BEER

Instruments status update

PRESENTED BY PREMEK BERAN

2025-09-25

BEER

Instrument team

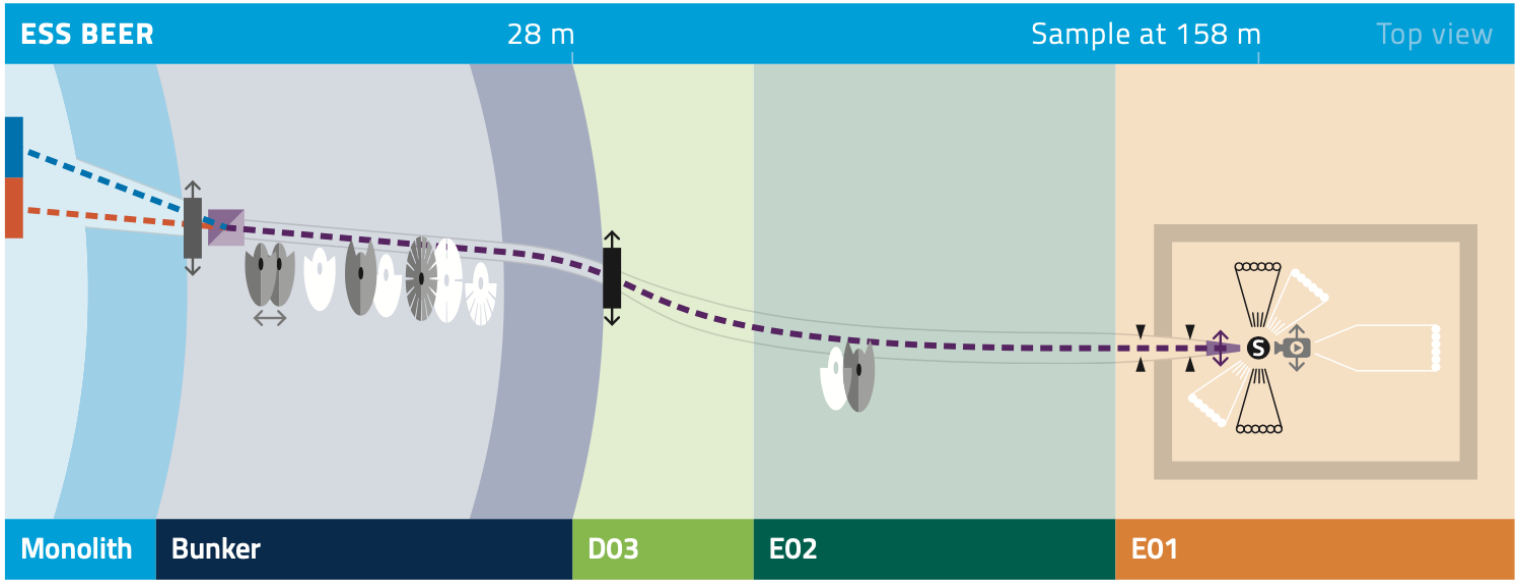
Nuclear Physics Institute CAS
Czech Republic

Helmholtz-Zentrum Hereon
Germany

Instrument team on site
Scientist: Přemysl Beran, Gergely Nétmeth
Data scientist: Céline Durniak
Engineer: Bojan Peric
Operational engineer: Grant Wallace

