SUMMARY
Detector Integration, Machine-Detector Interface, Polarisation

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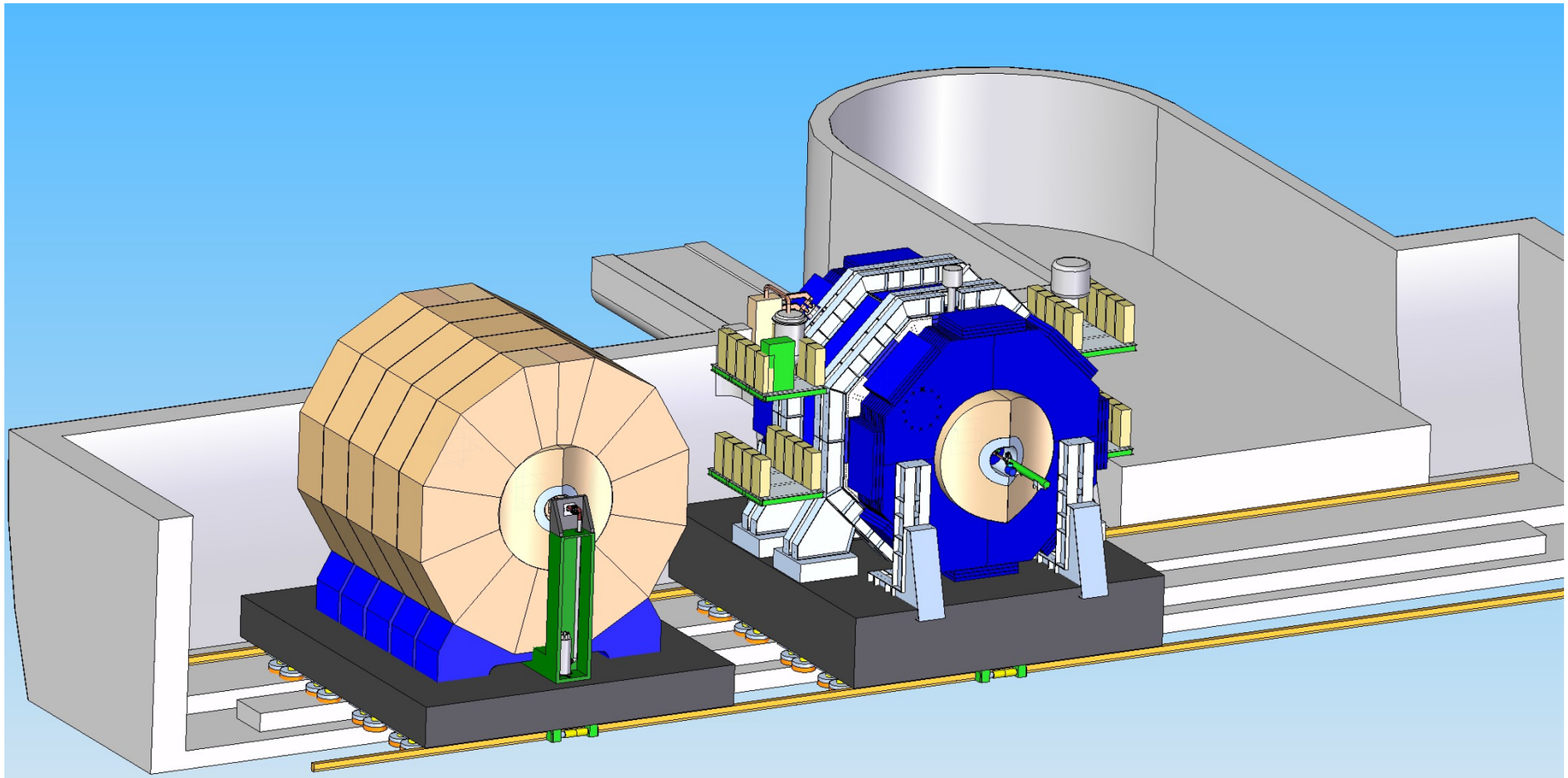
DESY

LCWS 2011
30. September 2011

MDI Sessions

- Very active programme with many thematic overlaps for Beam Delivery System and Machine-Detector Interface working groups
  - I will concentrate on MDI sessions here...
  - Joint sessions: MDI/BDS; MDI/CFS; MDI/Software
- Topics covered:
  - Detector concepts MDI status reports
  - ILC and CLIC MDI synergies
  - Detector forward regions
  - Magnets (solenoid and final focus)
  - Feedback systems
  - Backgrounds
  - Underground experimental area design
  - Push-pull system
- Thanks to all contributors to the sessions!
- I will focus now on urgent issues for ILC DBD/TDR preparations:
  - Push-pull system
  - Exprimental hall design
- Strong collaboration between ILC and CLIC

