BGI Integration in P4: some updates

- Provide detailed list of EYETS 24-25 works, including tests and installations, aiming for integration validation by June 2024. → Requested to EN/EL to install all cables & optical fibres during EYETS 24/25. Optical fibres on tunnel side will be installed next to the existing BSRT patch panel.
- Clarify which racks will be utilized updating the DIR.→ For the BGI's on B1 : Racks BY01 & BY02 in UA43 and for the BGI's on B2 : Racks BY16 & BY17 in UA47.
- Finalize the selection of Power Converters considering space constraints. → **Magnet Design completed (triplet),** Work in progress with SY-EPC.
- Identify the components to be removed and dismantled. This will ensure that all relevant groups are informed and can anticipate requirements for EYETS 24-25. → None in EYETS 24/25 (old instruments already removed, only old magnets remain.)
- During the EYETS 24-25, there will be an effort to maximize installations. Therefore, provide with an ECR as suggested by JO.→ ECR will be prepared by June for cable & fibre installation.
- Organise a meeting with VSC.→ Meeting organised: vacuum layout modification discussed. In order to give more flexibility to everyone, it is agreed to modify the layout with drifts replacing the BGIs instruments. The vacuum reconfiguration can take place at VSC convenience, the BGI will be installed when ready (most likely Q4 2027). Collaboration ongoing.
- Alignment team will be contacted very soon

SY-BI HL activities in P4: BSRT, BGI, BGC, BGV dismantling

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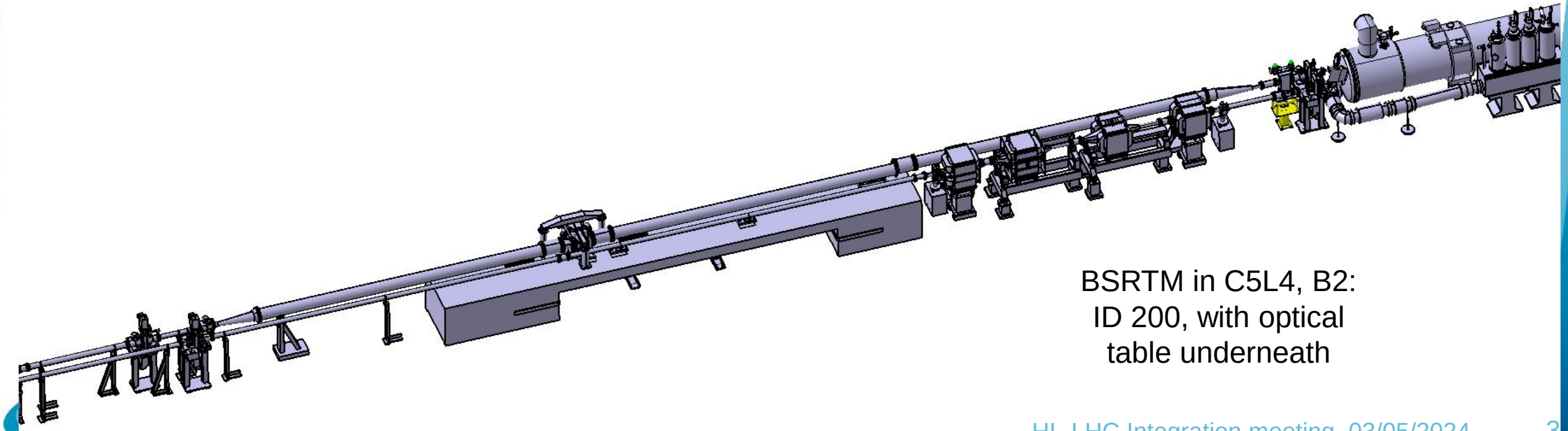
BSRTM – current layout

