

GEp Status

Robin Wines

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GEp Status

Equipment needed:

- SBS magnet, US & DS field clamp- US field clamp interference with pivot platform, solution is to remove section of pivot platform. Pole shims need to be installed. All SBS coils utilized for GEp.
- Cryo target scattering chamber with snout vacuum chamber- Snout needs test fit to chamber, need to order larger gate valve for isolation, need window test completed.
- Beamline 01 with corrector magnets – Need forces to determine corrector magnet braces. May have existing corrector braces. Need new gate valve.
- Floor plate layout A- Need position of HCAL confirmed.
- SBS Detectors- support/frame weldment drawings complete, working on assembly and update of GEM model, interference to resolve, then order parts (16 GEM chambers)
- Access method to detectors- Need points on detectors that need access and frequency of access. (mtg scheduled for Wednesday)
- GEM electronics shielding- Is the rack attached to SBS CW side sufficient? (mtg scheduled for Wednesday)
- ECAL- drawings complete to modify support and frame, Technicians ordering material to do modifications on support. Need to purchase frame. ECAL will move on Hilman rollers thus need floor plates for rolling surface.
- CDET- Need update of work to be done. Drawings complete for mount of CDET to ECAL frame. Need to purchase parts. Interference with CDET base and floor rails.
- HCAL- Confirm position.
- Lead shield wall on SBS counterweight- Confirm location and required.
- Lead shielding in SBS cutout and around beamline – Is this required?
- SBS sieve plate? Target? (discussions started with Meekins + simulations to add hadron filter) Target chamber?

Gep Kinematics

Date: 2021.09.17

SBS FF Kinematic Settings

Note: distances are from Gep Tgt Ctr, not the Hall/pivot ctr.

Gep 07109 Hydrogen

HRS-BR deg. 140.0°

NX ARR.	Q ² GeV ²	BB deg.	BB m	SBS deg.	SBS m	HCAL deg.	HCAL m	HRSBL deg.	B line	Flr. Layout	ECAL deg.	ECAL m
Gep 5.0	5.0	N/A	N/A	25.7°	1.6	see SBS deg.	6.8	105.0°	1	A	29.0°	9.0
Gep 8.0	8.0	N/A	N/A	22.1°	1.6		6.8		1	A	26.7°	6.5
Gep 12.0	12.0	N/A	N/A	16.9°	1.6		6.8		1	A	29.0°	4.5

currently 95°

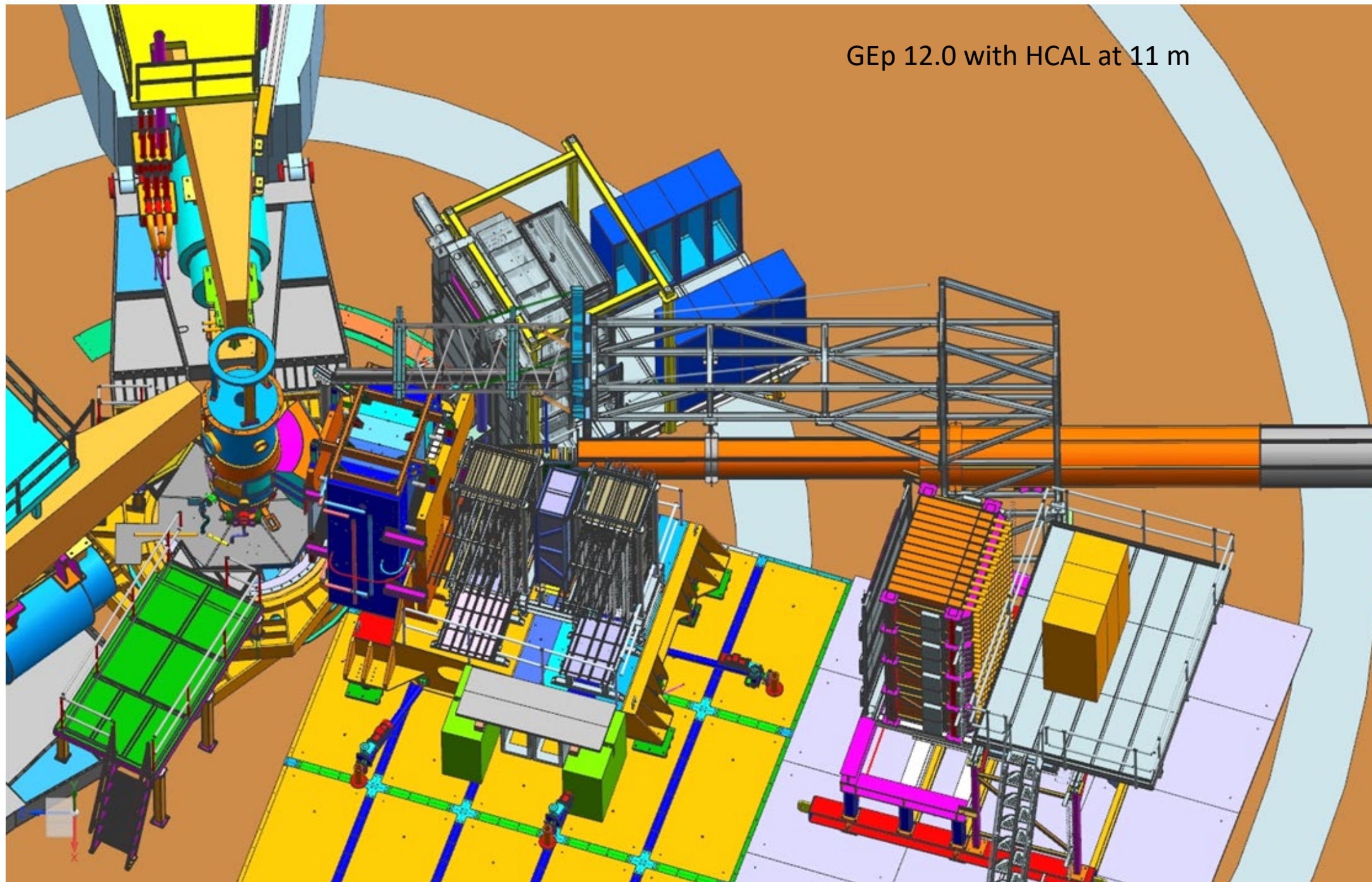
Note: Pivot Center to Gep Tgt Ctr = 6.5"

