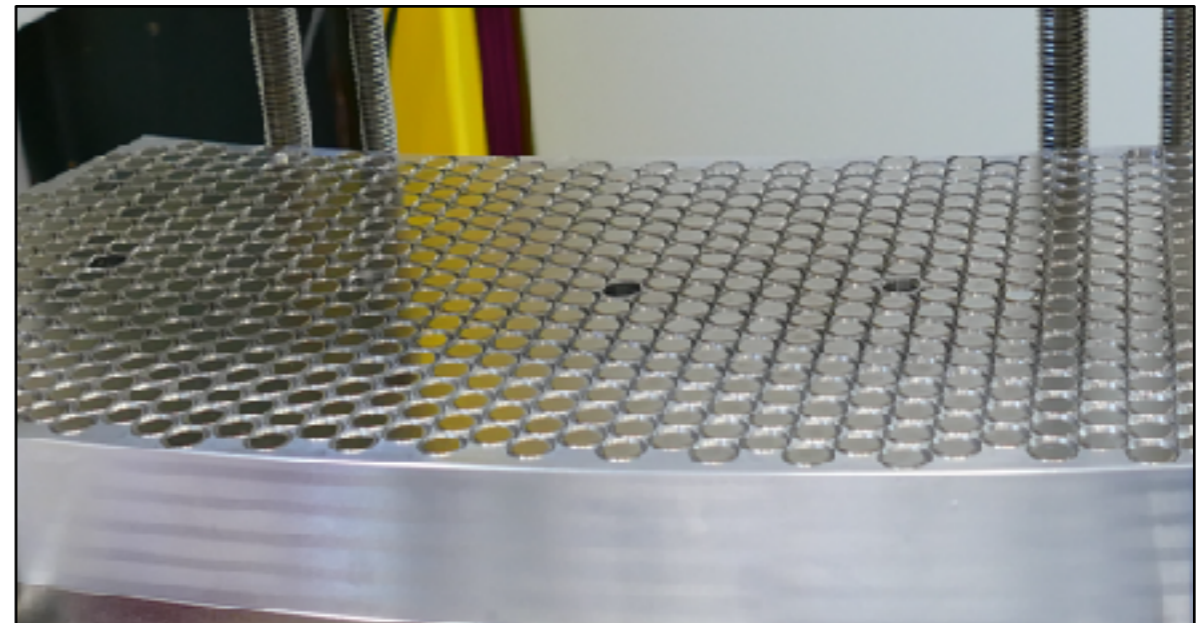
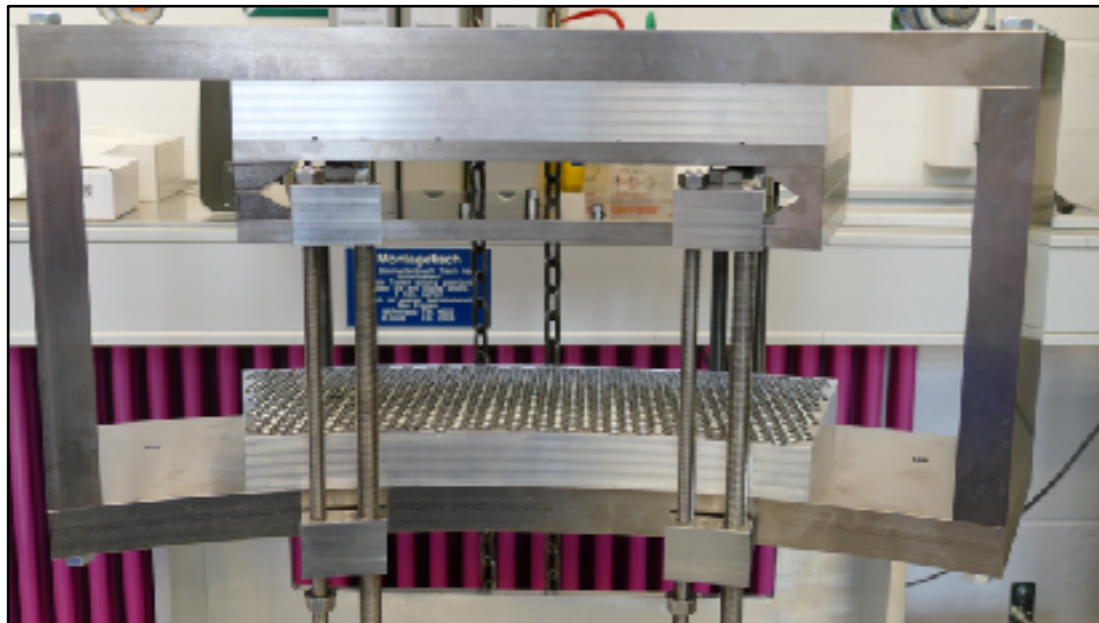
- Detector A
 - First segment manufactured for test
 - FAT and subTG3 to come
- Support: work in progress for det. B with new analyzer magnetic assembly parameters.



