



**EUROPEAN  
SPALLATION  
SOURCE**



# ESS Test Beam Line Status

PRESENTED BY GABOR LASZLO

2020-02-24

# Agenda



1 Schedule

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2 Documentation

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3 Design

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# TBL Time-line

- **TBL has to be ready for beam on target – July 2022**
- **TBL Installation start – February 2021**
- **TBL TG3 – June 2020**



# TBL Documentation status

ESS-0503621 - Generic checklist for Phase 2 evaluation

- **Concept of Operation (R.W.)**
- **System Requirements Update (R.W.)**



**TG2**



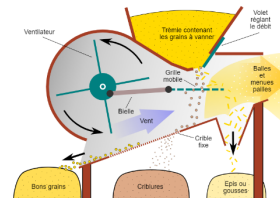
- **H1/H2 Event Identification (R.W.)**
- **Shielding Analysis for H1&H2 (G.L.)**
- **Activation Analysis (G.L.)**
- **Radiation Hazard Analysis (H.R.)**
- **Conventional Hazard Analysis (H.R.)**



<https://confluence.ess.lu.se/display/SD/Advice+on+shielding+and+radiological+safety+for+instruments>



- **System Design Description (G.L.)**
- **Interface Description (N.B.)**
- **System Integration & Verification Plan (Installation and cold commissioning) (G.L.)**
- **System Validation Plan (Hot commissioning) (R.W)**
- **System Operation and Maintenance Manual (R.W&G.L.)**