2022.07.01: HCAL is 7.2m

2022.07.06: HCAL at 11.0m

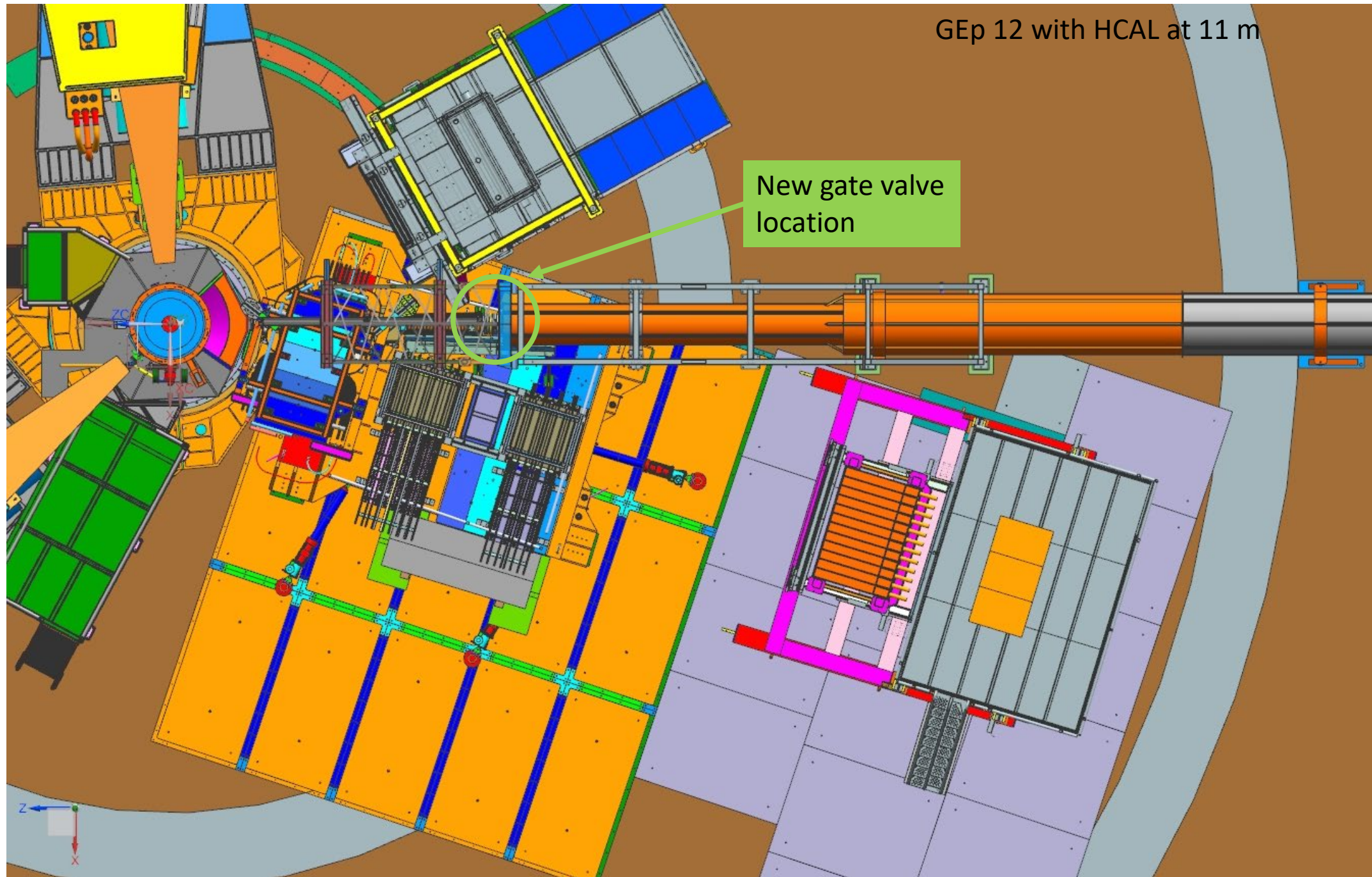
- **Need to confirm Kinematics**
- 2022.11.04 Reviewed location of HCAL found 7.2m and 8.1m ok with restrictions for clearances. 8.7m distance ideal for clearances. 10 m and 11 m work.
- Also noted lower beam energies, then ECAL angles should be (6.4 GeV) 29.8 degrees, (8.5GeV)27.5 degrees, and (10.6GeV)30.0 degrees

