SKADI

Current Status

STAP Oct 2023

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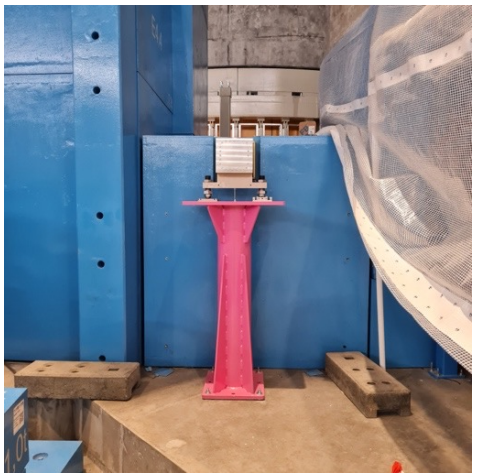
Major Steps since last STAP

- Nearly all large components are now either in manufacturing stage or installation stage
- Exception: Collimation and Detector shielding, but the tender is currently being negotiated and possible delivery dates fit the timeline
- Sample Cave is currently being installed
- Collimation has factory acceptance test in January
- Detector tube will follow shortly after
- In-bunker installation team is currently present and will start after STAP
- Detector workshop has taken place and details about the data protocol have been worked out, contract is currently negotiated with IDEAS
- Common electrical and utilities project are working on preparing their quote

Major Steps since last STAP

- We hope to get everything through licensing until November
- Polarization and GISANS setup being refined in the framework of a RAC grant
- Annika Stellhorn is now helping with SANS PA
- Guide tender publication in October 2023

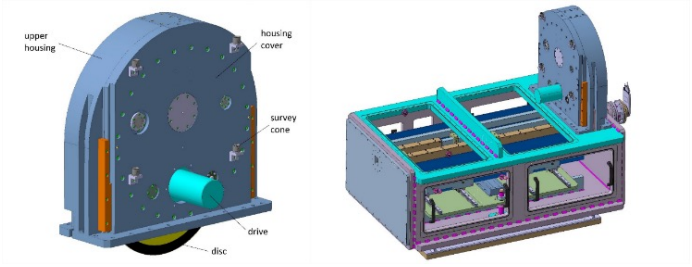
In-Bunker Beam Extraction

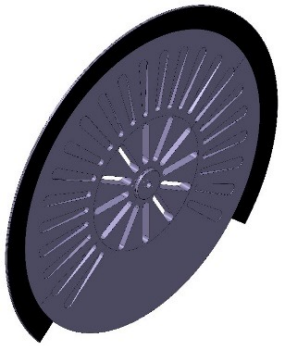


- All materials are on site
- FAT for heavy shutter was done in September
- Feedthrough is installed
- Welding issue with first generation of shutter was resolved by using screws only
- High precision movement is achieved, necessary for exact placement of neutron optics

In-bunker installation team will start directly after STAP. Heavy shutter will be prepared for installation outside the bunker, early November SNAG will arrive and finalize the installation and alignment.