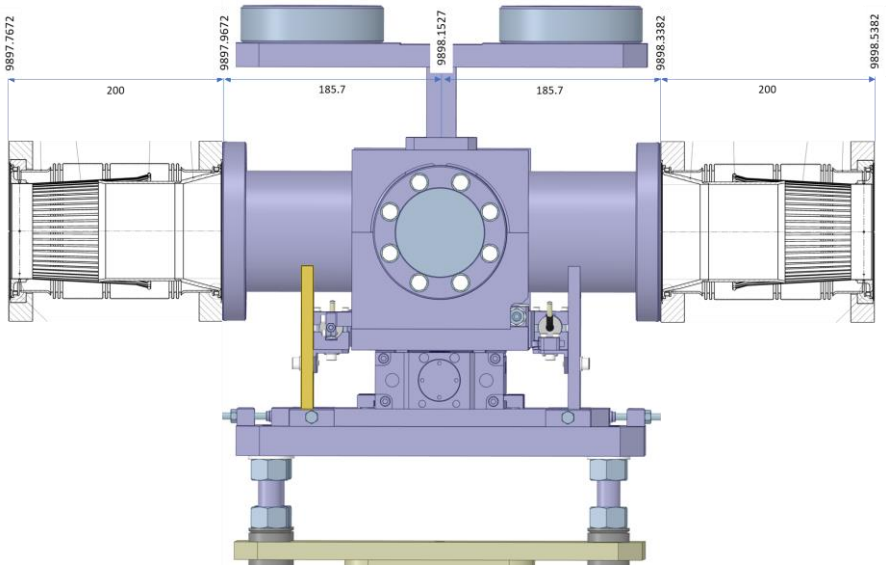
- Currently installed in the machine in P4:
  - BSRTM in C5L4, B2– operational
  - BSRTM in C5R4, B1 – operational
  - BSRTMB in F5L4, B1-tank only with no light extraction

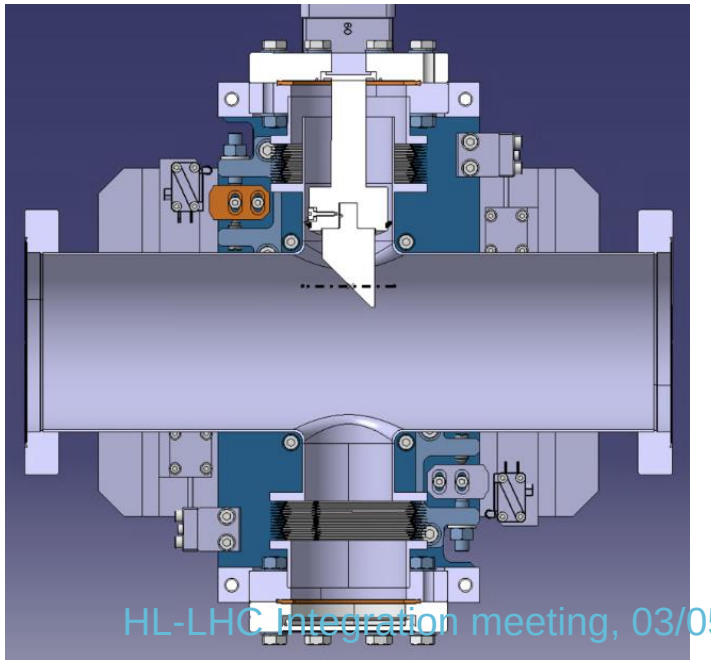


BSRTM in C5L4, B2:
ID 200, with optical table underneath

BSRTM – current layout

- Currently installed in the machine in P4:
  - BSRTM in C5L4, B2– operational
  - BSRTM in C5R4, B1 – operational
  - BSRTMB in F5L4, B1-tank only with no light extraction
    - ECR [2610870]





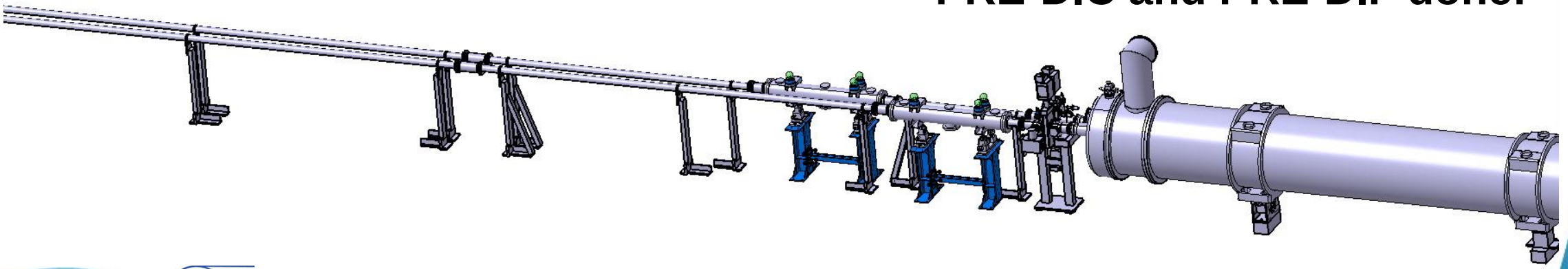
BSRTMB LSS4L – proposed implementation

- Move the existing BSRTMB to its final location;
- Enlarge the aperture from ID80 to ID100 for the entire section between D4L4 and the BSRTMB;
- Install a new optical line to the technical gallery → Civil engineer contacted for starting the study.