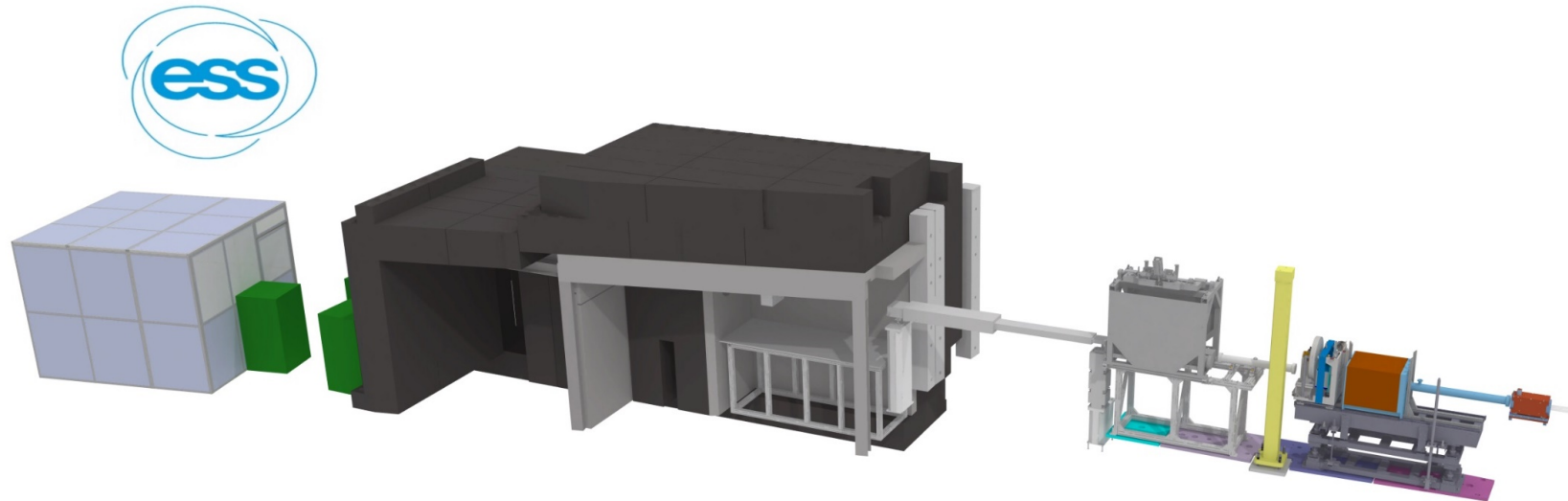


Released

Nothing

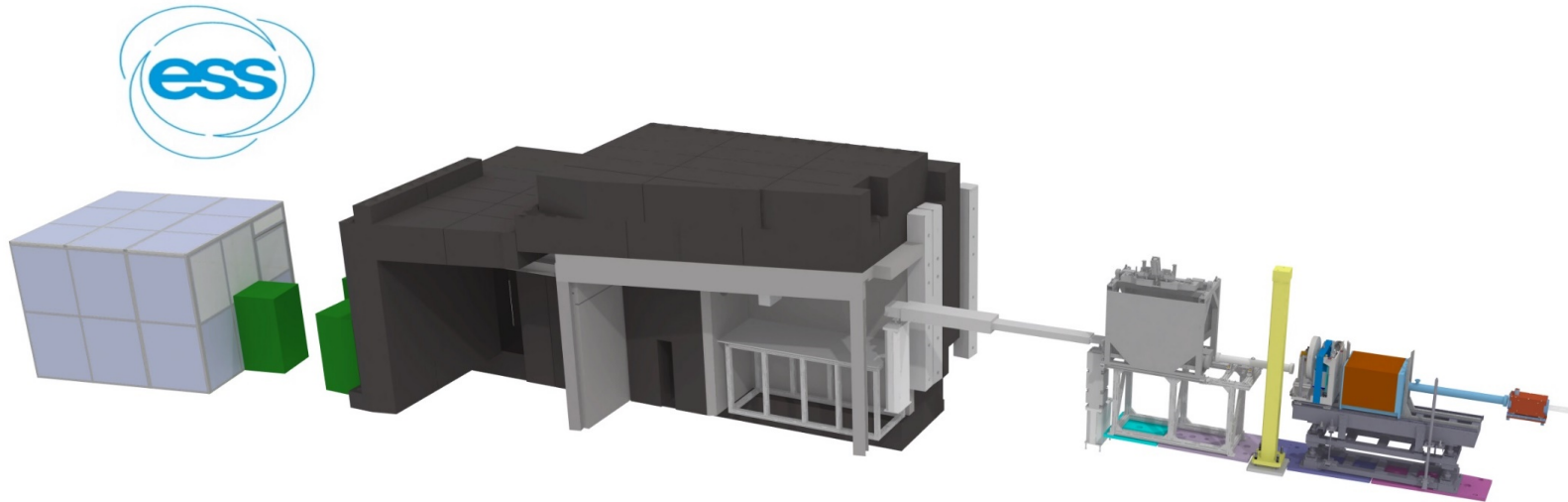
# TBL Design Status

## Electrical design



- Integration resources for electrical design are being identified (Thomas)
  - Motion Control (Collimator-Chopper part is ready)
  - Lighting
  - Power
- Detector system – Being decided (Alessio Laloni)
- Data Acquisition – We can start the discussion after choosing the detector (Tobias)