GEp 12.0 with HCAL at 11 m

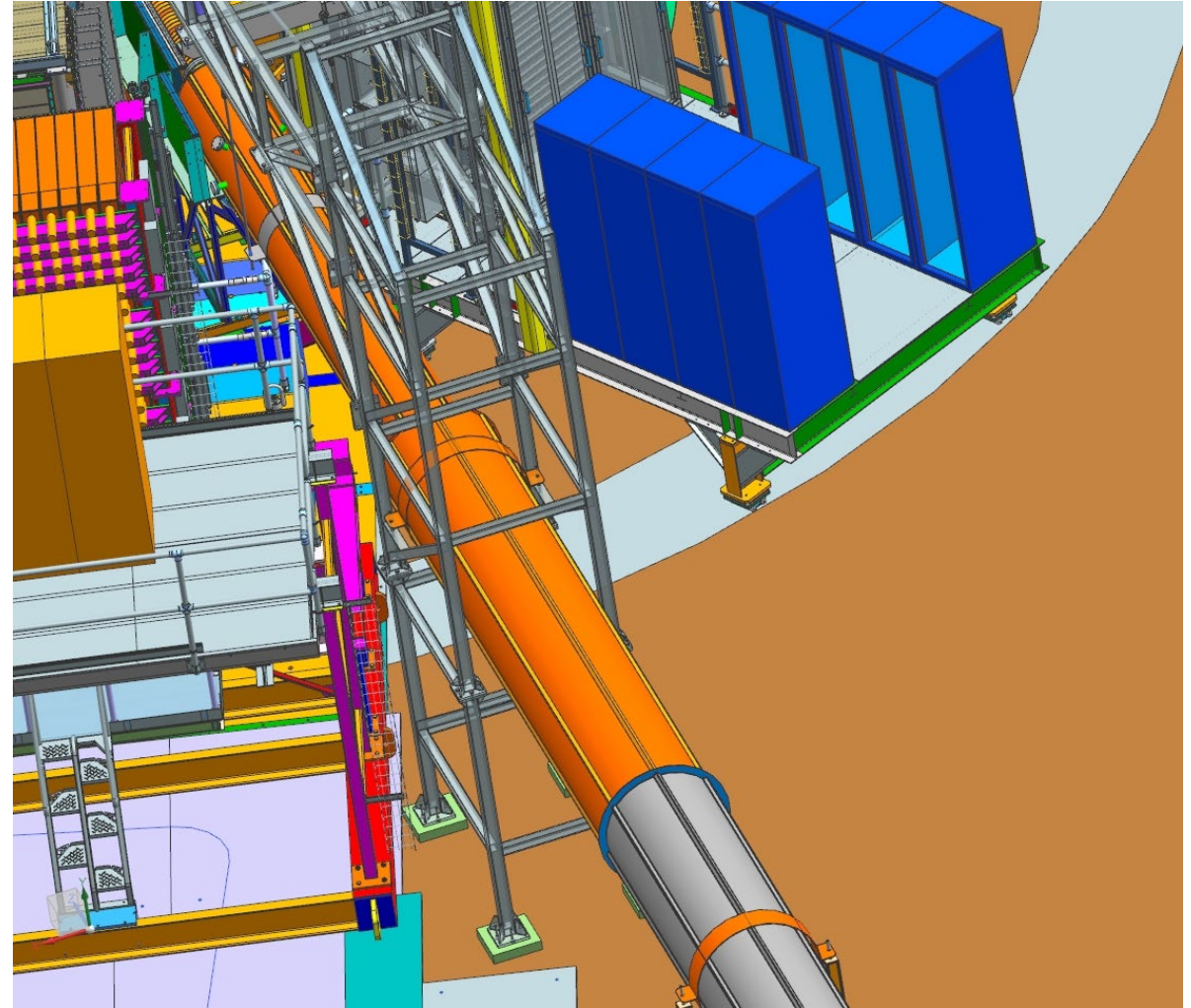
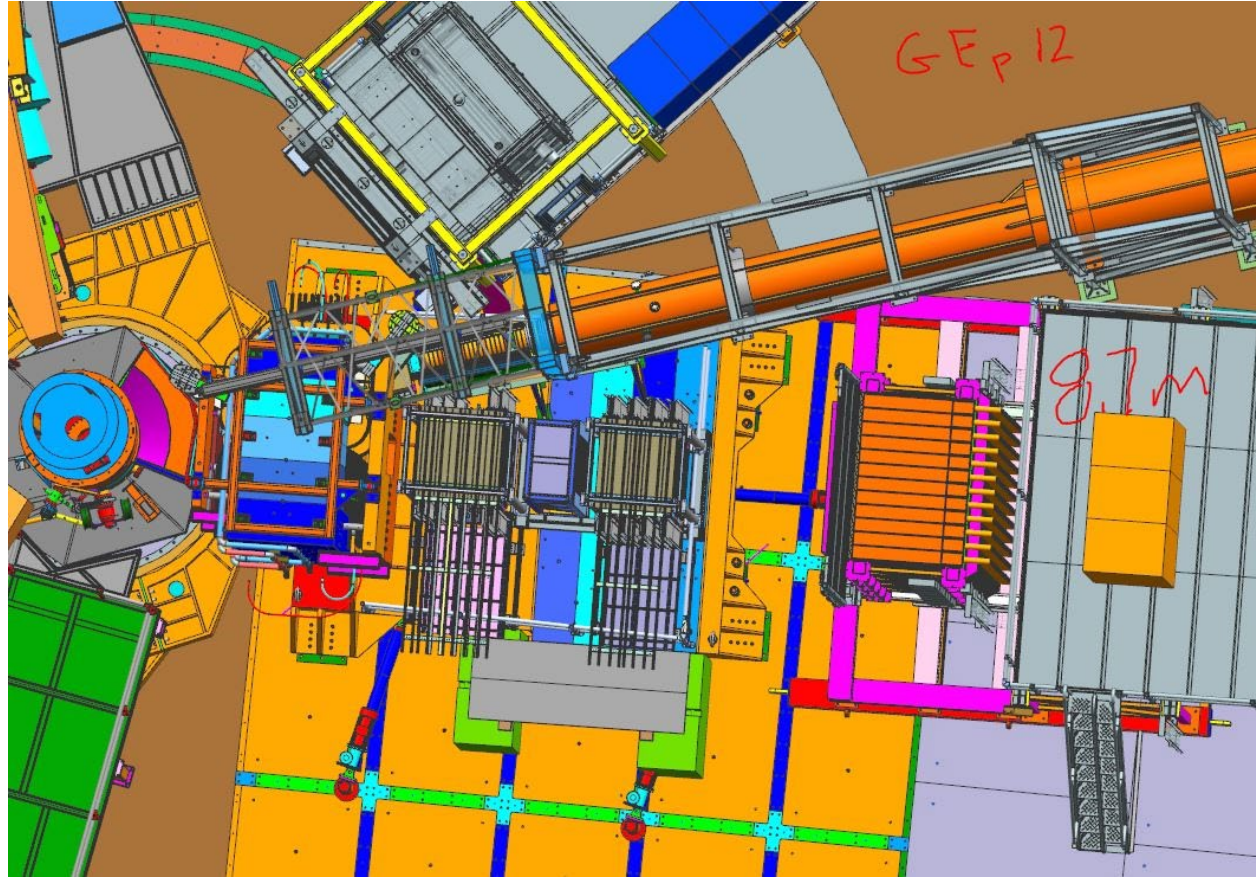