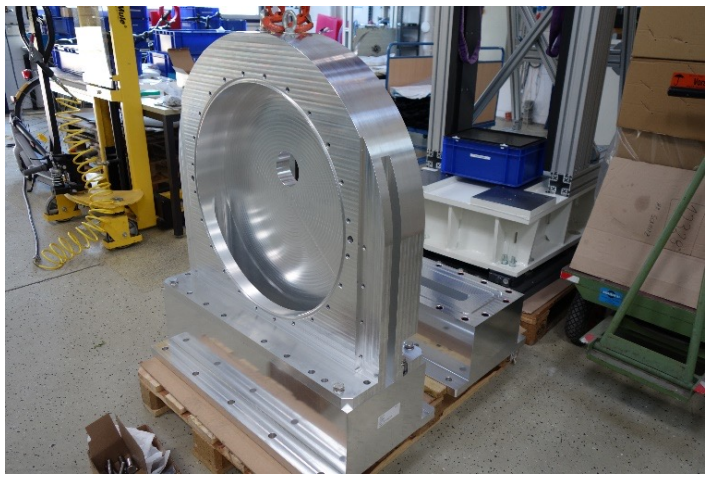
Chopper

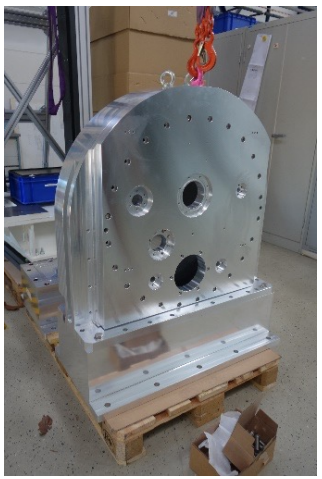




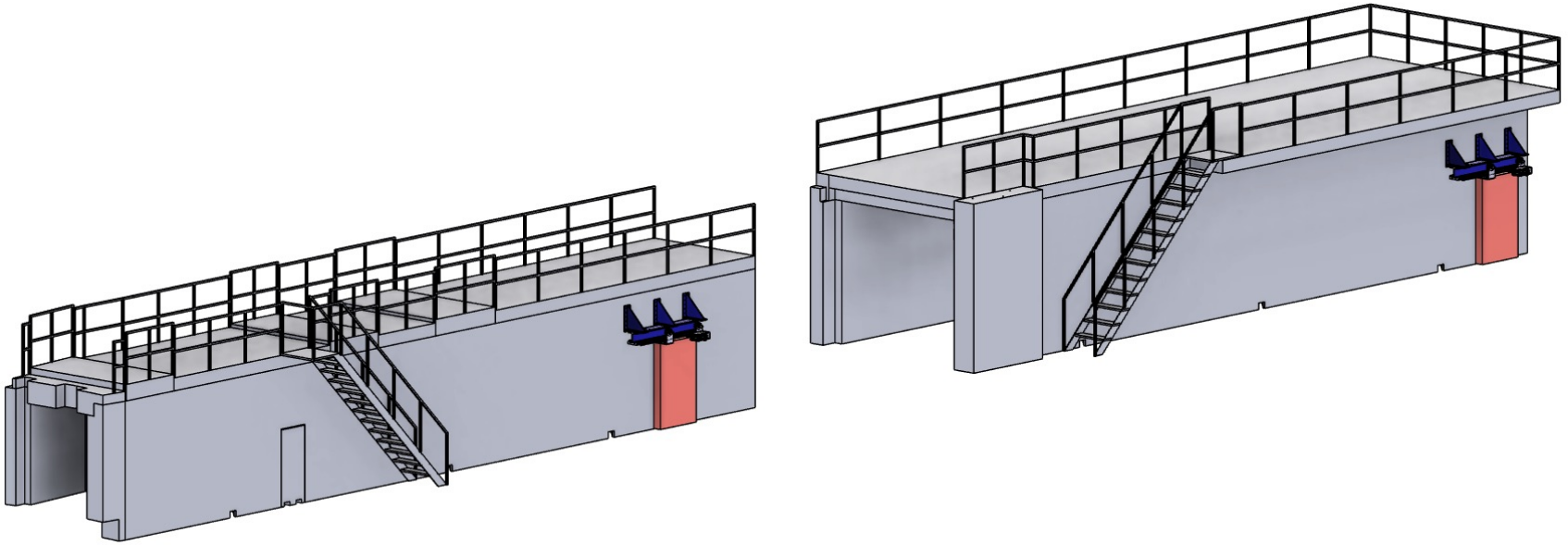
- Manufacturing of choppers complete
- Sitting in Jülich awaiting final assembly before shipping
- Chopper racks have been ordered and will be available soon
- Agreement for testing of assembly done with chopper group (preliminary electronics for FAT in Jülich in order to avoid to have to ship the complete chopper racks)