# TBL Design Status

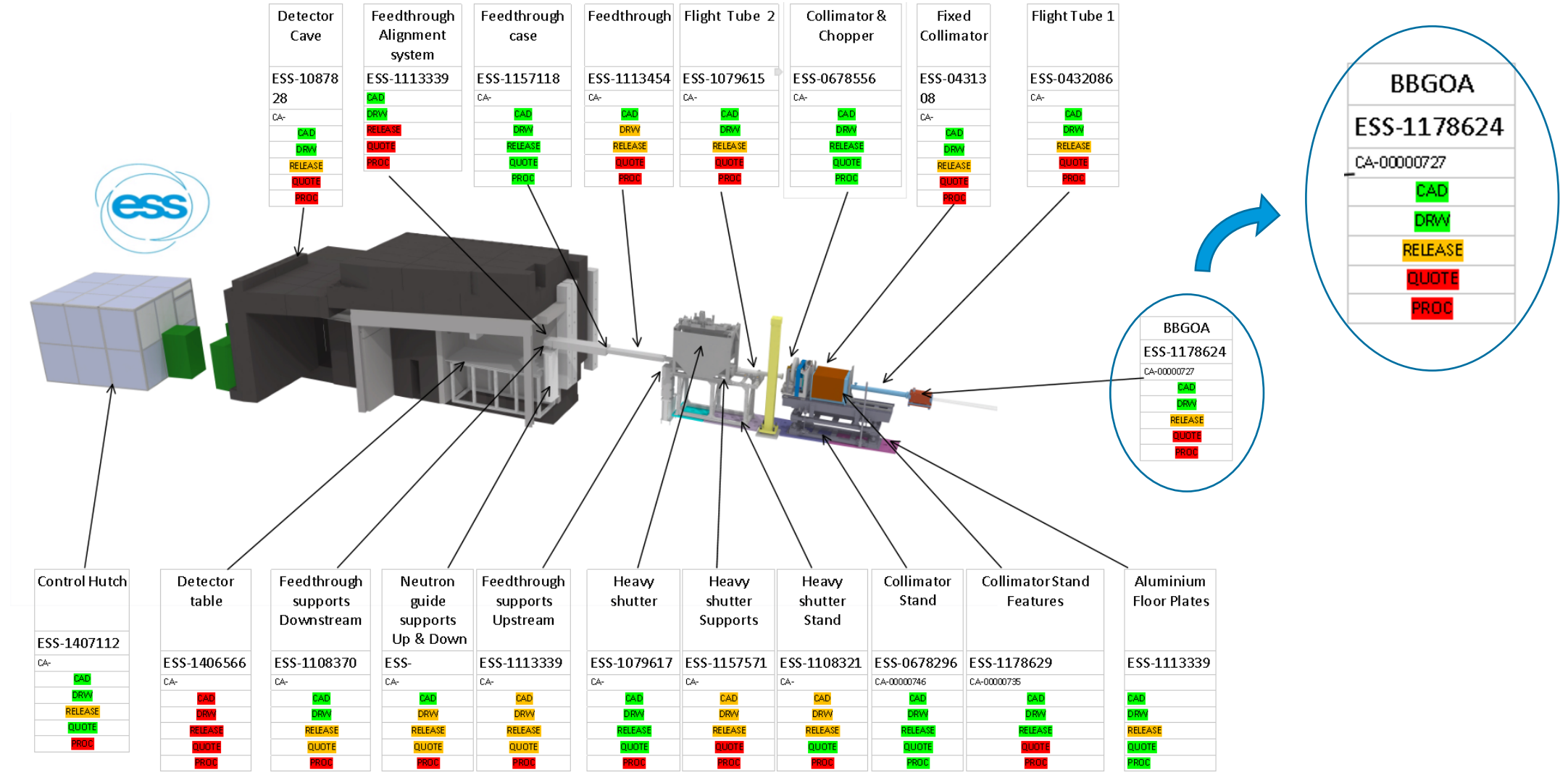


- Vacuum – P&ID ready, detailed design is ongoing (Talal&Laurence)
- Pneumatics – P&ID ready, detailed design and electrical integration to be done (Anton L.)
- Cooling – Has not started yet (Anton L.)
- Personal Safety – Hazard analysis is ready, PSS group will start soon. (Morteza M.)
- CE-marking – HAZID and IHA draft being reviewed (Helena)