GEp 12 with HCAL at 11 m

New gate valve location



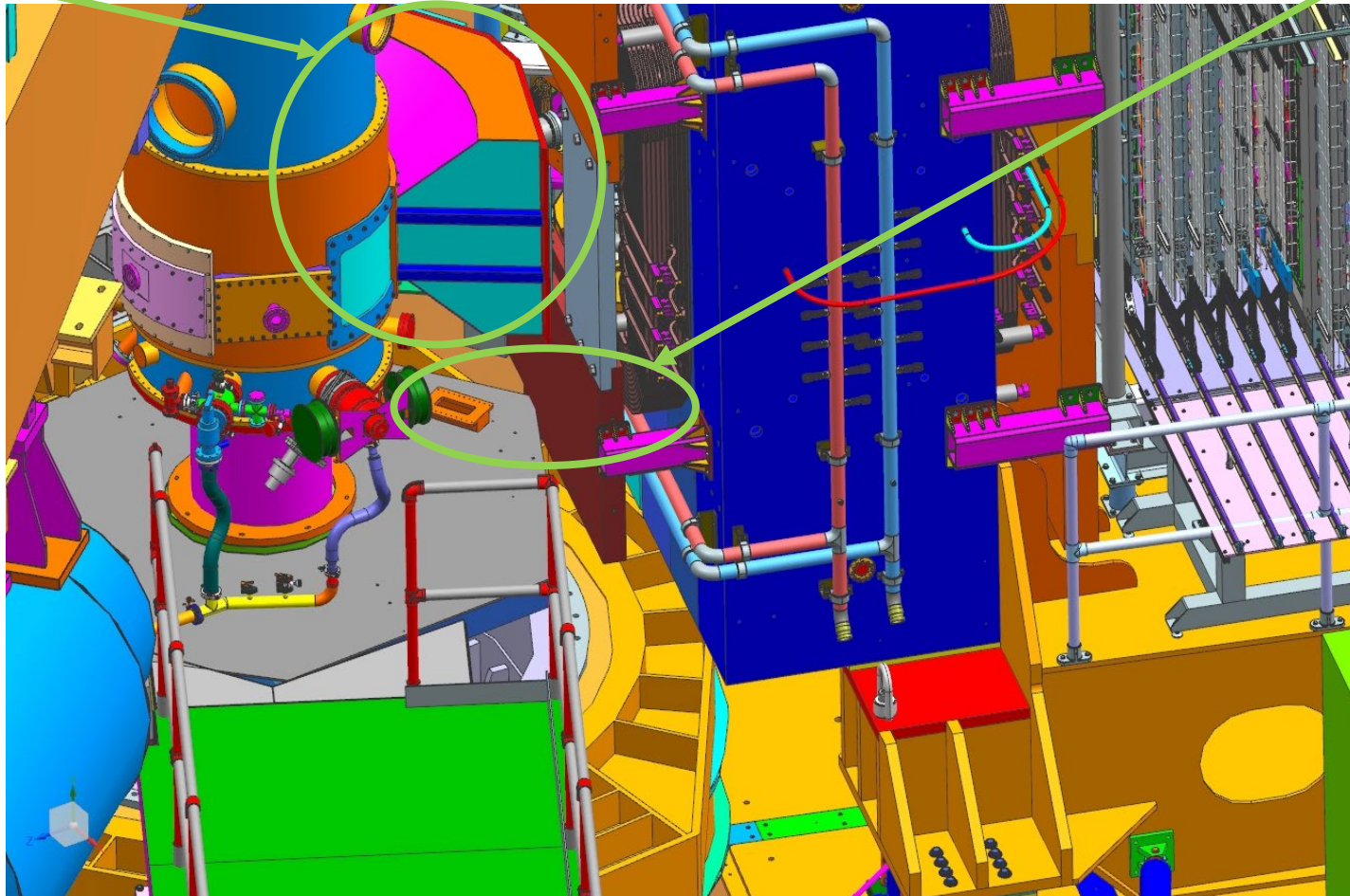
Gep 12.0 with HCAL at 8.7 m

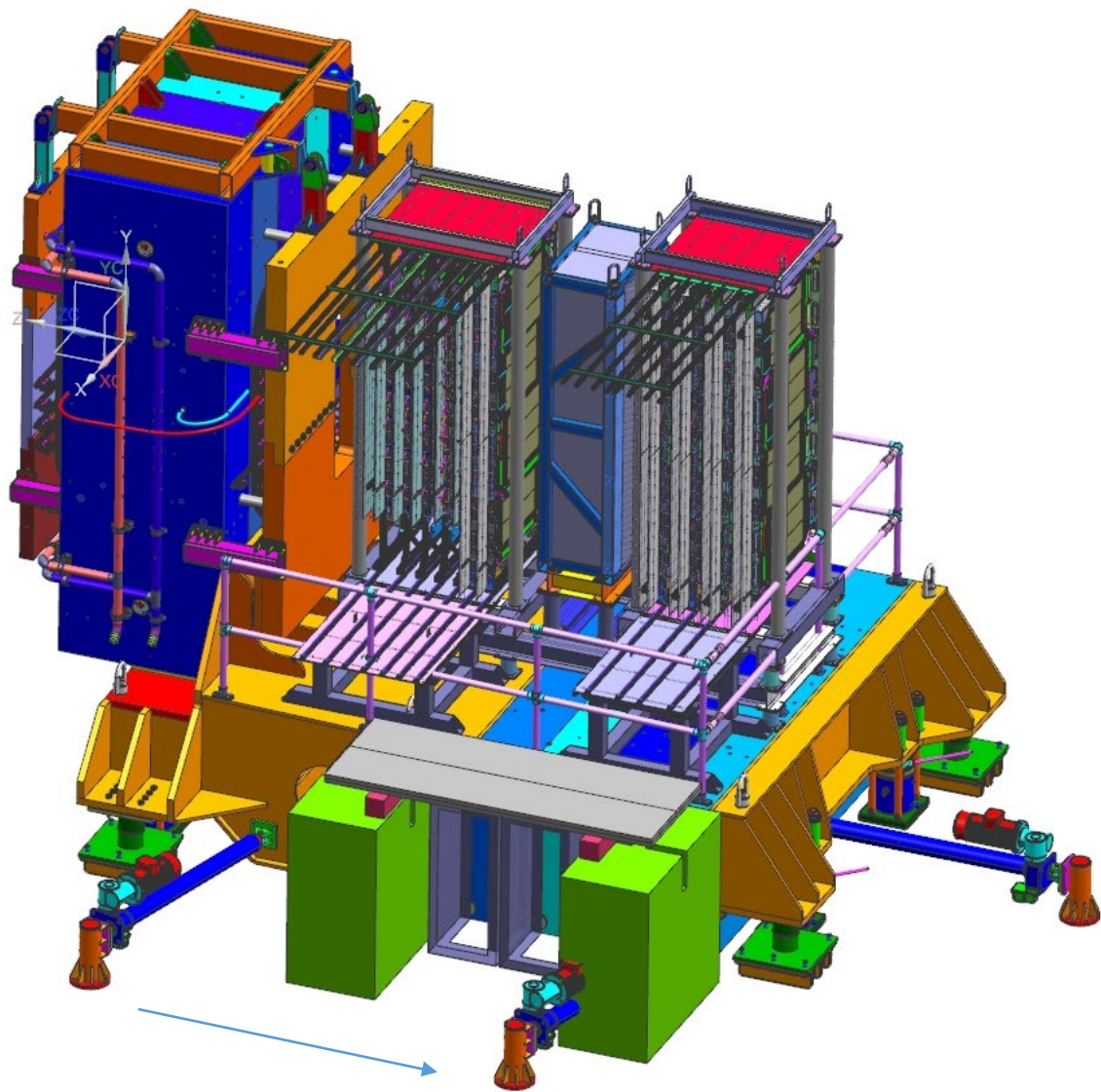


GEp 12.0