NO CHANGES HERE SINCE LAST STAP





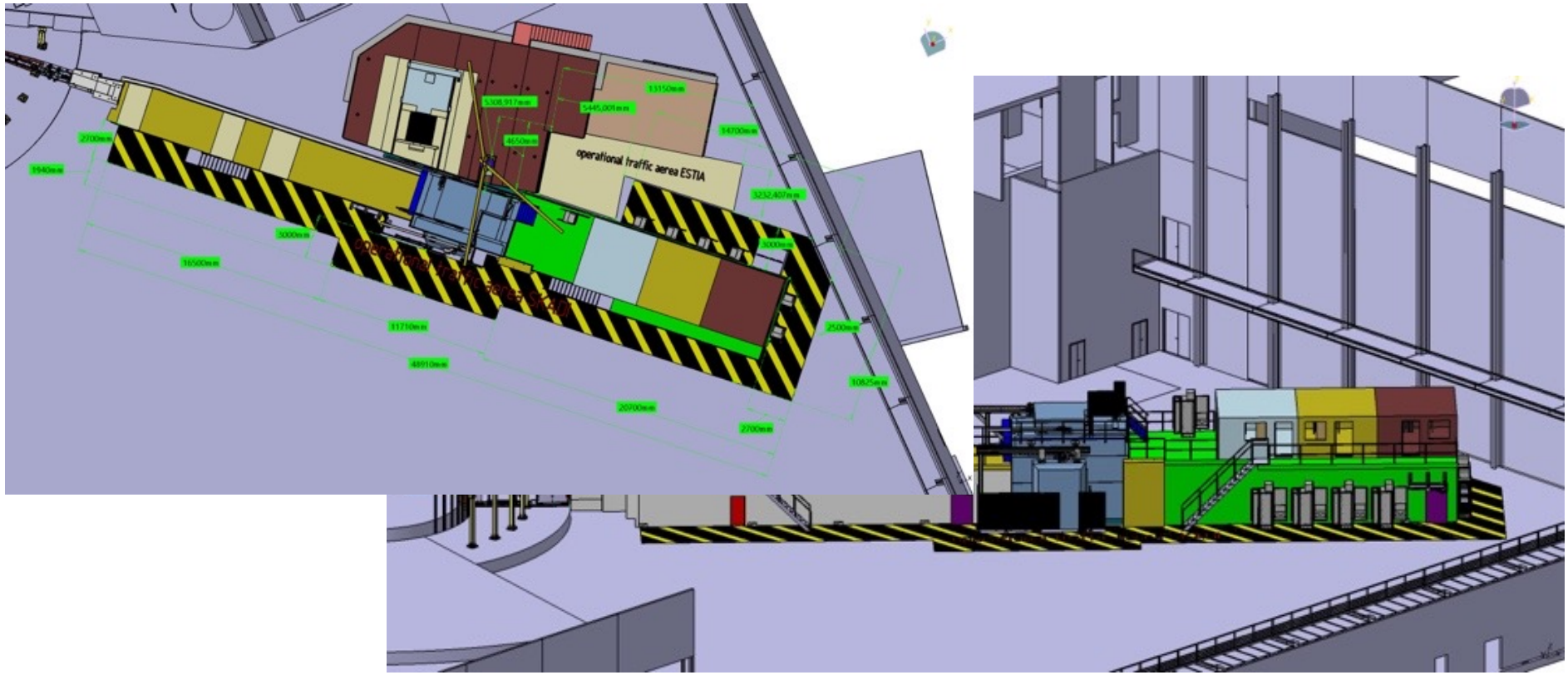
Collimation and Detector Shielding



- Tender is currently negotiated with suppliers
- Using thicker light concrete as opposed to more complicated substrates cut down production times considerably, so the timeline is still intact
- Since the design is suitable for extreme radiation hazards and personnel being on top of the cave, background should also be low.
- Monte Carlo simulations show that mainly photos pose a risk, for neutrons this is strongly overdesigned, which should help to create a low background environment
- If the tender is negotiated well, there might be an option to gain some time by building the shielding before the vacuum vessels (3-4 month gain)

Hutch and sample preparation lab location

- Hutch and lab planned to be constructed on top of the detector cave
- Change request now in preparation as soon as tender comes in
- Control hutch will be have 2 working areas (to accomodate 2 groups working in parallel)
- Will be done by ESS common facilities



Collimator

- Contract signed with AVS
- FAT in January 2024
- Expected installation Sep/Oct 2024 (after shielding)

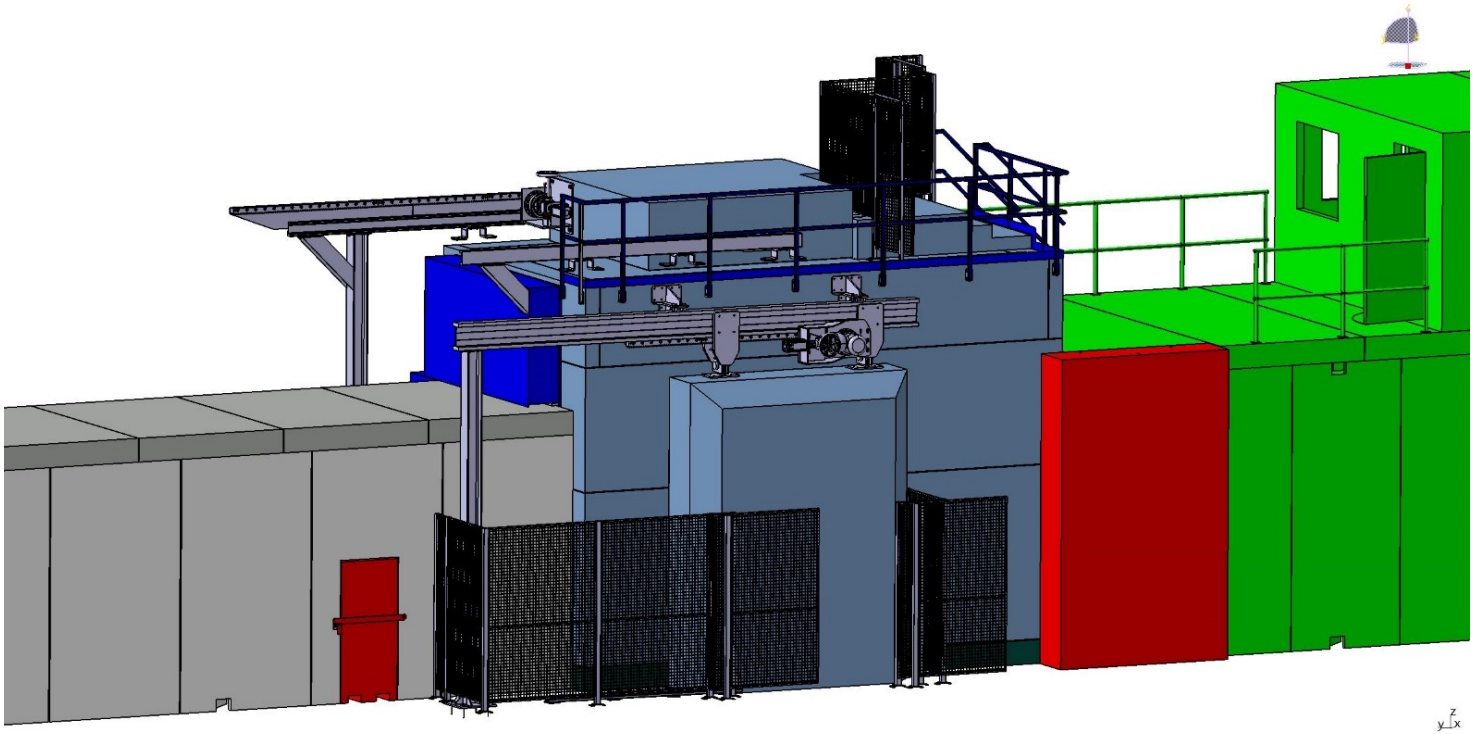
Interfacing with the sample cave as well as the chopper is ongoing.