BSRTM LS4R – proposed implementation

- Swap the Schottkys' monitors from B2 to B1, to avoid aperture restrictions to the light;
- Enlarge the aperture from ID80 to ID100 for the entire section between D4R4 and the BSRTMB;
- Install a new optical line to the technical gallery

PRE-DIC and PRE-DIF done!



BSRTM – LS3 strategy

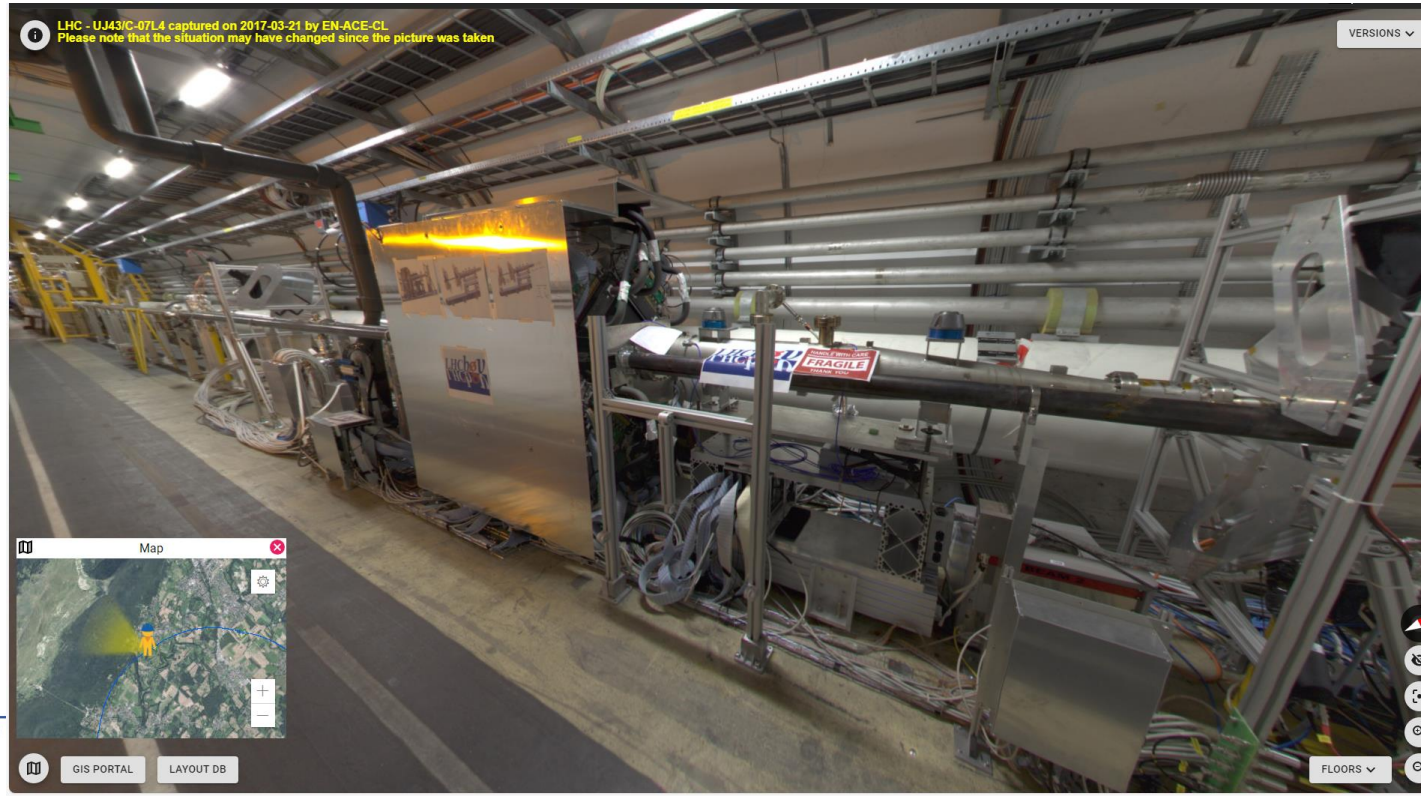
- Beamlines modifications with a replacement chamber for the 2X BSRTMBs tanks.
- Production of a second BSRTMB tank.
- Design & fabrication of the optical line.
- Implementation in the tunnel during LS3 (Q4 2027).