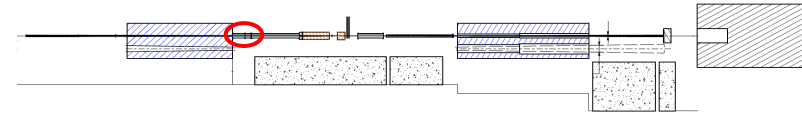
# TBL Design Status

## Mechanical design



# TBL Design Status

## Mechanical design

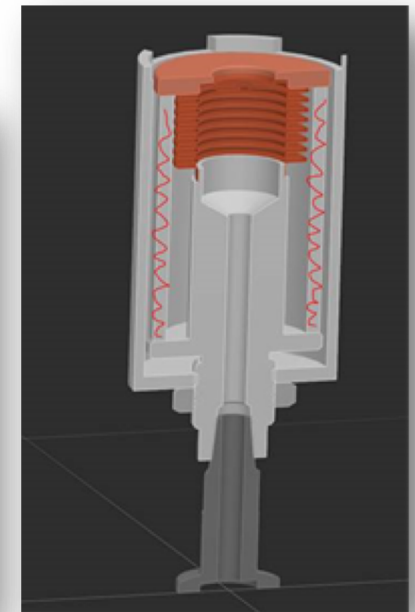
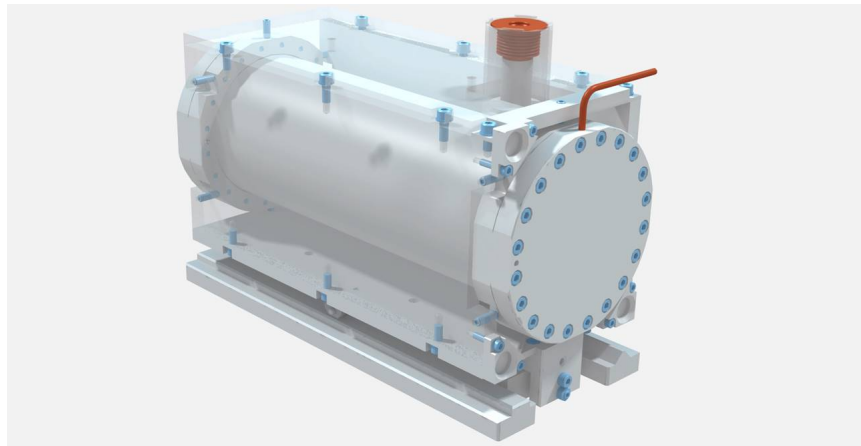


### **BBGOA (Light Shutter Insert)**

Pressure indicator prototypes had been made, development is in progress

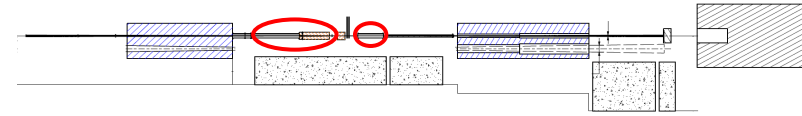
Alignment frame is being re-designed after target has changed the interface.

The BBGOA design is expected to be ready for procurement in March.



# TBL Design Status

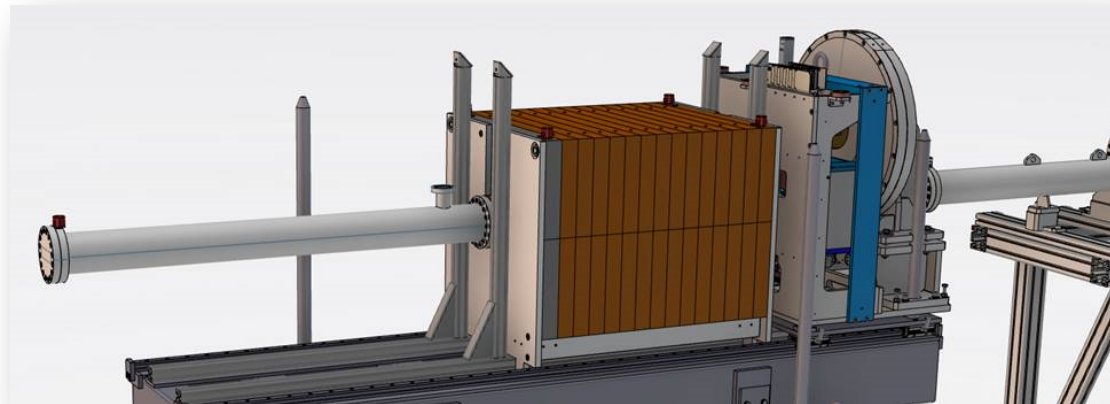
## Mechanical design



## Heavy Collimator and flight tubes

Design was reviewed once, waiting for final release in CHESS

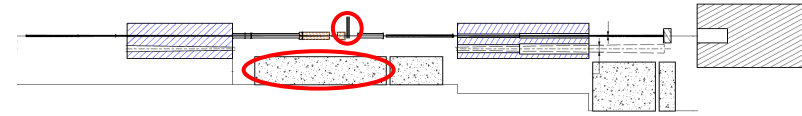
Expected to be ready for procurement in May. (After CDR)