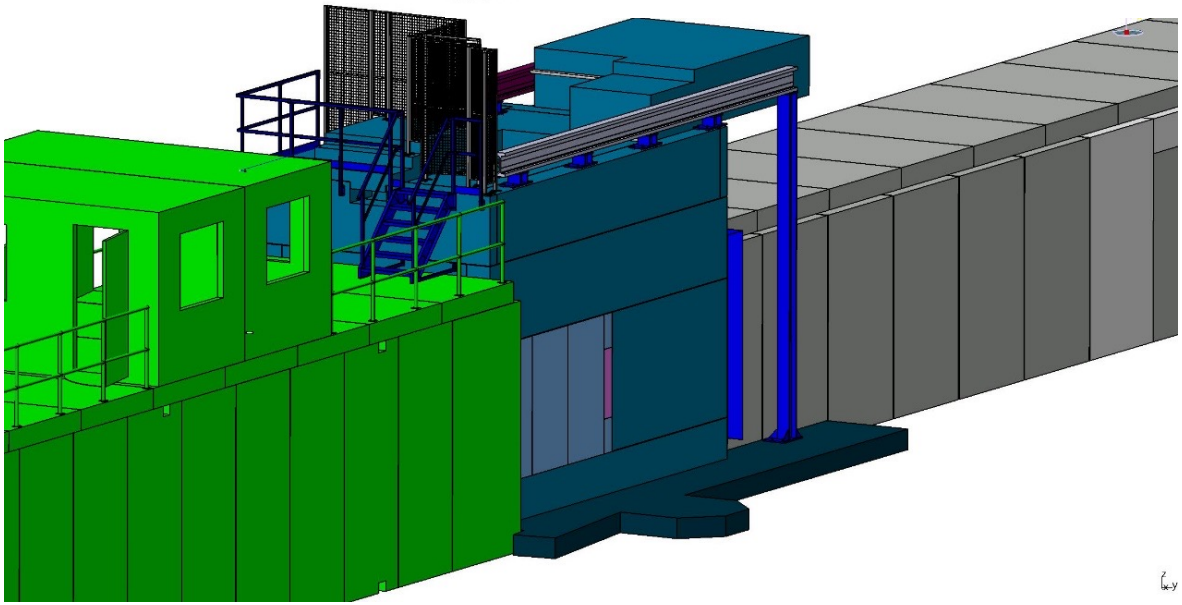
Tender for neutron guides has just been prepared for publication.

For this section we therefore do not foresee any problems with schedule or production.