BGC#2 Integration in P4

- BGC installation on Beam 2:
  - Possible candidates: LSS4 and LSS6;
    - LSS4 : new design of both injection and dump; Less radiation background, easier maintenance, common gas line;
    - LSS6: new design of the dump only; Higher radiation background, more difficult maintenance, new gas line;
  - After few reiterations with physicists@ Cockroft Institute, it seems possible to have an instrument on B2 in LSS4 from a gas density perspective;
- Milestones:
  - Q1 2027 – beam line modifications in preparation to the BGC to be installed;
  - Q4 2027 – BGC v4 for Beam 2 installation in point 4;

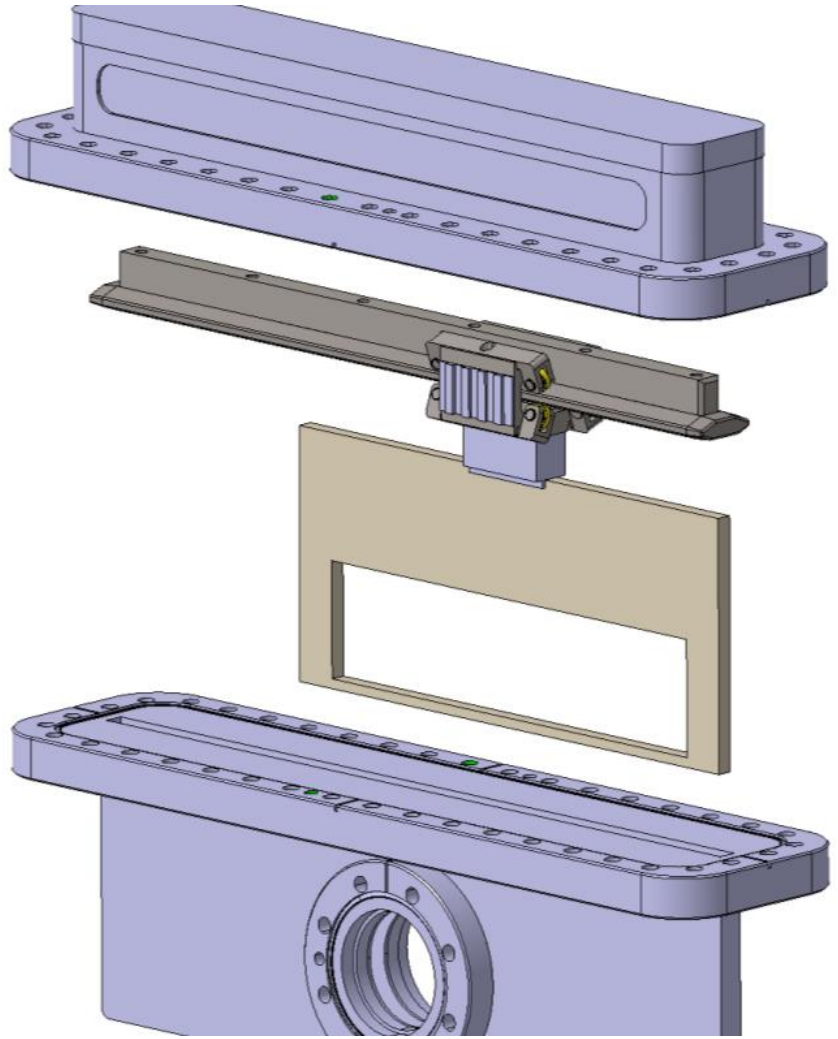
BGV Dismantling

- Replacement of the vacuum chambers and removal of all components from the tunnel.
- Tracking detector electronics could be removed in YETS24/25.
- Cables might be reused for the BGC#2.