# TBL Design Status

Mechanical design



## Common Support and Collimator-Pinhole-Chopper Assembly, with control rack

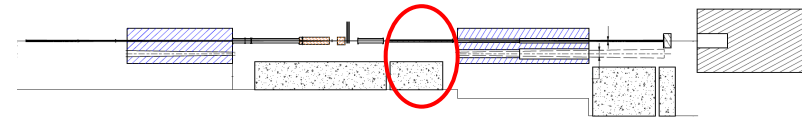
Ready.

Planned to use for source characterization in the Budapest reactor



# TBL Design Status

## Mechanical design

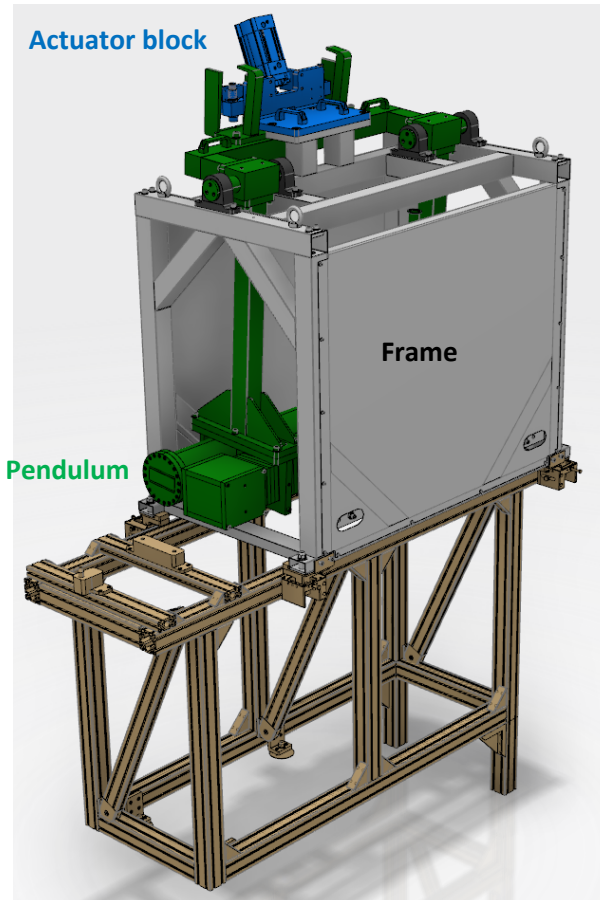


### Heavy Shutter

Ready for FAT.