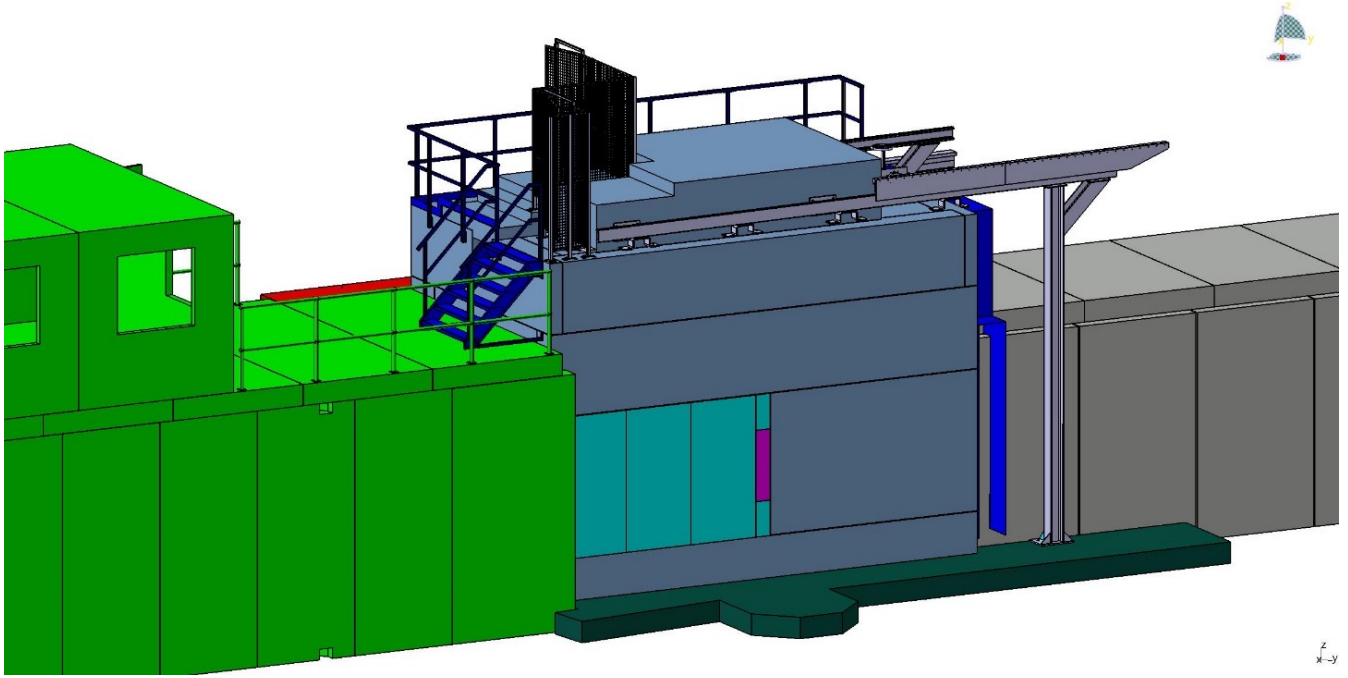
Sample Cave

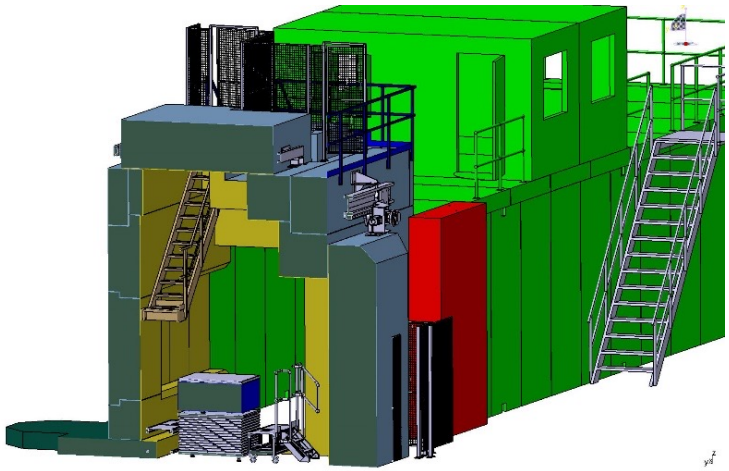
- Currently being installed

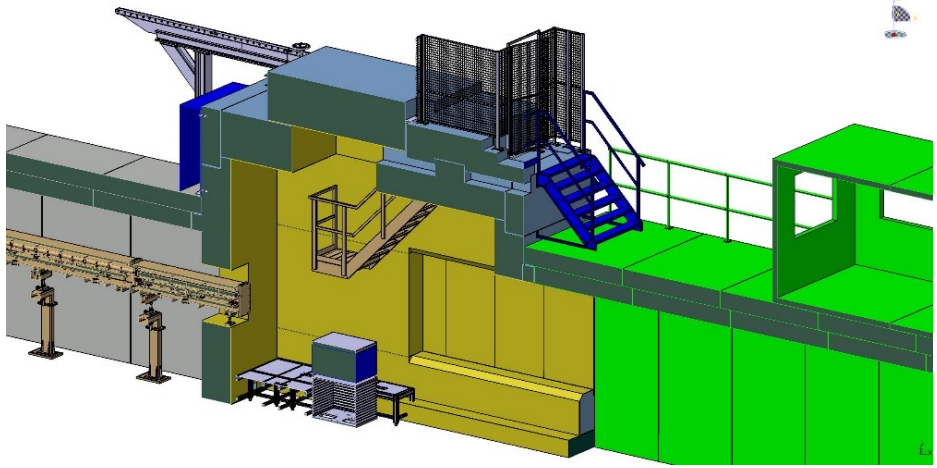




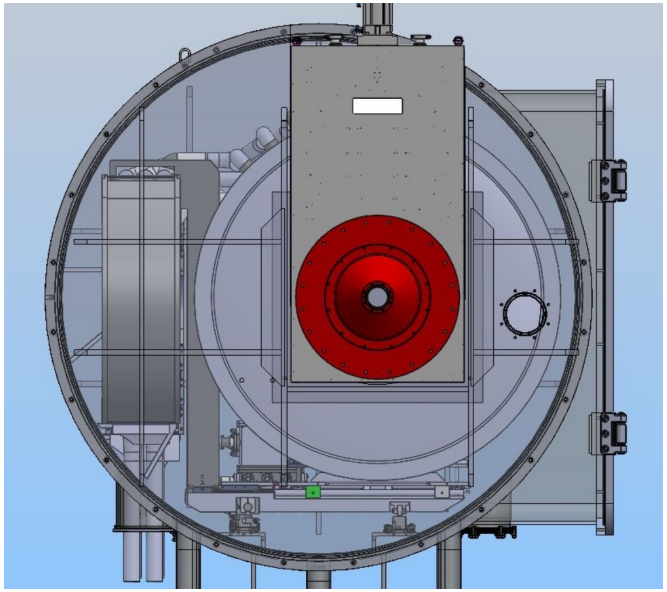
Sample Cave ctd.







Detector and detector tube



- Manufacturing contracted with SDMS for detector tube
- Installation foreseen Dec. 2024

- Integration of cooling now being solved (seems to be simpler than anticipated, pressurized air might suffice)
- Integration for detector vessel currently being finalized

Detectors

- Detector workshop was held in July, with follow ups in September and October
- Clarified how IDEAS (as contractor) and ECDC can handle the DAQ chain

- Current setup is foreseen to be completely network based, not specialized hardware (i.e. Detector Box)
- Programming of firmware and at least two testing stages are foreseen