Platform Based Push-pull System



ILD and SID moving on platforms

Agreed at ALCPG11 at Eugene, OR

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- Beam height difference between SiD and ILD: 1.6m
  - This results in different floor levels in the underground hall

ARUP Study

CFS Interaction Region Studies :

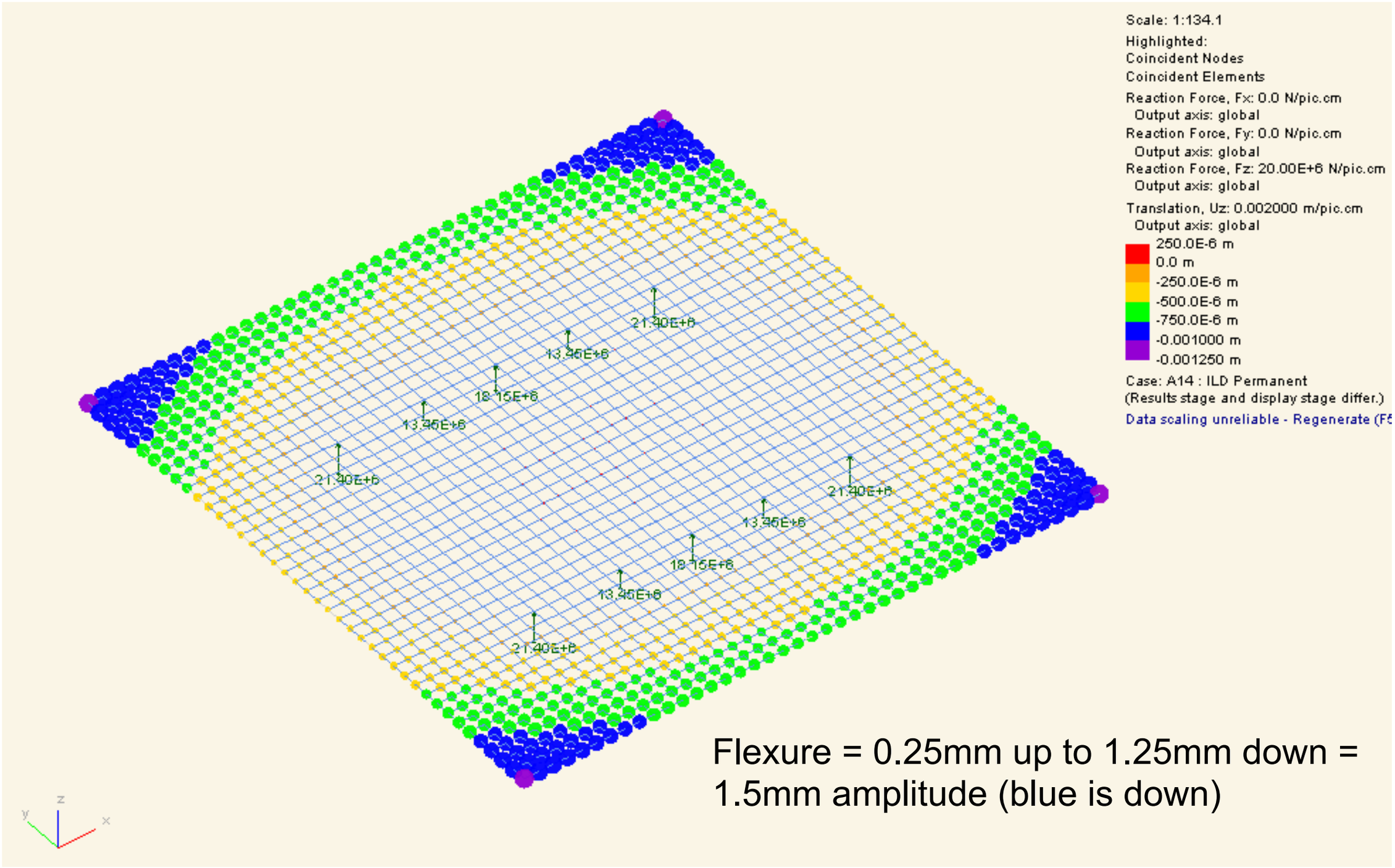
ARUP task 1 - Design Concept for Detector Movement Platform