Polarization Analyzer

- Report submitted to STAP members
- Huge work done to ensure performance/feasibility/optimisation of the Solid State Design (SSD).
- At this stage:
 - > Magnetic design 
 - > mcstas simulations 
 - > first prototype tested with neutrons 
 - > mechanical design 
 - > assembly workflow/methods 

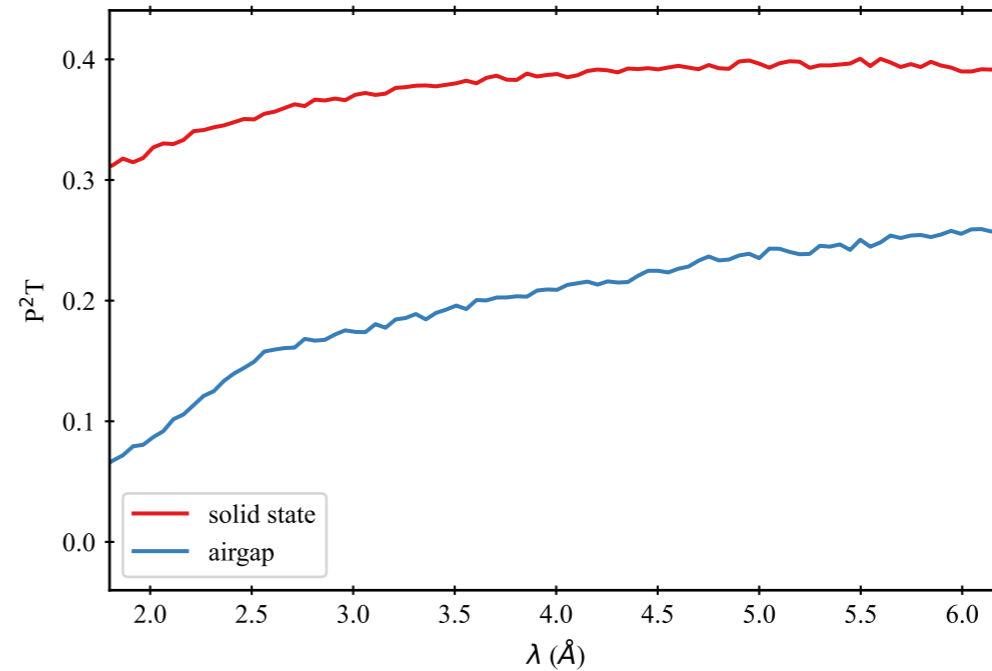
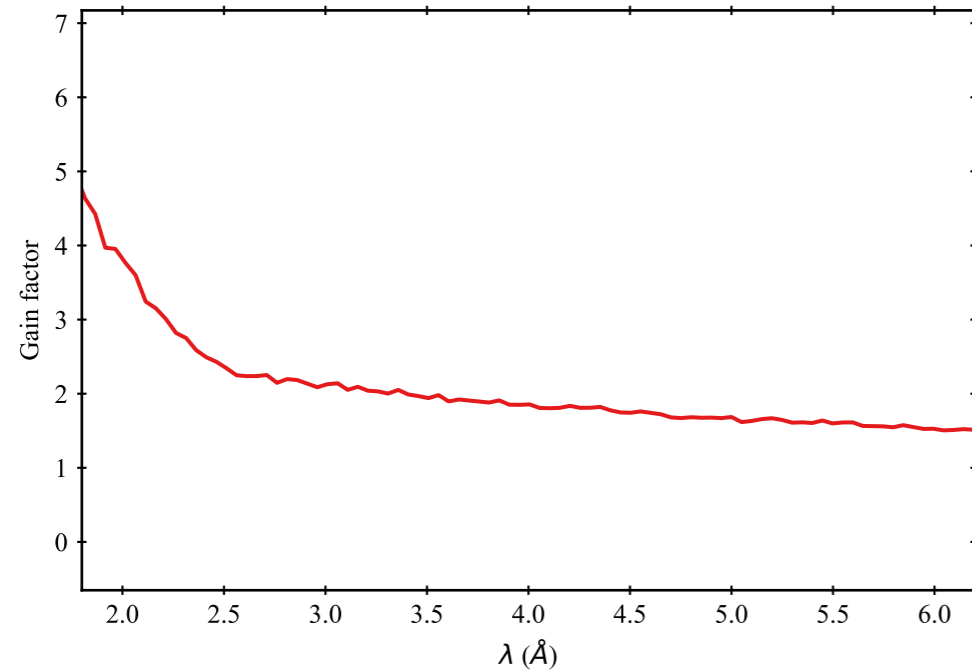
PA: magnetic saturation