- Will start as soon as IDEAS signs contract

- Ralf is handling testing and integration

CEP/CUP

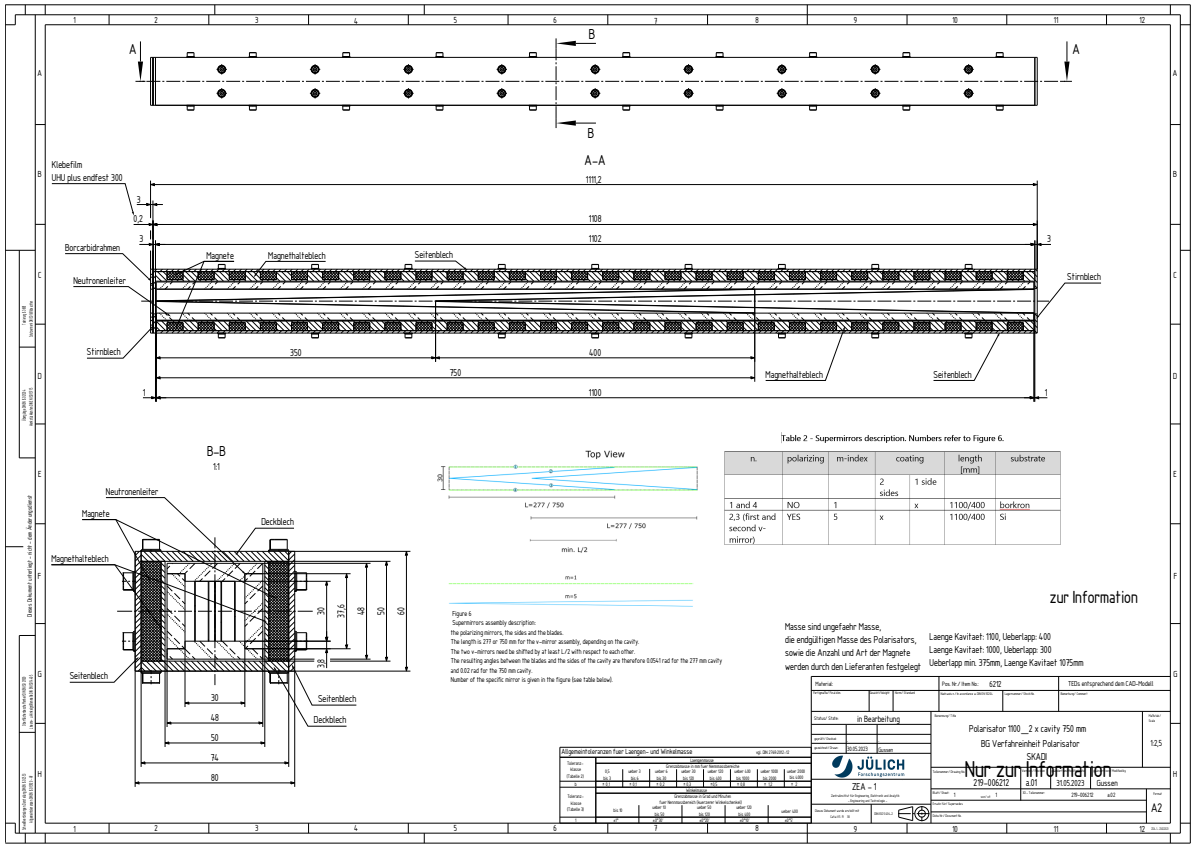
- Preliminary information sent to Stuart and Anton
- Ongoing discussion between SKADI team and CEP/CUP teams
- CEP/CUP currently working on quotes

- Currently aiming for level 3 integration (everything done by CEP/CUP teams, only dedicated instrument systems installed by instrument installation team)

- Now with the new common project for MCA, we will have to create a useful interface between CEP and MCA

Polarizer

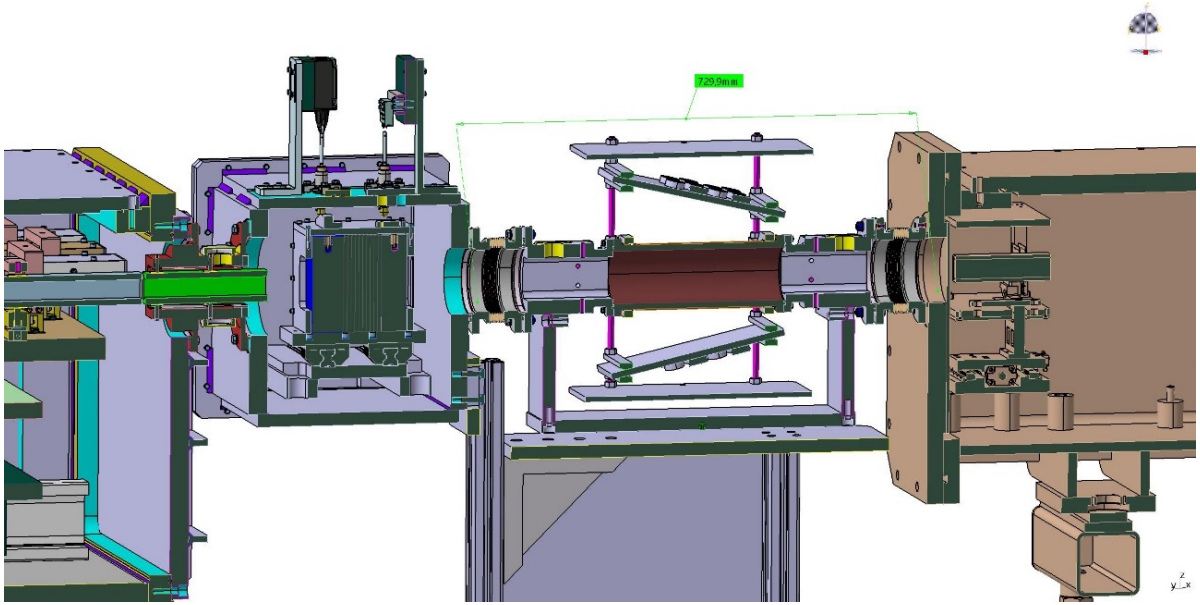
- Call for tender for two polarizer cavities has been put out
- Over the complete useful band polarization is >95%
- Integration with guide system was successful