ARUP task 2 - Layout of CLIC complex based on CERN Geology

John Osborne : CERN

- ILC-CLIC Joint Study

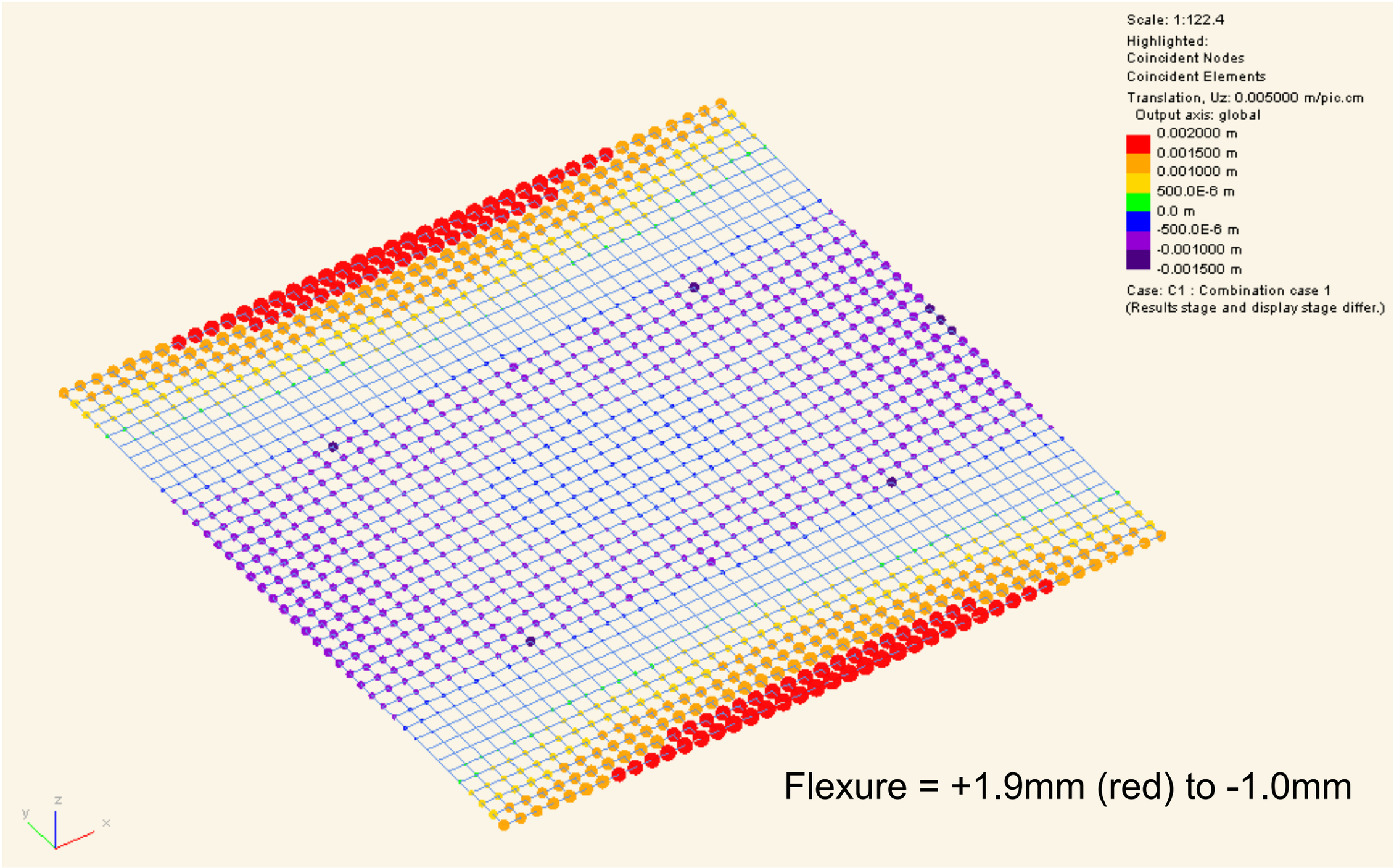
Platform for ILD



Flexure = 0.25mm up to 1.25mm down = 1.5mm amplitude (blue is down)