Snout needs to be test fit and need window test

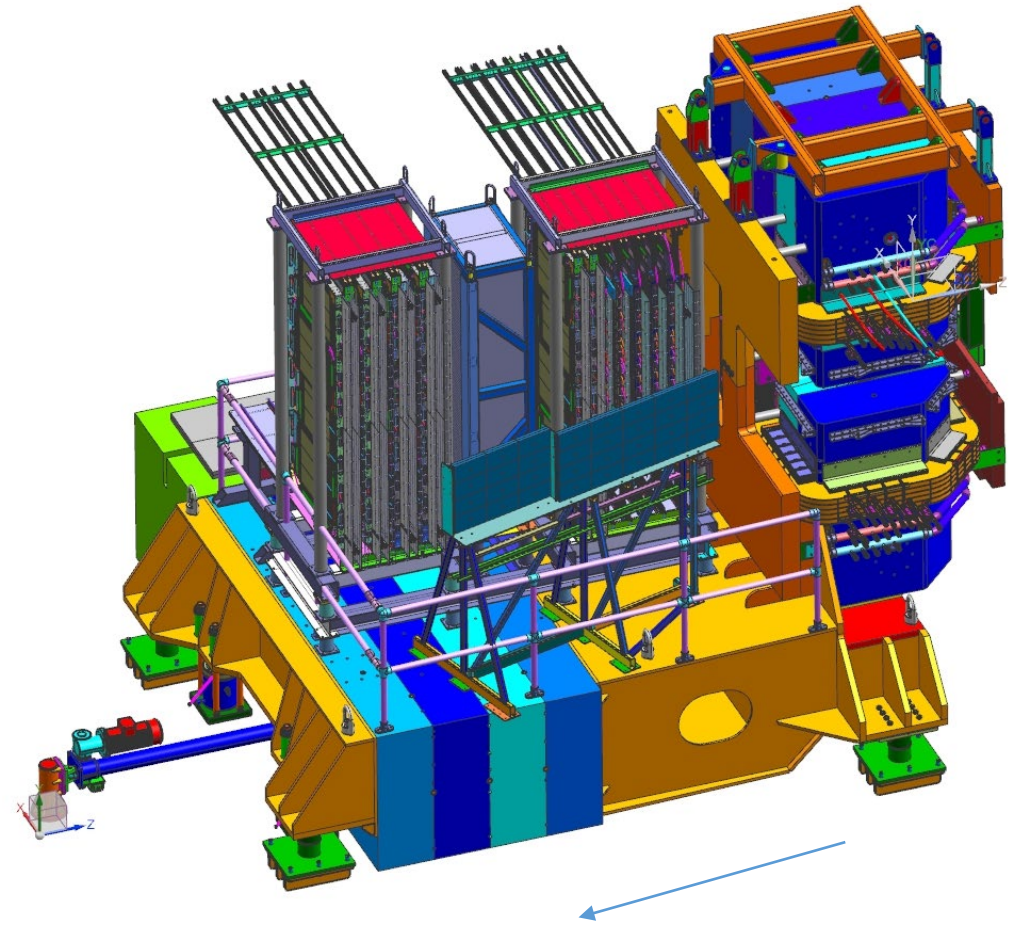
Clear interference between US field clamp and pivot platform by cutting off section of pivot platform