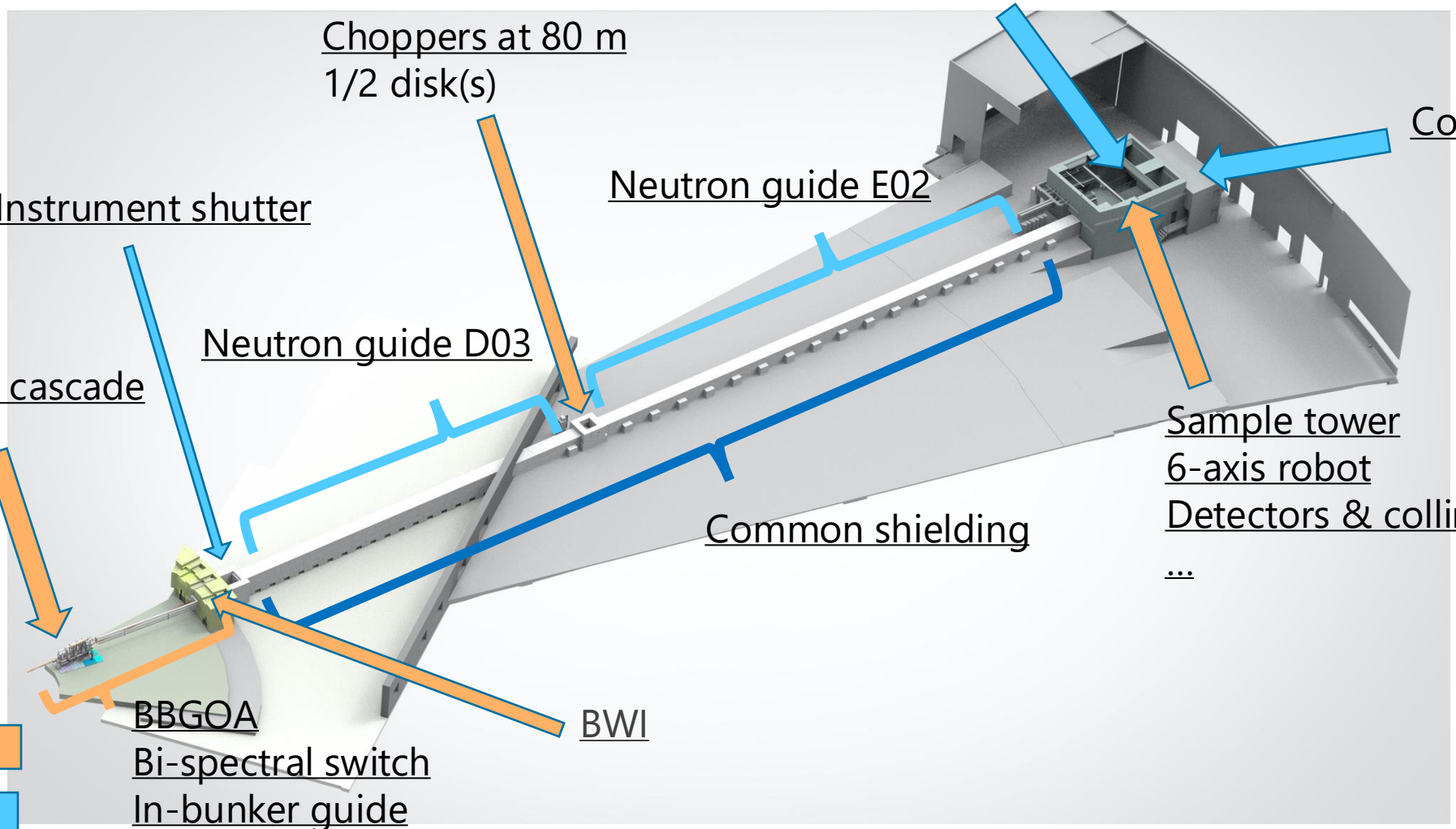
Instr*ument team behind the scenes*
Jan Šaroun, Jochen Fenske
Dirk Jan Siemers, Sven Kleeband,
Malte Wiechern, Joerg Burmester, …

Tranche 2 instrument!



BEER

Instrument components



Hereon

NPI

BEER

General status update summary

- **Neutron guide** out of the bunker **installed** (116 m)
  - Missing the part going to the cave (12 m)
- **Neutron guide** in the bunker **installed** (23 m)
  - Missing the chopper cascade part (6 m)
- **Common shielding is installed** along the out-of-bunker guide
  - Missing the shutter/chopper pit and connection to the cave
- **Shutter installed**
- The **cave & hutch** in installation (SAT planned for October 20)
- CUP and CEP **design frozen**
  - CEP installation starts on November 1
  - CUP installation within March 2026
- Final **TG3 documentation** in **progress** (invisible work behind the scenes)
  - The approval process of the main TG3 documents is in good progress
  - Q-gate documentation - a lot of additional documents requested

BEER

General status update summary

- The **6-axis robotic arm** and two sets of **collimators** were **delivered** to the site
  - The robot is tested at Hereon, and safety zone programming is in progress
- **Hexapod** and **rotary stage delivered**
  - Hexapod under the first test and integration process
- Sample tower and detector support structure design postponed
  - Waiting for the finalisation of the chopper cascade
- **Bi-spectral switch** manufacturing **finished**
  - The test on iMat@ISIS was performed, ready for installation at Hereon
- **Chopper cascade** support under the detailed **design** process
  - Installation in-bunker is planned on Dec 25/Jan 26 (before BOT)
  - Chopper cascade assembly at Q1/Q2 2026, installation during 1st bunker opening after BOT