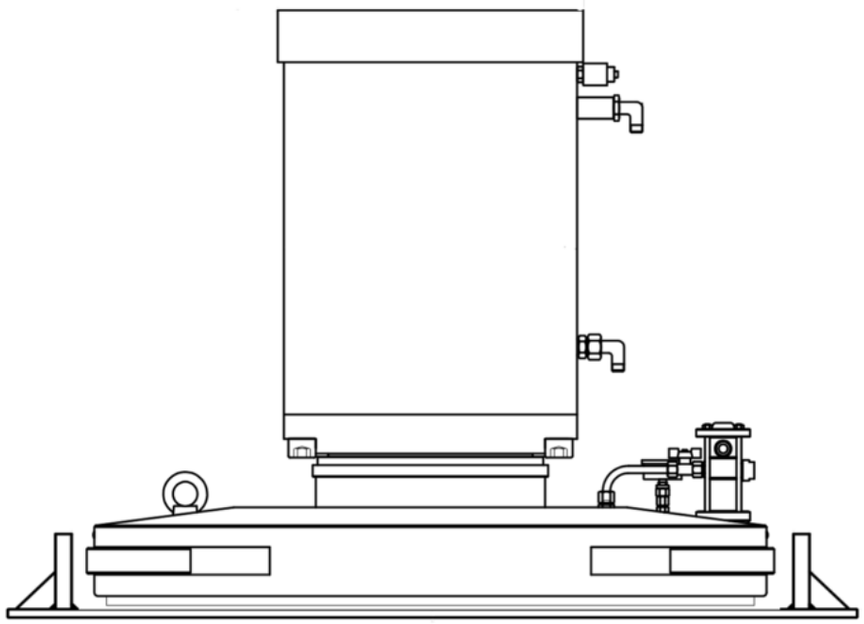
- Platform 20m x 20m x 2.2m
- just own load, w/o ILD