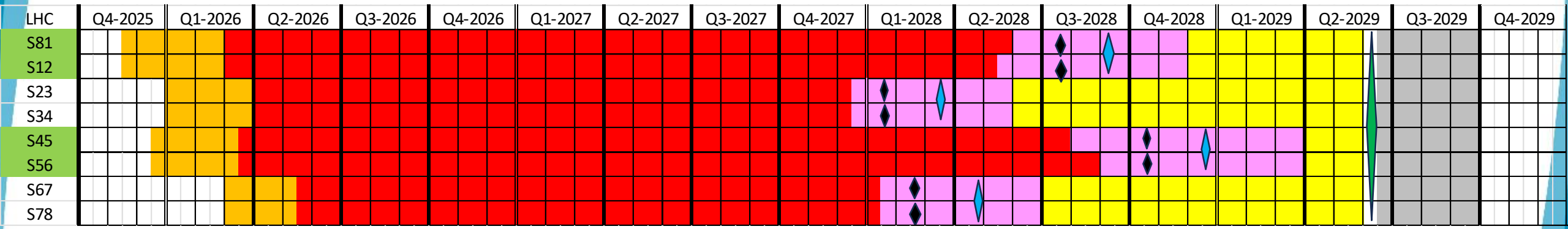
(Not HL-LHC) but still in LSS4

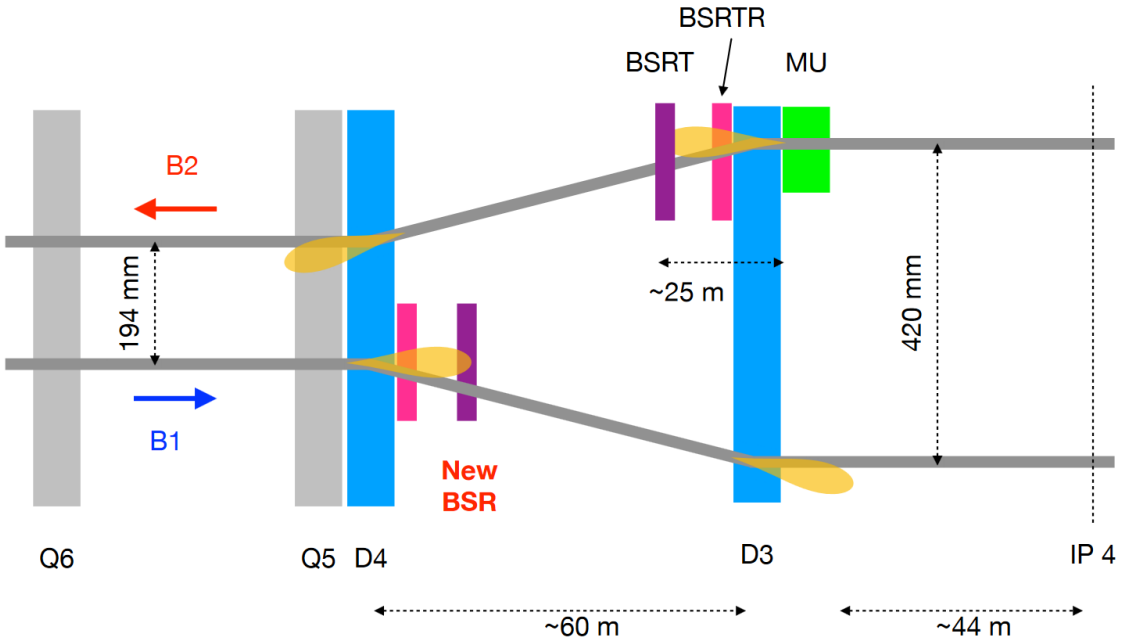
- New linear Wire Scanners, 4 protypes (2H and 2V) to be installed nearby the existing WS.