### Shutter Support

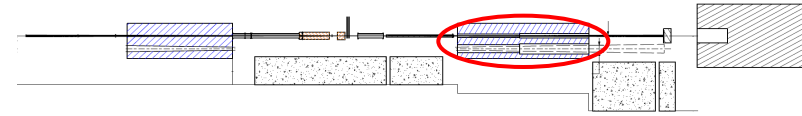
Design being finalized





# TBL Design Status

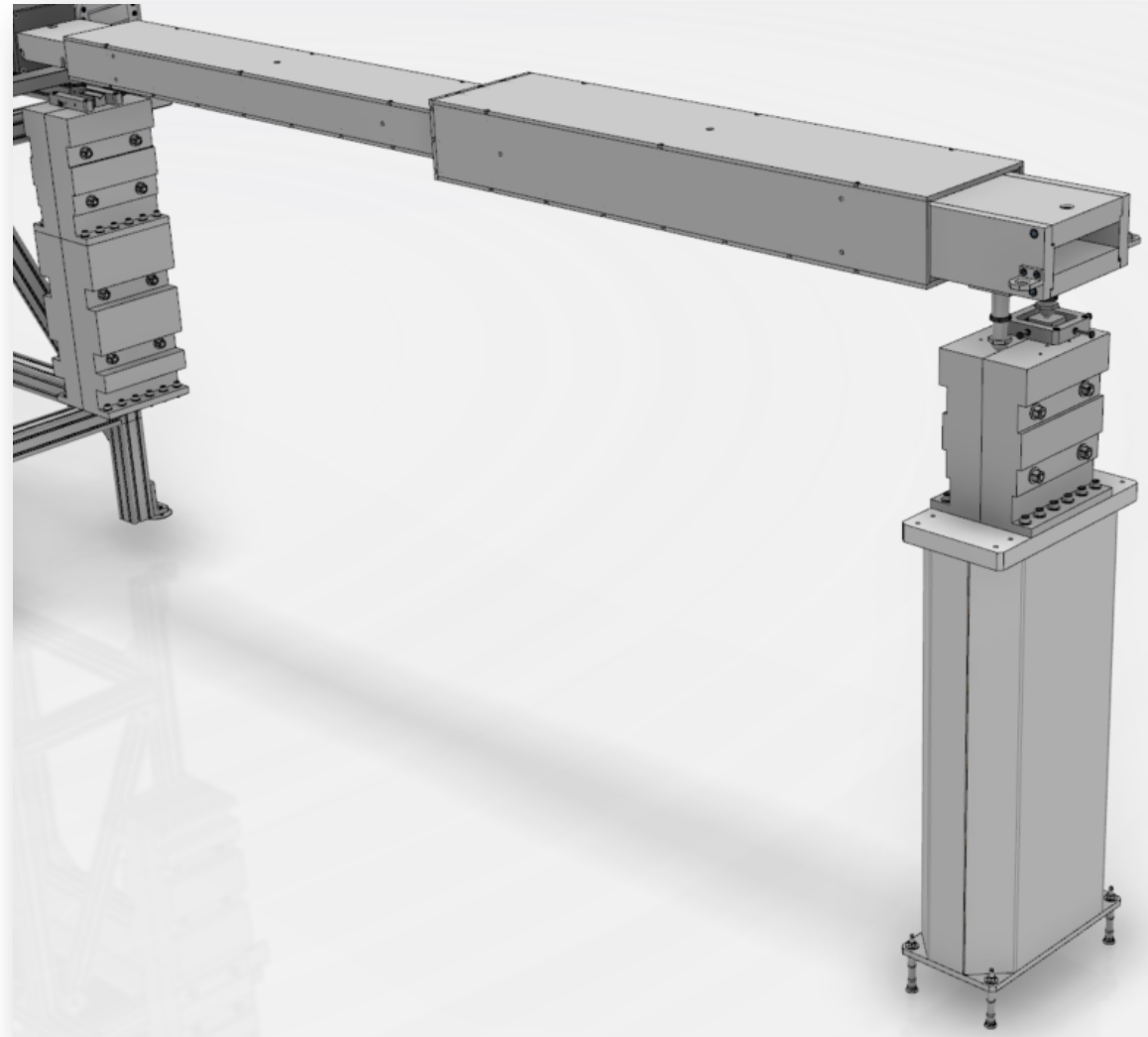
Mechanical design



## Bunker Wall Insert

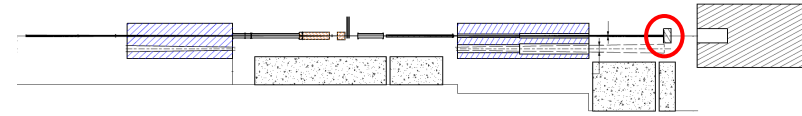
Design is ready