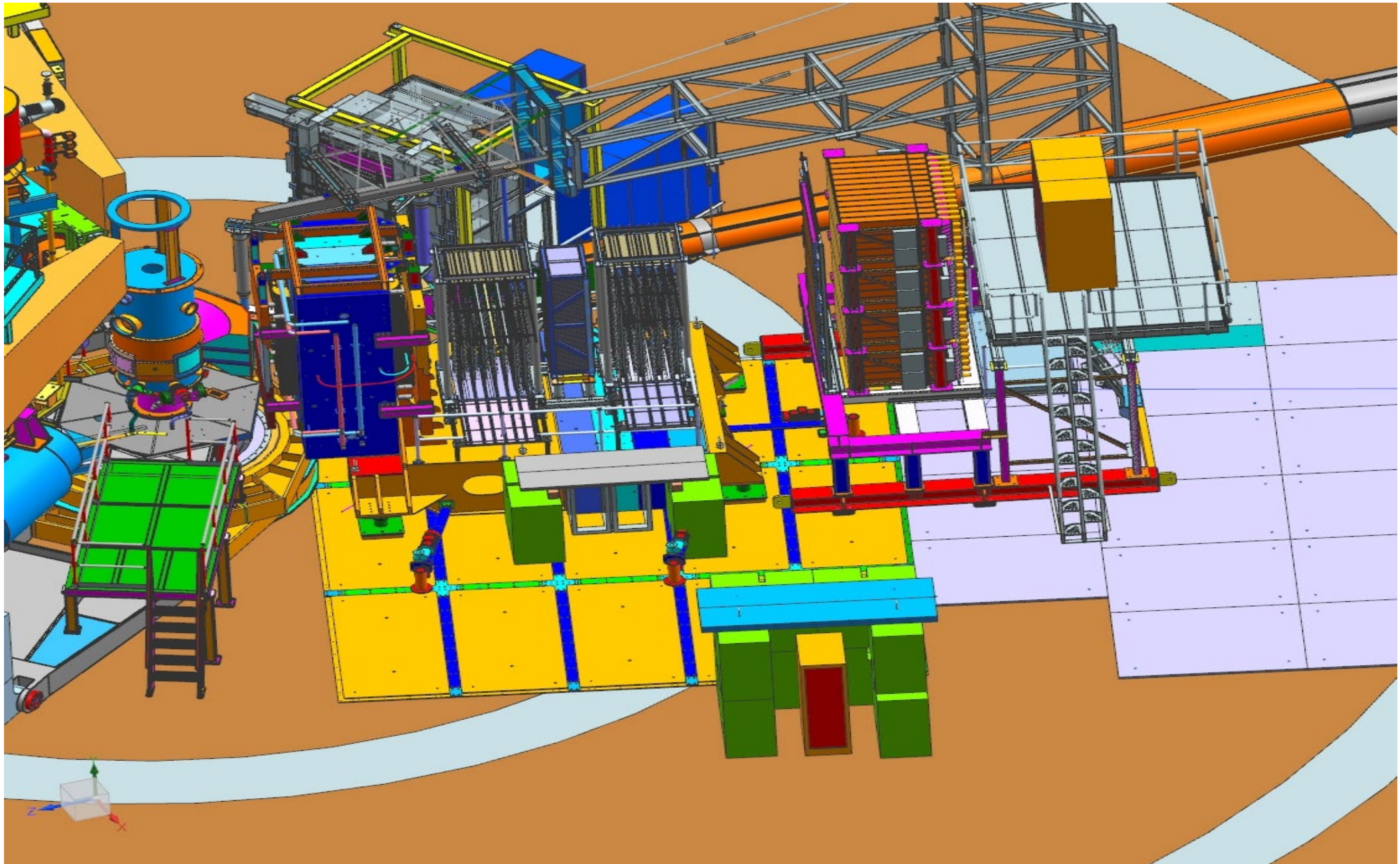


- Current position of GEM shielded electronics. Is this enough space?
- Proposed stands to slide GEMs out. No space for ladder or access platform. (18-24")

- Lead wall on SBS counterweight, left side. Any other lead shielding needed?

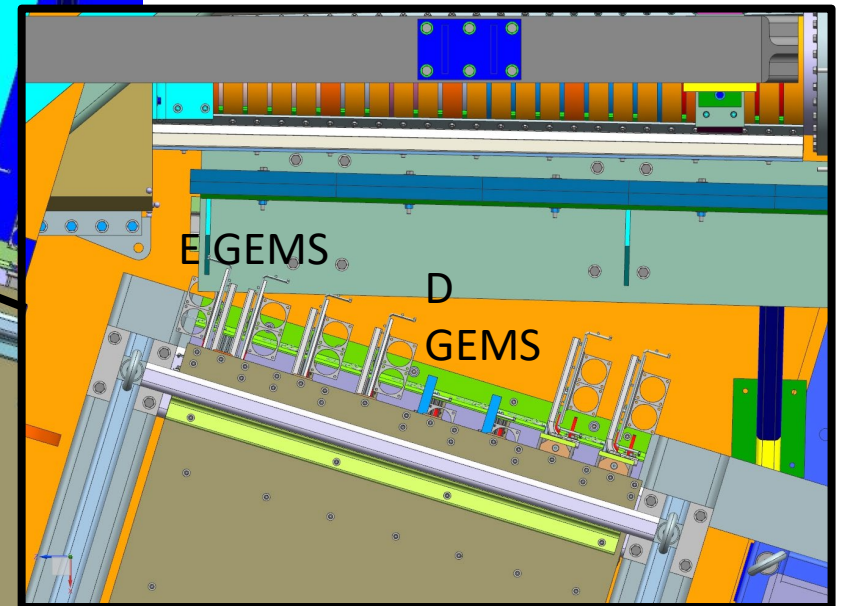
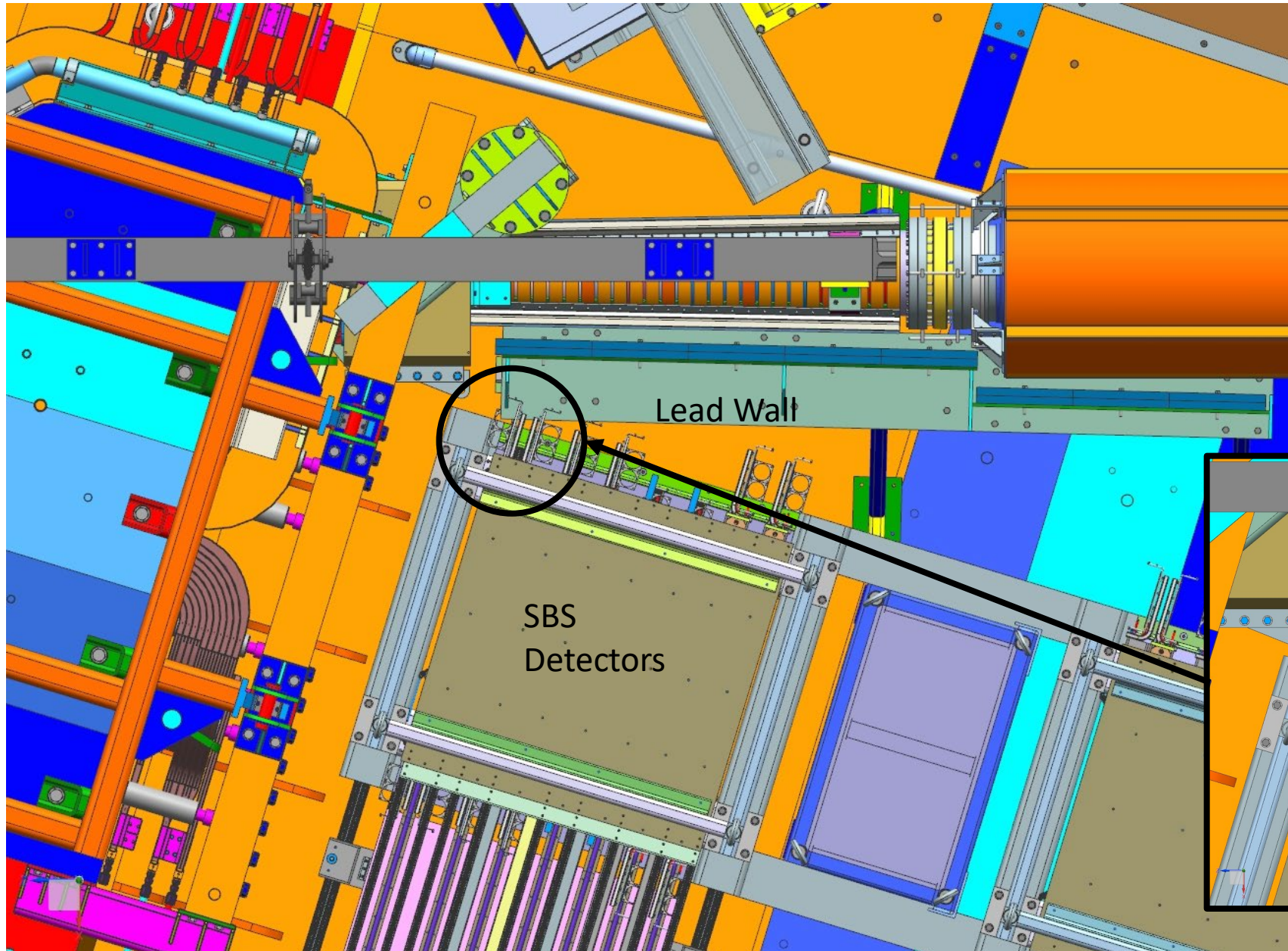