SPARE SLIDES

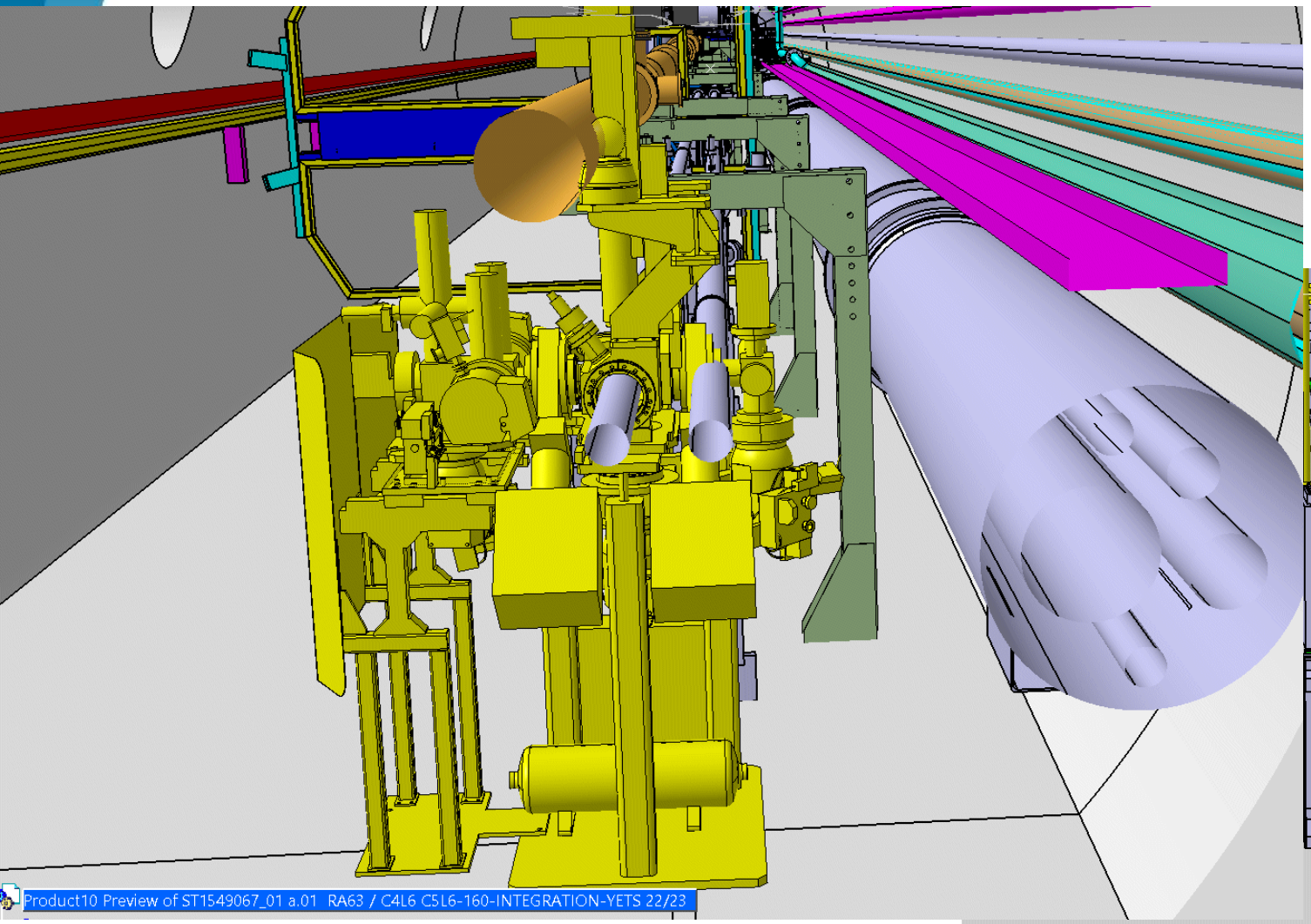
Warm-up and pre-tests **Interventions** HW Com & IST Powering test & training Beam Commissioning