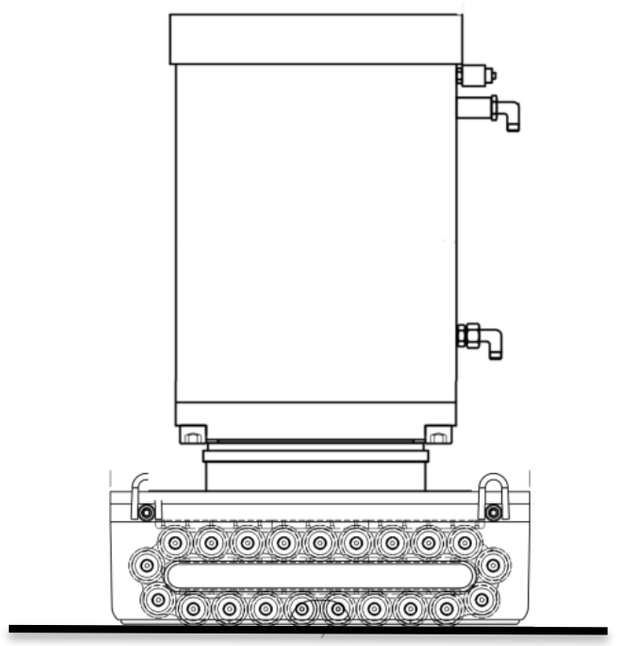
Platform for ILD



- Platform with ILD load during movement

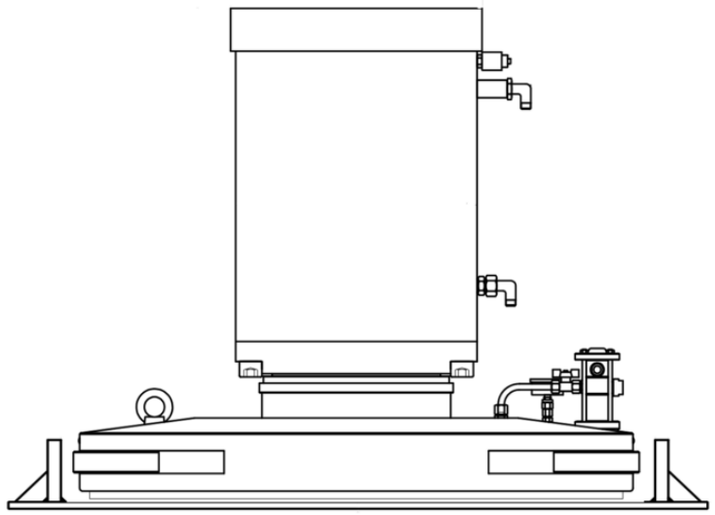
Platform Motion System

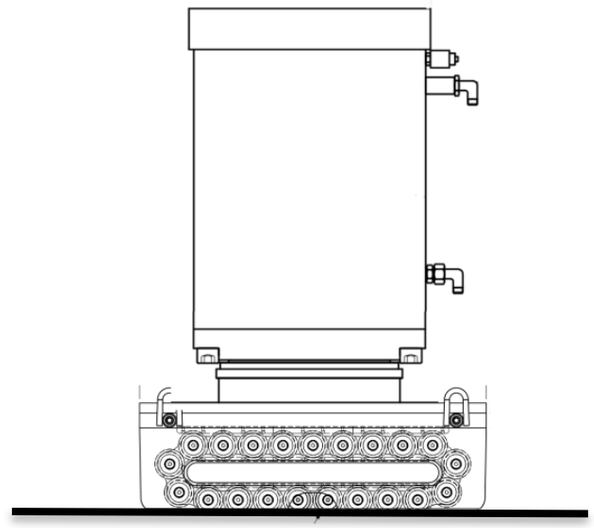




- Airpads (left) or rollers (right)

Air Pads or Rollers?