BEER

General status update summary

- The **choppers** are ready for installation
  - All parts delivered
  - 80 m chopper installation planned Nov 25
- The first **detector** will start to be assembled soon
  - Integration **under process,** communication with the detector team in progress
  - The second detector is under manufacturing, ready by April 2026
- Software (see Celine's talk tomorrow)
  - Very good progress since Celine is on board
  - Data reduction for **pulse shaping** is done
  - Data reduction for **multiplication** is done

BEER

Issues

- The **chopper cascade** design finalisation is slow
  - Too complicated an interface design
  - Influencing the design of the further component – detector supports and sample tower
  - We are working to mitigate this by split installation – support and the cascade assembly
- **Sample environment** (see Caroline's talk tomorrow)
  - Deformation rig integration is very slow (not a priority)

BEER

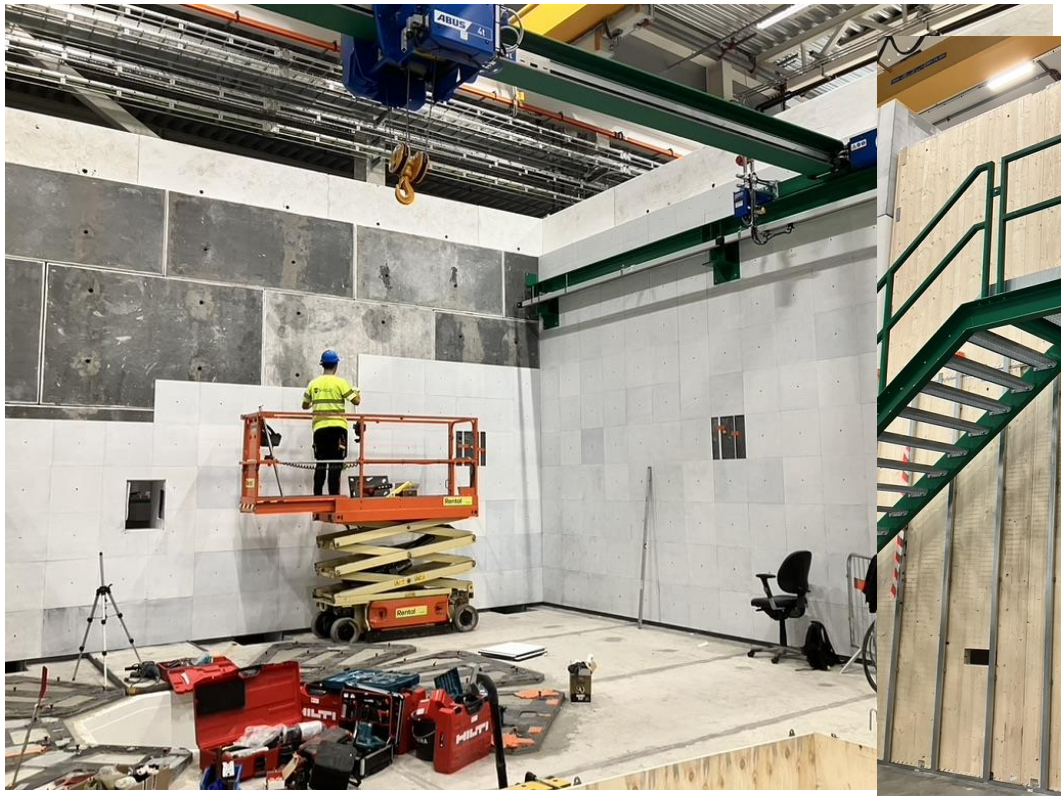
NPI update

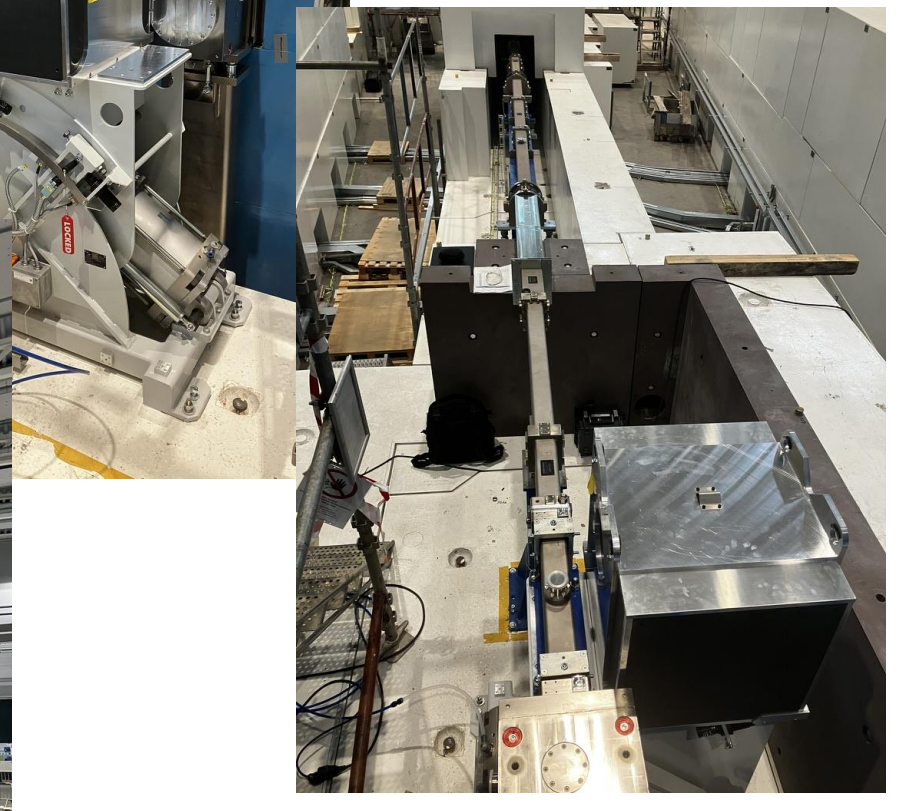
- Neutron guide out of the bunker (Installed)
- Common shielding (Installed)

BEER

NPI update

- Instrument shutter (installed)
- Cave & hutch (in installation)