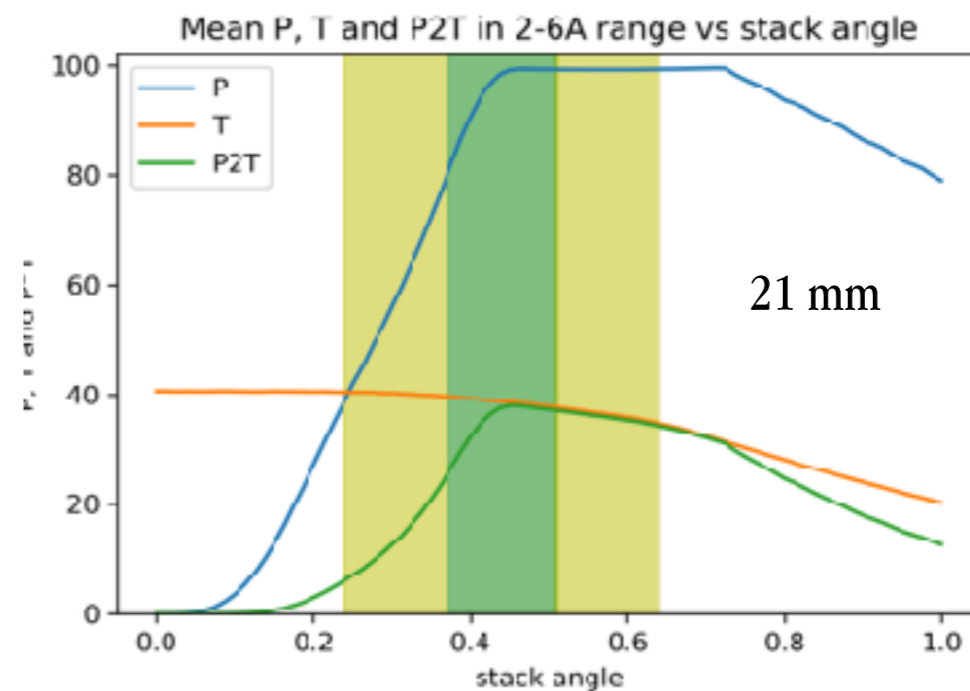
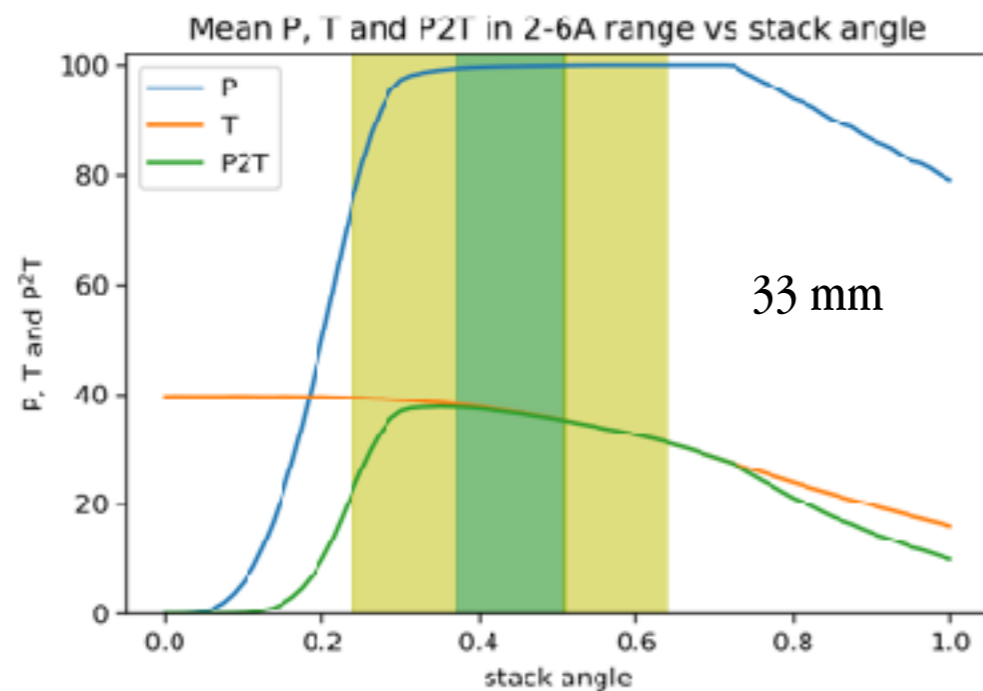
- 1 kG uniform/homogeneous field
- Unique device (300 G elsewhere)
- Increase in Polarization Analysis power !
- Easy maintenance compared to remanent coating.