Gep 12.0 with HCAL at 8.7 m – Alternate GEM electronics shielding location (~30' distance)



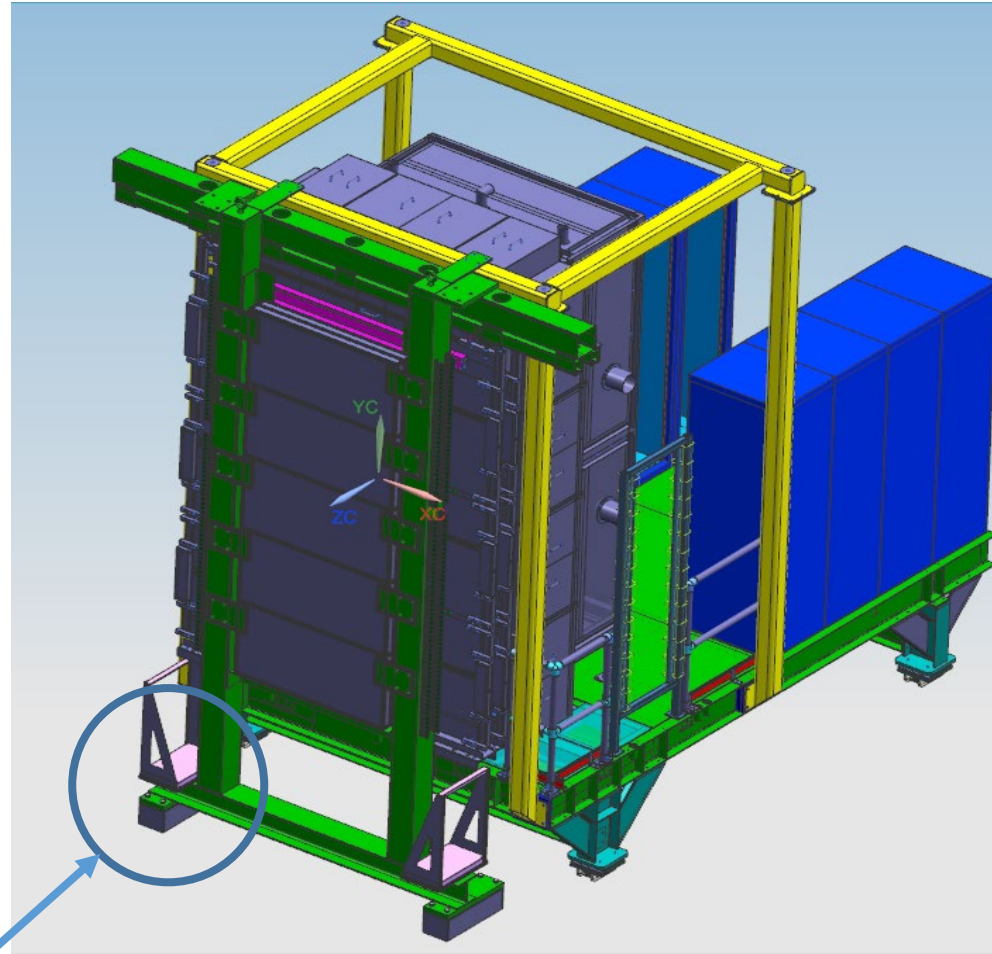
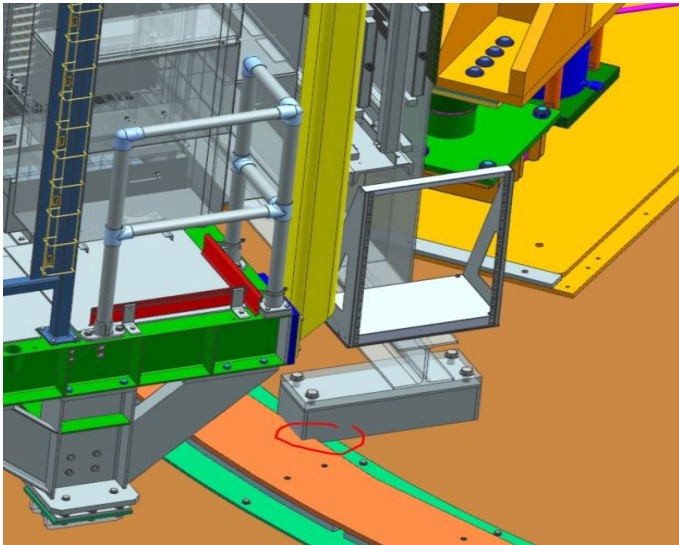
SBS Detectors

- Interference between lead wall support and GEMs
- Physically E-GEMs can be swapped with D-GEMs. OK?



ECAL and CDET

- ECAL support base is being modified in-house. Materials ordered.
- ECAL will be moved to the Hall NOT assembled, then assembled on the base support in the Hall.
- ECAL will be rotated on Hilman rollers, not lifted for configuration changes. Need floor plates for rolling surface.