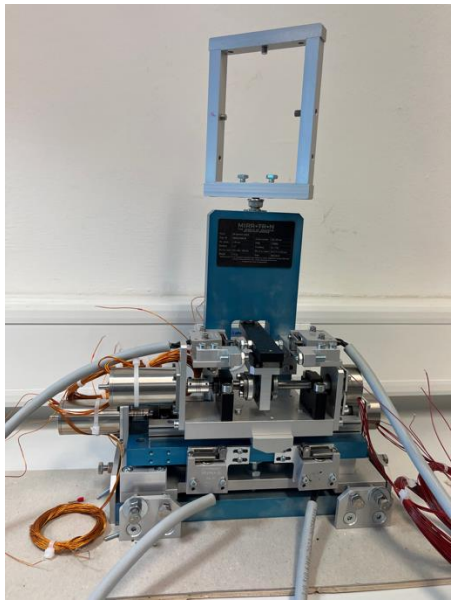


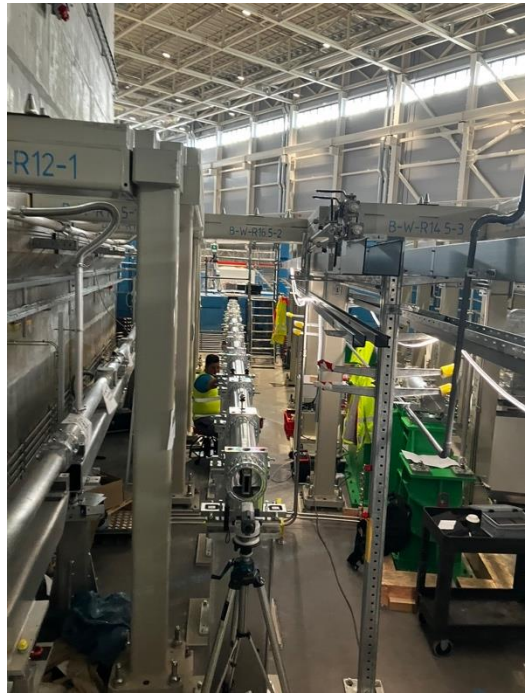


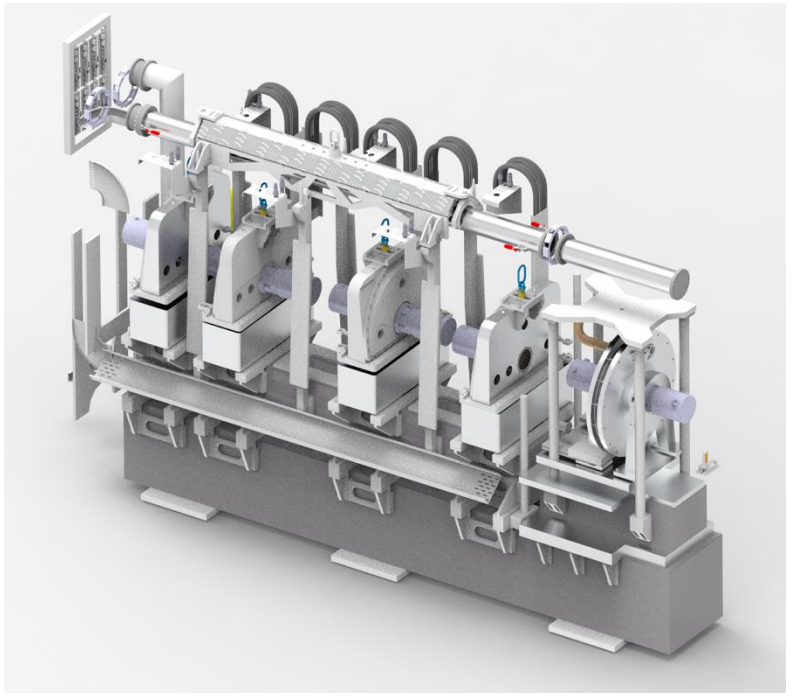
BEER

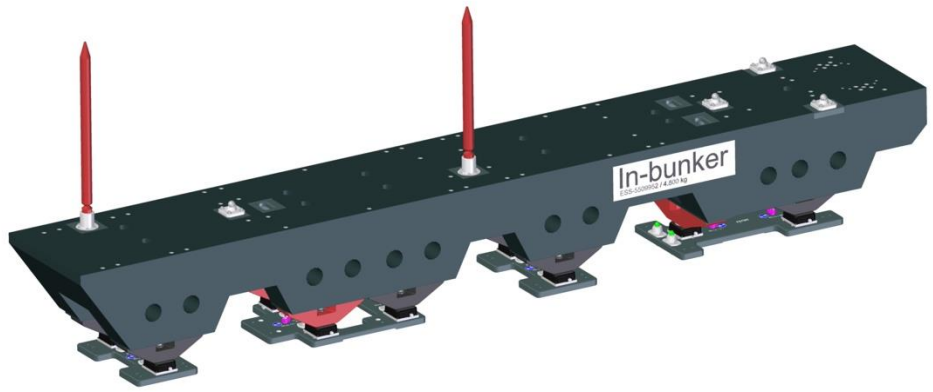
Hereon update

- Neutron Optics in-bunker
  - BBG and BWI (installed)
  - After chopper cascade (installed)
- The chopper support
  - The design is close to the finish
- Bi-spectral switch (ready for installation)
  - Tested of the optic stack on iMat @ISIS









BEER

Hereon update

- Radial collimators (ready for installation)
  - Optical devices delivered to ESS
  - The manipulator is manufactured (ready for tests)
- Hexapod & Rotary Stage
  - Delivered on site, integration by the ECDC group in progress

- Fast chopper disks (ready for installation)

BEER

Components status after re-planning

Experimental cave
SAT: Oct 25

Choppers at 80 m
Installation: Nov 25

Control hutch
SAT: Oct 25

Instrument shutter
SAT: May 25

Neutron guide E02
SAT: Mar 23

Choppers cascade
Delivery: Dec 25
Installation: Jun 26

Neutron guide D03
SAT: Mar 23

Sample tower and detectors
Delivery: partially delivered
Installation: Apr 26-Nov 26

Common shielding
Installation
Done

BWI
SAT: Jun 25

In-bunker guide
SAT: Jun 25

Hereon

NPI

➢ TG5 on Mar 27

BEER

What we struggle with

- Communication with technical groups, …
  - Complicated interfaces ECDC/ICS/DMSC, MCA/CEP/ECDS, …
  - It makes the survey of integration of the MCA equipment or sample environment very difficult and hard to follow or chase
- Rules and new requirements are placed over time – it is difficult to catch up
  - Based on bad experience with other installations, ESS places further and further control over all instruments, which may hinder real progress
- Lack of decision-making and active support
  - Competence fight between technical groups
  - The instrument team has to chase the technical groups
  - Lack of prioritisation for Tranche 2 and personnel (mainly MCA)
- Q-gate – showstopper
  - A very lengthy process to get approval for the mechanical and electrical installation
- PSS team – lack of communication
  - No discussion about the placement and design of the safety equipment
  - No information about the access procedure and implications