PA: simulations

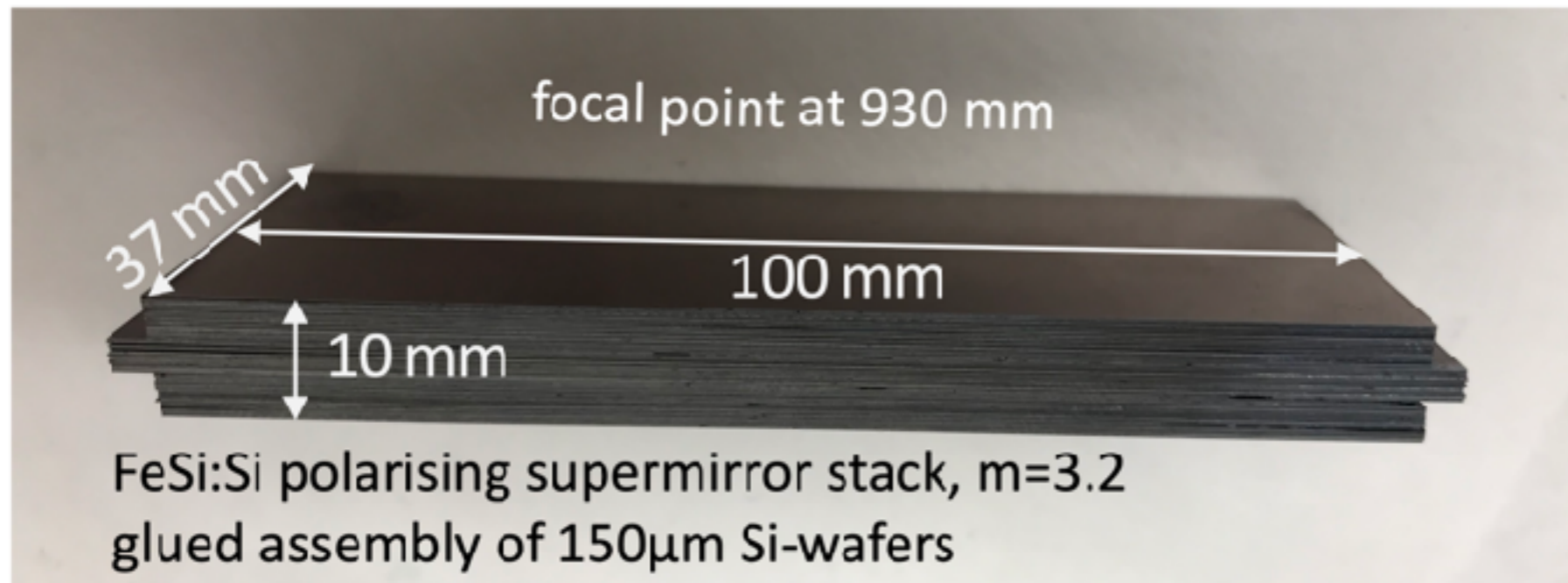
- Comparison airgap vs SSD



- Optimization of SSD parameters (length/angle)