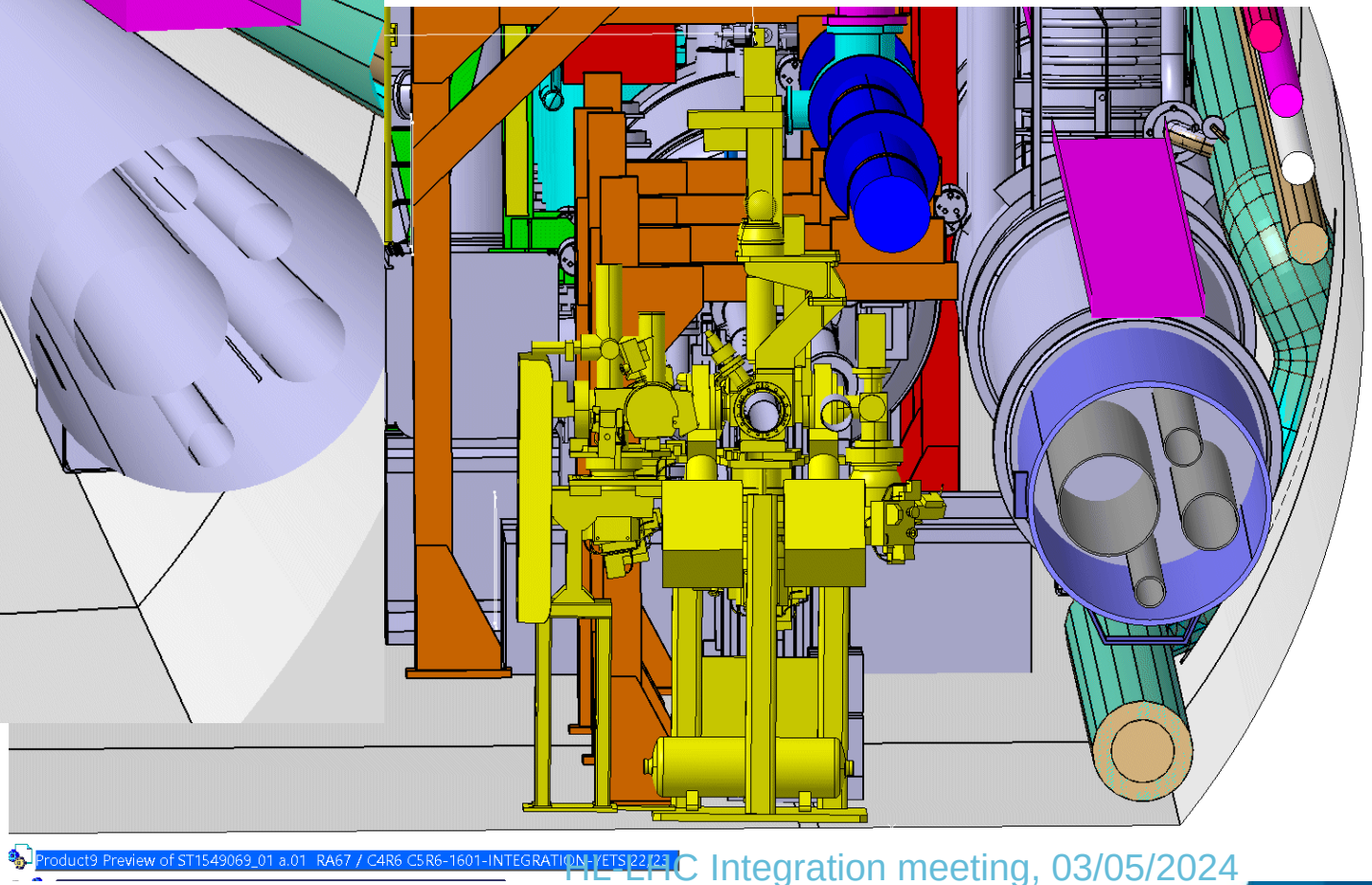



BSRTR
BSRT
MU
B2
194 mm
B1
New
BSR
~25 m
420 mm
Q6
Q5
D4
D3
IP 4
~60 m
~44 m

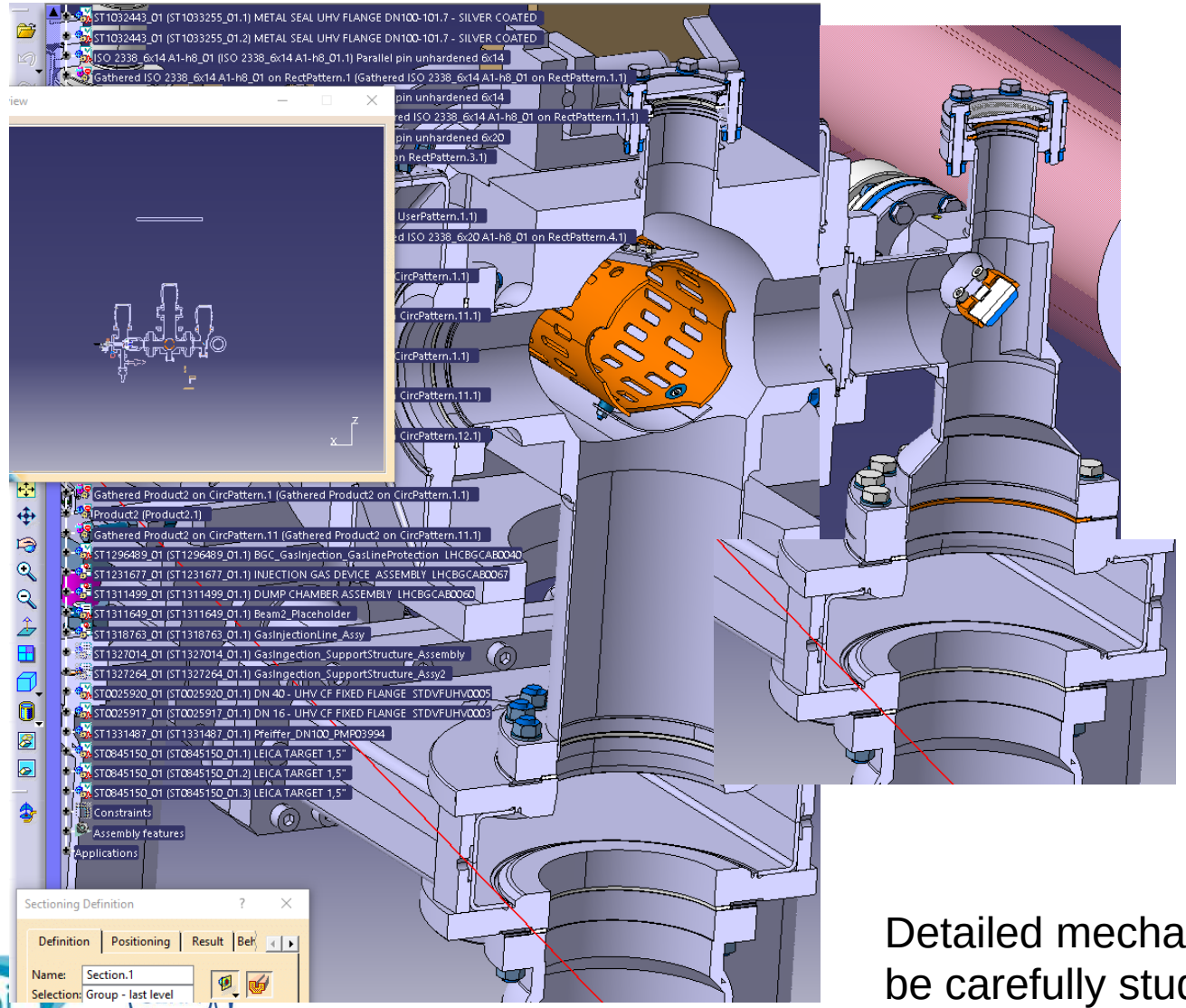
Here is how it looks like..in LSS6

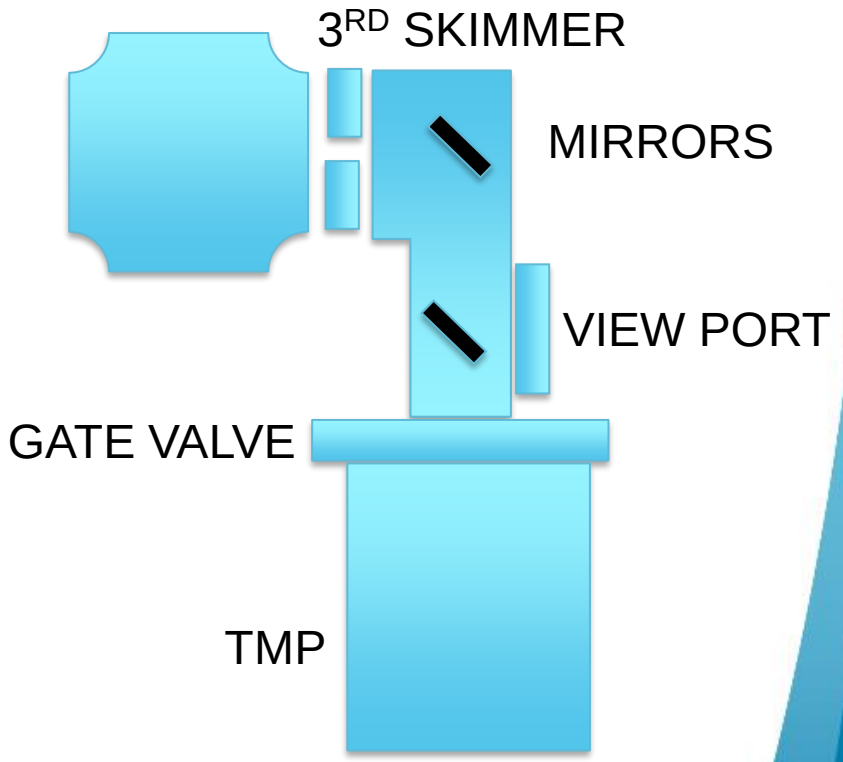
dump to be redesigned : on the LSS6 right, no integration issue with the dump line. Beam aperture to be checked!!





Space Constraints in LSS6





Detailed mechanical and vacuum engineering to be carefully studied!