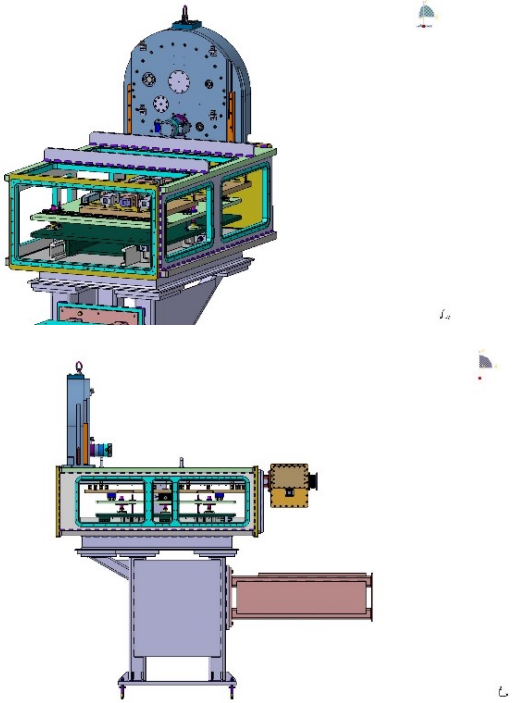


RAC to help GISANS development

- RAC grant together with ESS (Hal Lee), Uppsala U (Max Wolff), LMU Munich (Bert Nickel):
  - Development of polarized GISANS
  - Supports the development of Polarization Analysis
  - Includes additional sample table
  - Project timeline: Q1-2022 – Q1-2025

  - Dedicated presentation about PA by Annika



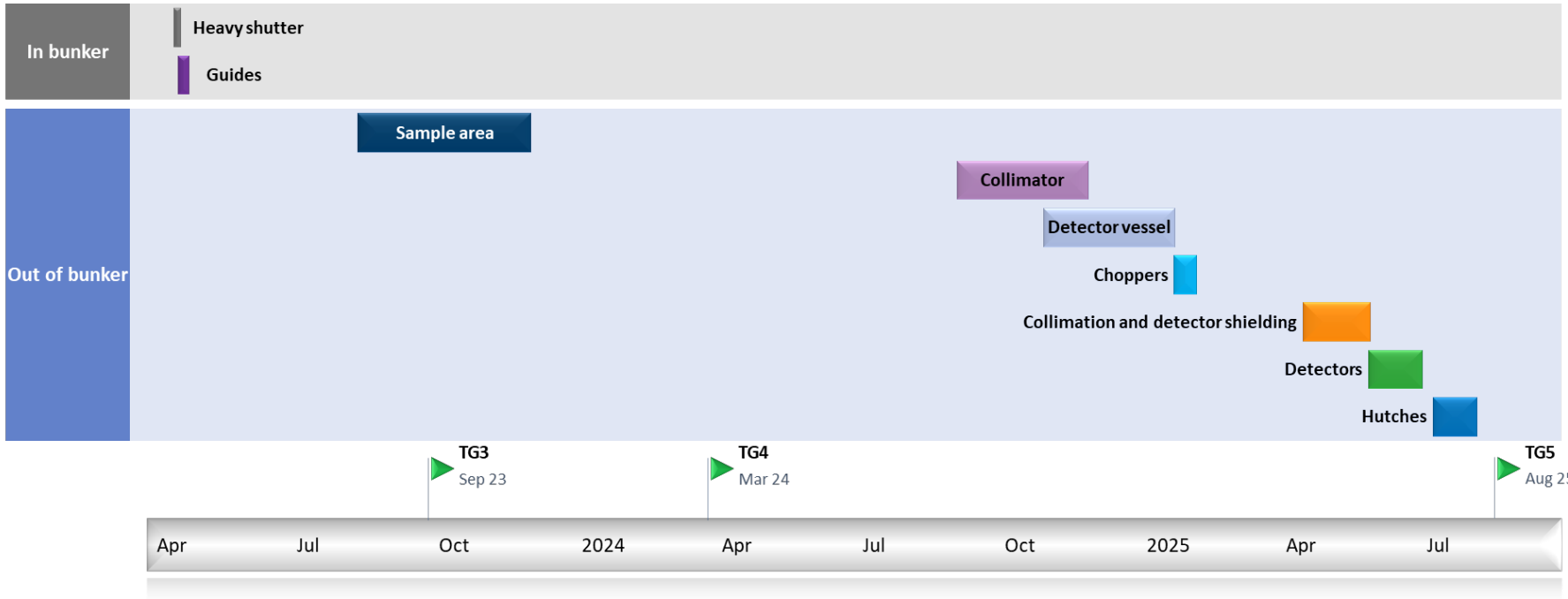


Schedule Overview

Schedule risks:
- Manufacturer overload
- Material shortages

Component	Delivery and Installation current
NBOA	Delivered
In-Bunker	Q4-23 (bunker opening)
Collimator+Detector vessel+shield.	Q2/Q4-24
Polarizer, Fast Shutter	Q1-25
Choppers	Q2/Q3-24
SCS	Q1-25 (will turn green as soon as firmware programming has been contracted)
Monitors	Q1-23 (unclear due to personnel change at ESS)
Sample Area	Q2-25 (is now on top of detector shielding)
Hutch Area	Q2-25
TG3-Full	Q3-24
TG5-Full	Q3-25