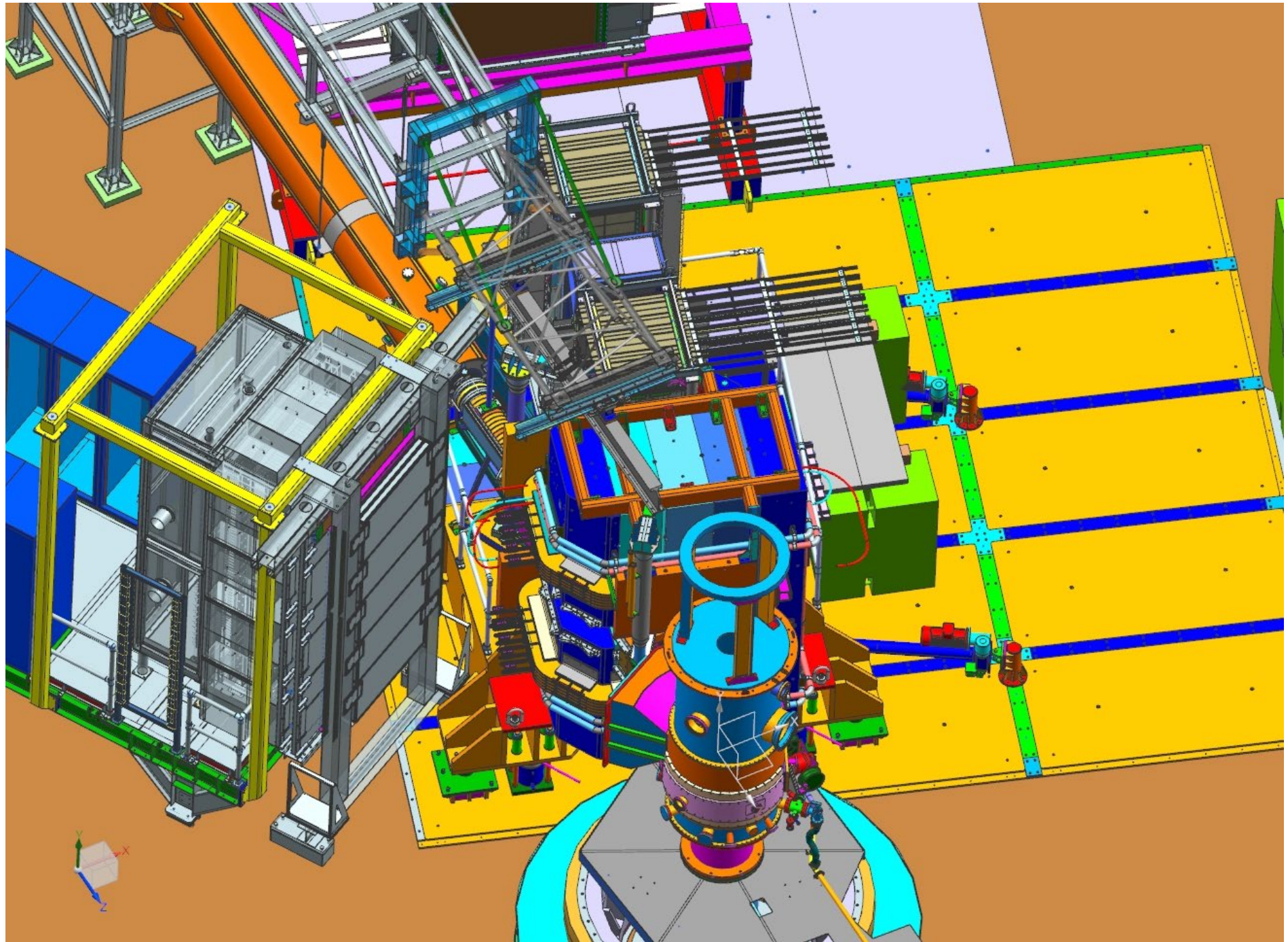


- ECAL heat processing of lead glass needs documentation of calculations/procedure. Also the cooling process.
- Remaining parts and testing of ECAL being done by Collaboration ?

- CDET support foot to be modified to remove interference with floor rail
- CDET attaches to ECAL frame. Growth of ECAL requires CDET to be positioned ~2" more upstream. OK? What are positioning and alignment requirements of CDET?
- Additional work to be done on CDET? PMT shield plates and other work?

CDET

- installation difficult as needs to go under beamline tower and around SBS support carriage
- CAD does not include space for cables and such
- May have floor plates from HCAL to place under ECAL and CDET. This depends on final distance of HCAL.



Pole Shims

- Pole shims are required in GEp configurations to increase field integral.
- Pole shims -In storage.
- Installation device required to insert into Magnet gap.
- Installation cart- In storage.



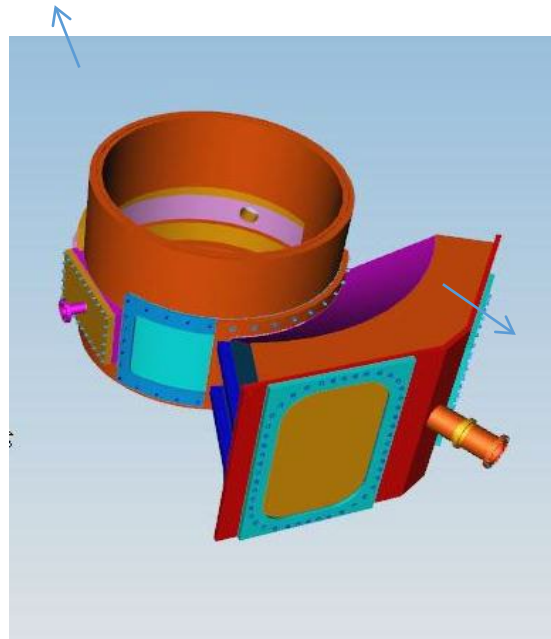
Vacuum Chamber



Chamber

Target

- 30 cm long with center 6.5" DS
- Simulations of hadron filter added inside scattering chamber



- Utilizing existing scattering chamber.
- Vacuum snout in storage.
- Vacuum windows in storage.

Snout



Questions?

What is missing?