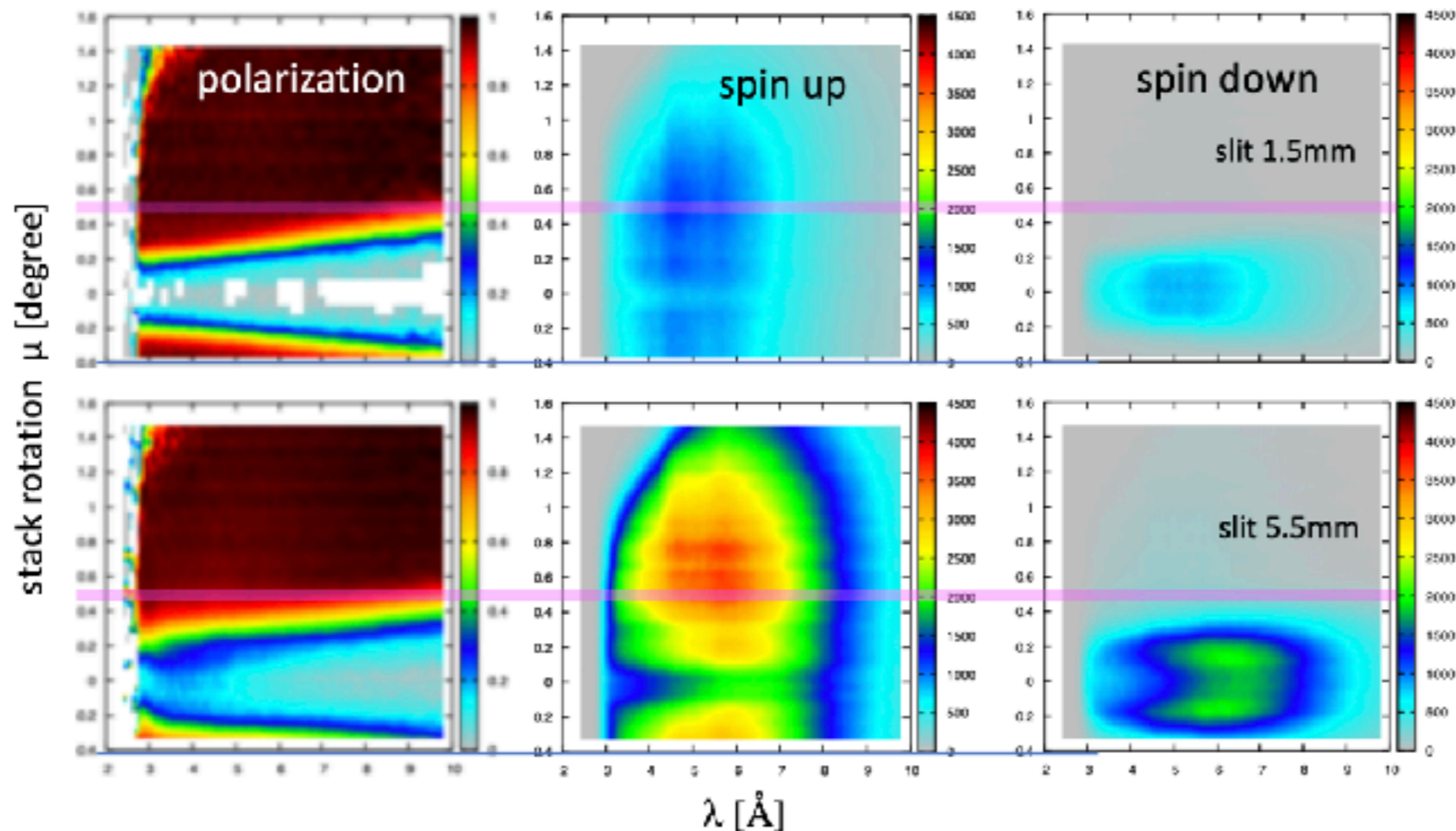
PA: prototype and test



- Excellent polarization over the whole wavelength range

- Good agreement with mcstas simulations

- Validate the gain factors calculated



Common project: shielding, CUP, CEP

- Shielding

- > Sub-TG3 done on Jan 13th 2022
- > No difficulties
- > Delivery when needed by instrument team.



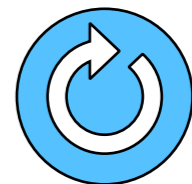
- Utilities

- > Average cost estimate mentioned at IKON21
- > No clear timeline for MAGiC



- Electrical

- > Impossible to do in-house ... even for trivial things
- > Instrument team to submit documentation to CEP leader.



Sample environment

- 8T magnet
 - Offer received
 - Offers analyzed
 - Contract signature this week
 - Delivery in 106 weeks

- Dilution fridge:
 - Tender release in Q4-22

Questions