Drawings are waiting for review



# TBL Design Status

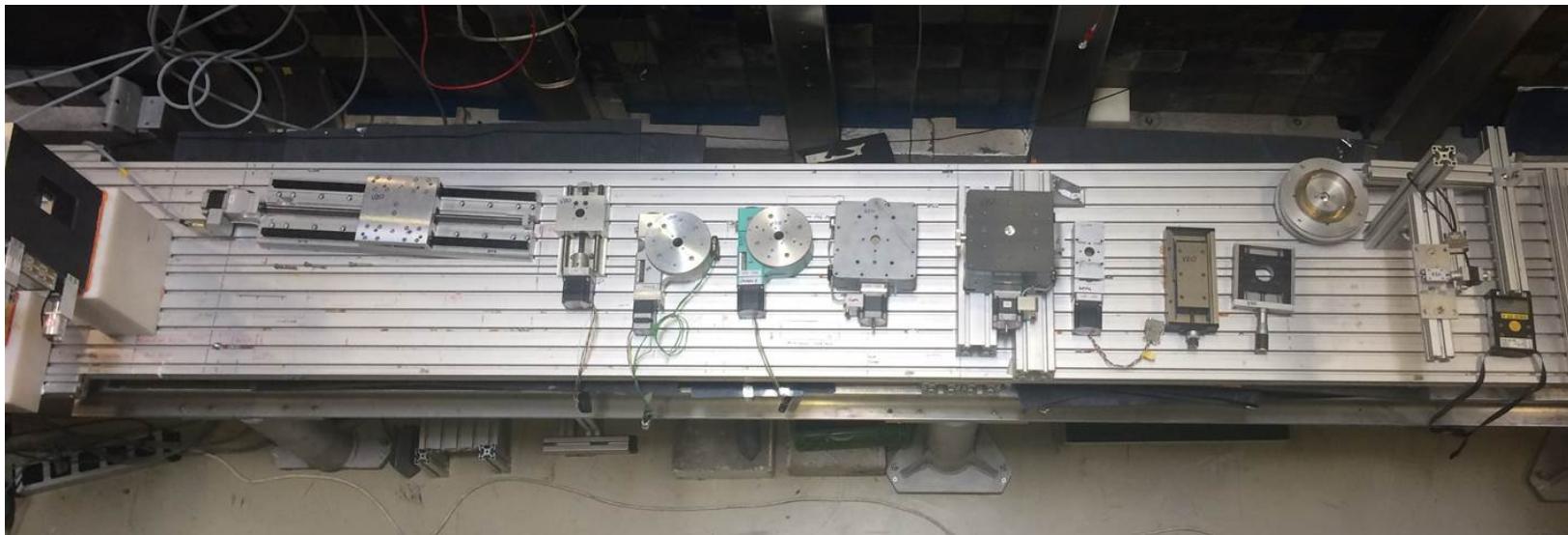
## Mechanical design



### Detector and sample stage

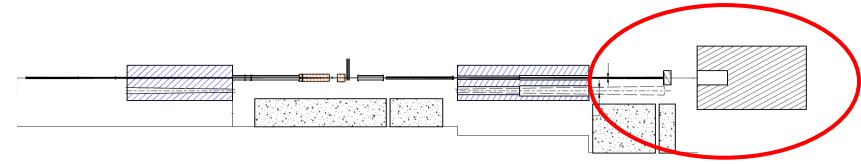
Several options are available. Decision will be made next week.