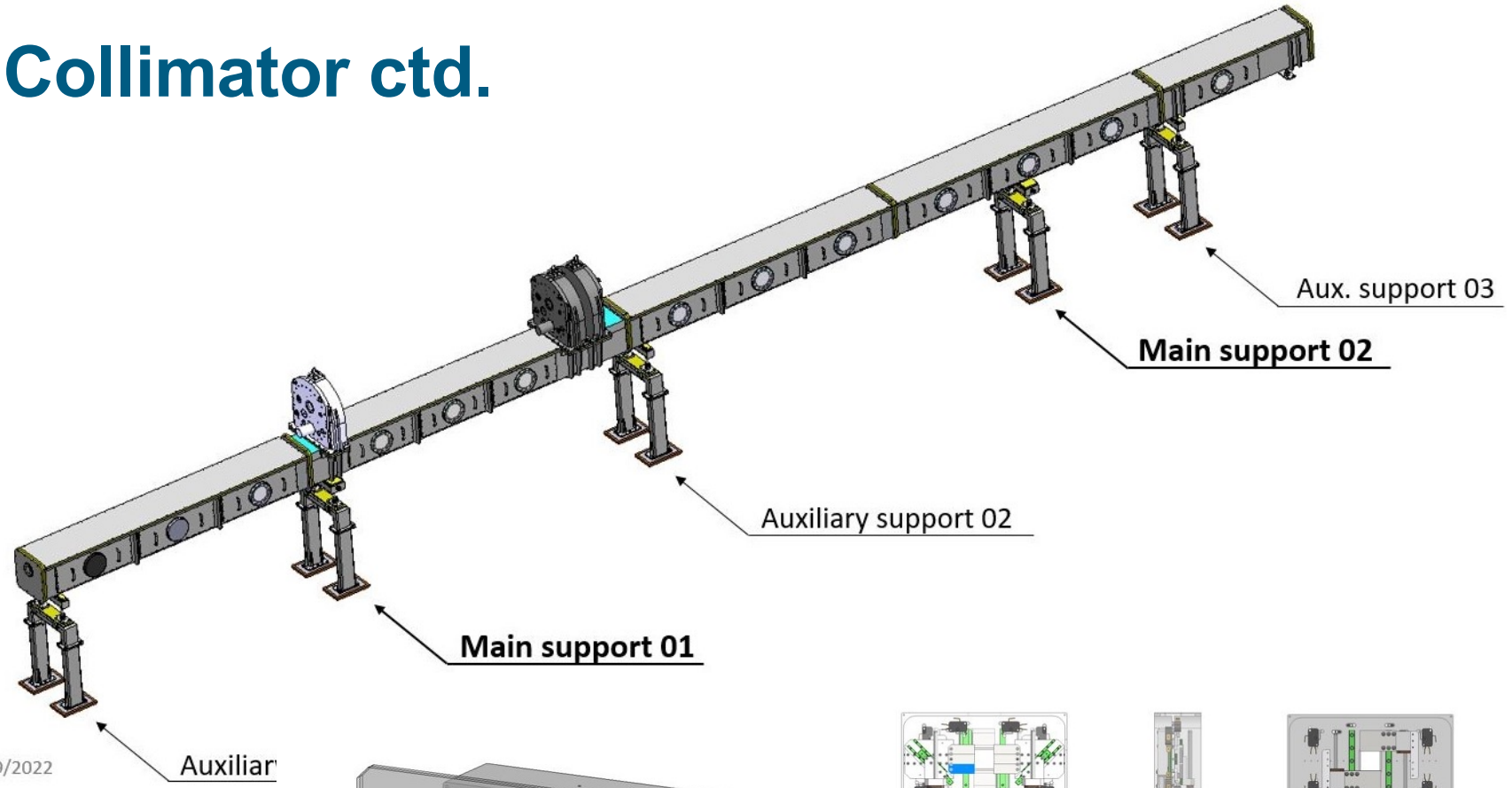
Project Overview for installation

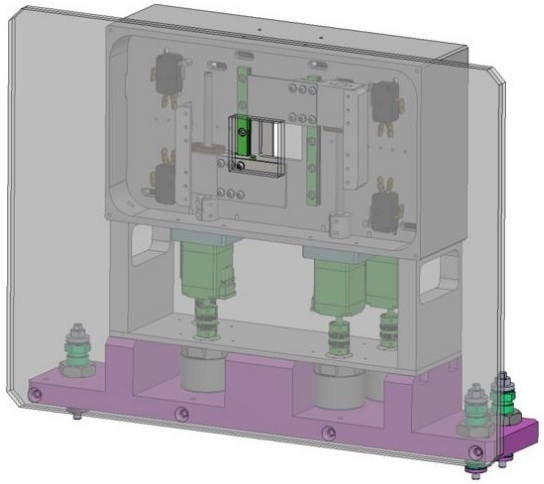


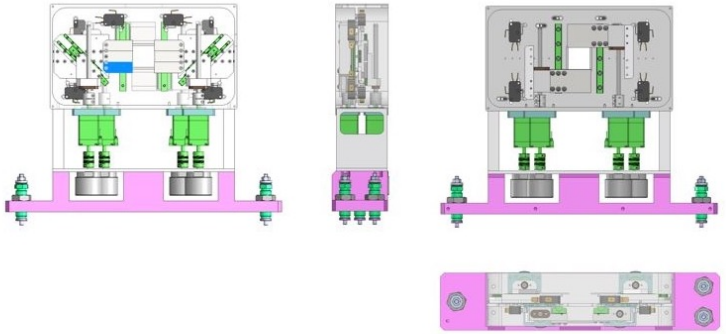
Summary

- All external components have been subcontracted, or are in a late stage of the tendering process
- CEP / CUP: information being digested at the moment
- Manufacturing of most components is in progress
- Installation of first components successful, currently sample cave
- In bunker components delivered Feb 2023, installation starting right after STAP
- Waiting for IDEAS to agree to contract for DAQ programming
- Control software crucial for installation and cold commissioning
- **The project is on track and complete installation until 2025 is feasible**

Collimator ctd.







Absorption of stray neutrons