Components from the Test Beam Line in Berlin will be re-used



# TBL Design Status

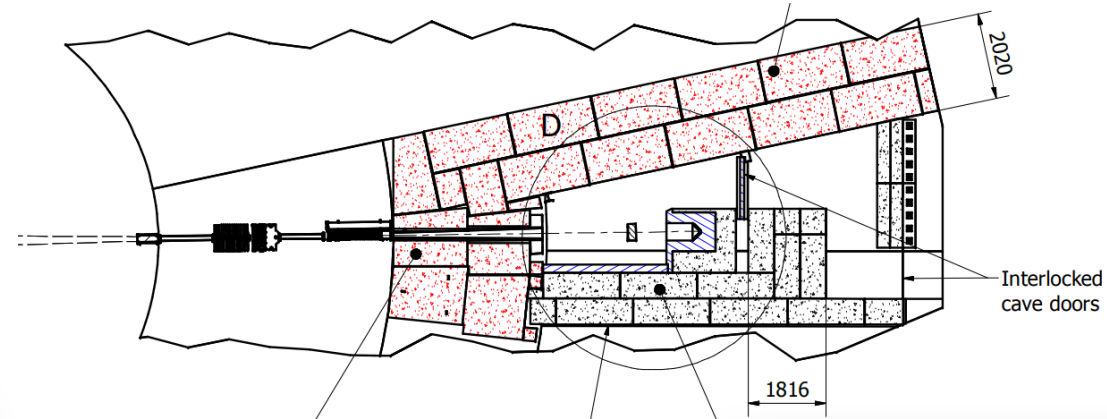
## Mechanical design



## Experimental Cave

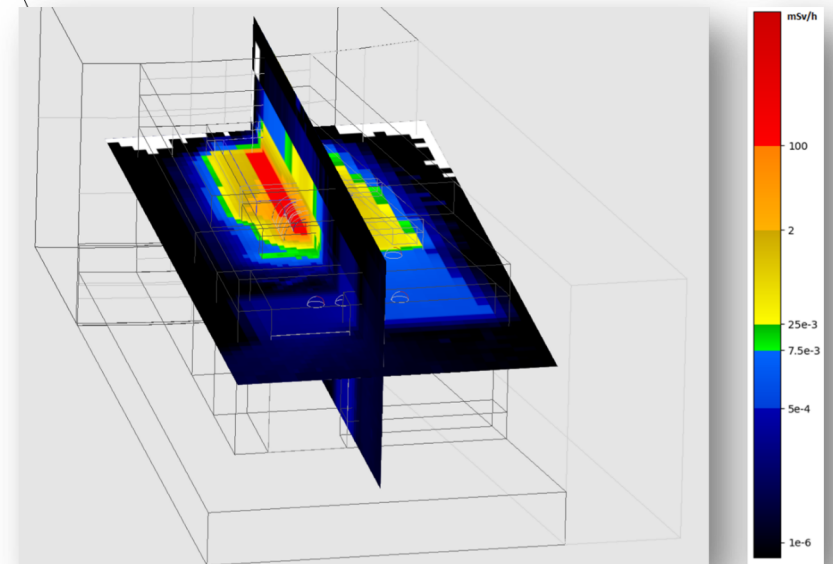
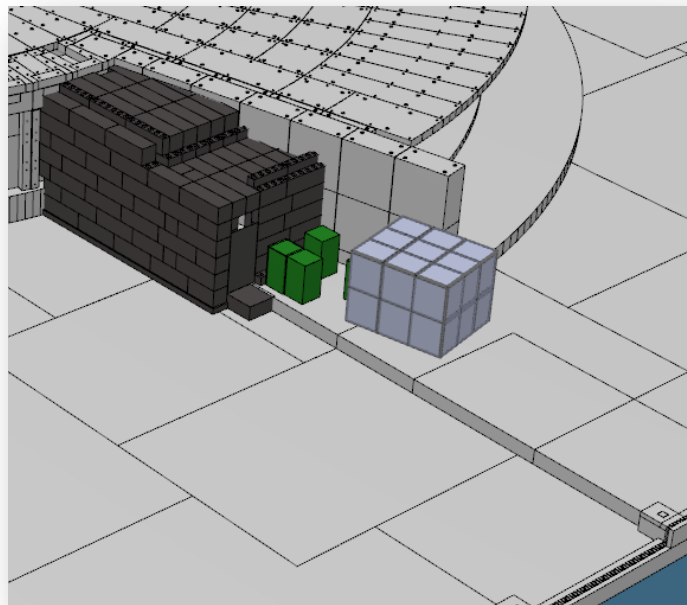
Shielding validation is ongoing

Conceptual design is ready



Bunker wall (main wall):  
Heavy concrete (4 t/m<sup>3</sup>)

The gap between LEGO  
blocks is less than 8mm





Questions?