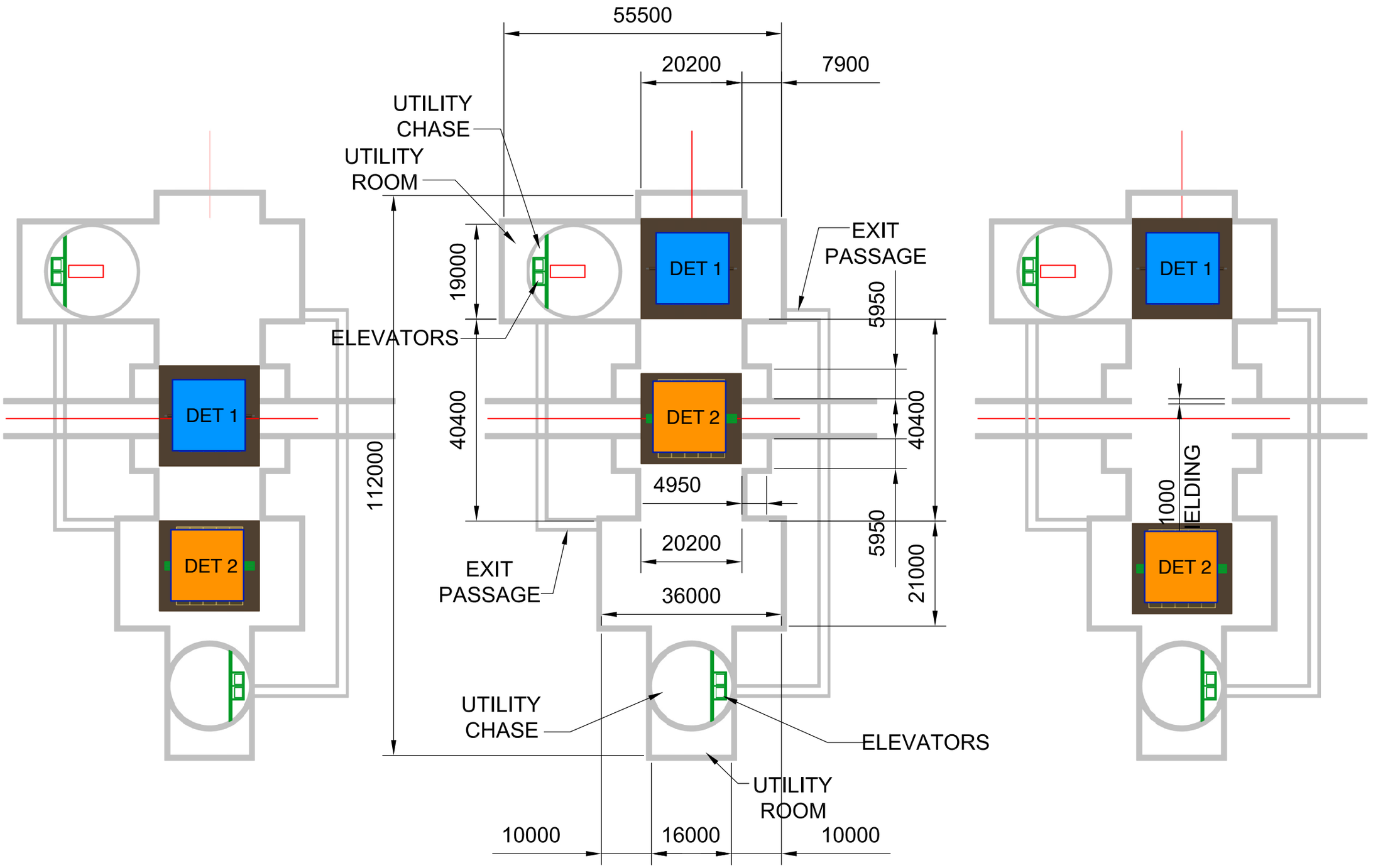




Pads	Rollers
Min 60 required (for ILD, no redundancy)	Min 18 required (for ILD)
No hardened track->can accommodate minor steps	Specialist hardened and flattened track
Design for 1% friction	Design for 3% friction
Pressure infrastructure	Larger propulsion infrastructure
Run-away	Higher friction ->less run-away

- Evaluation is on-going

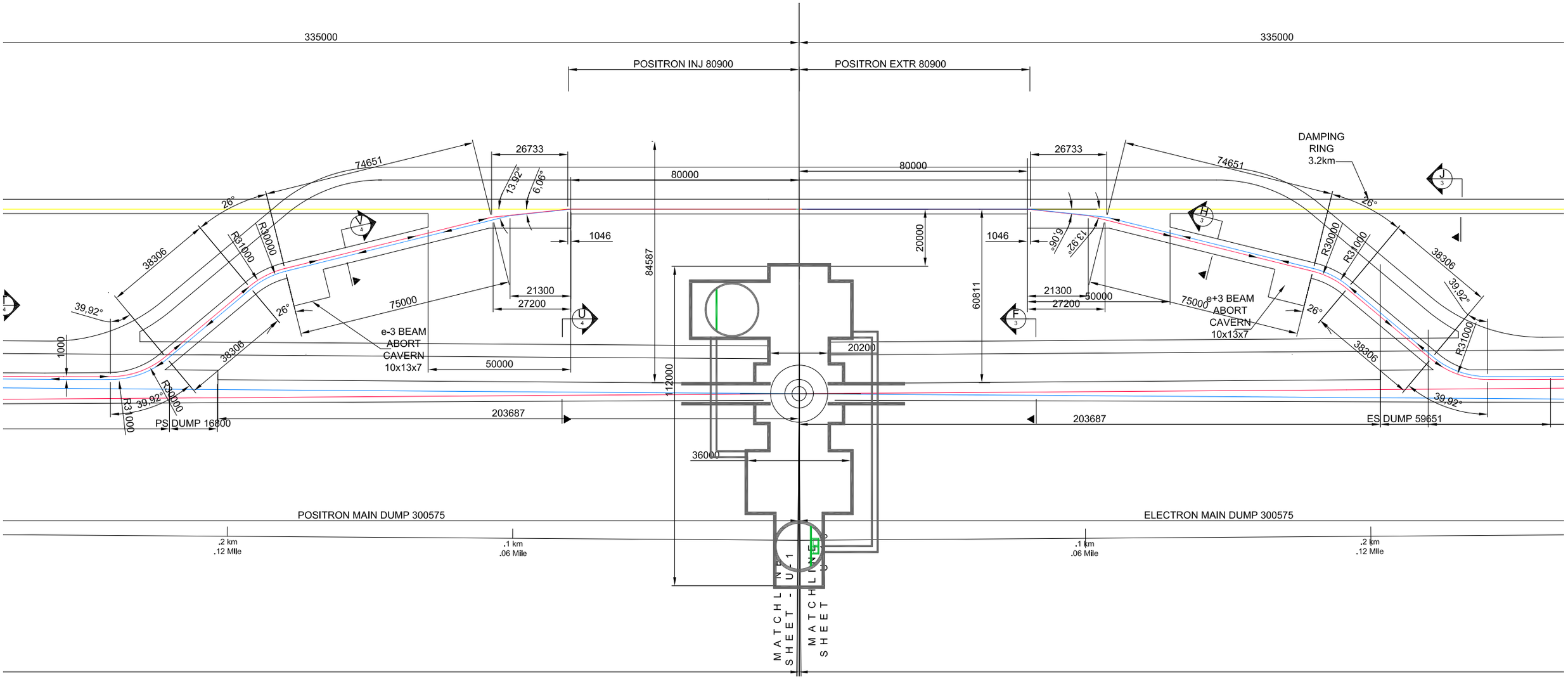
Experimental Hall Study (Draft, CFS Group)



- Study properties of z-shape and straight shape

Aug. 16, 2011

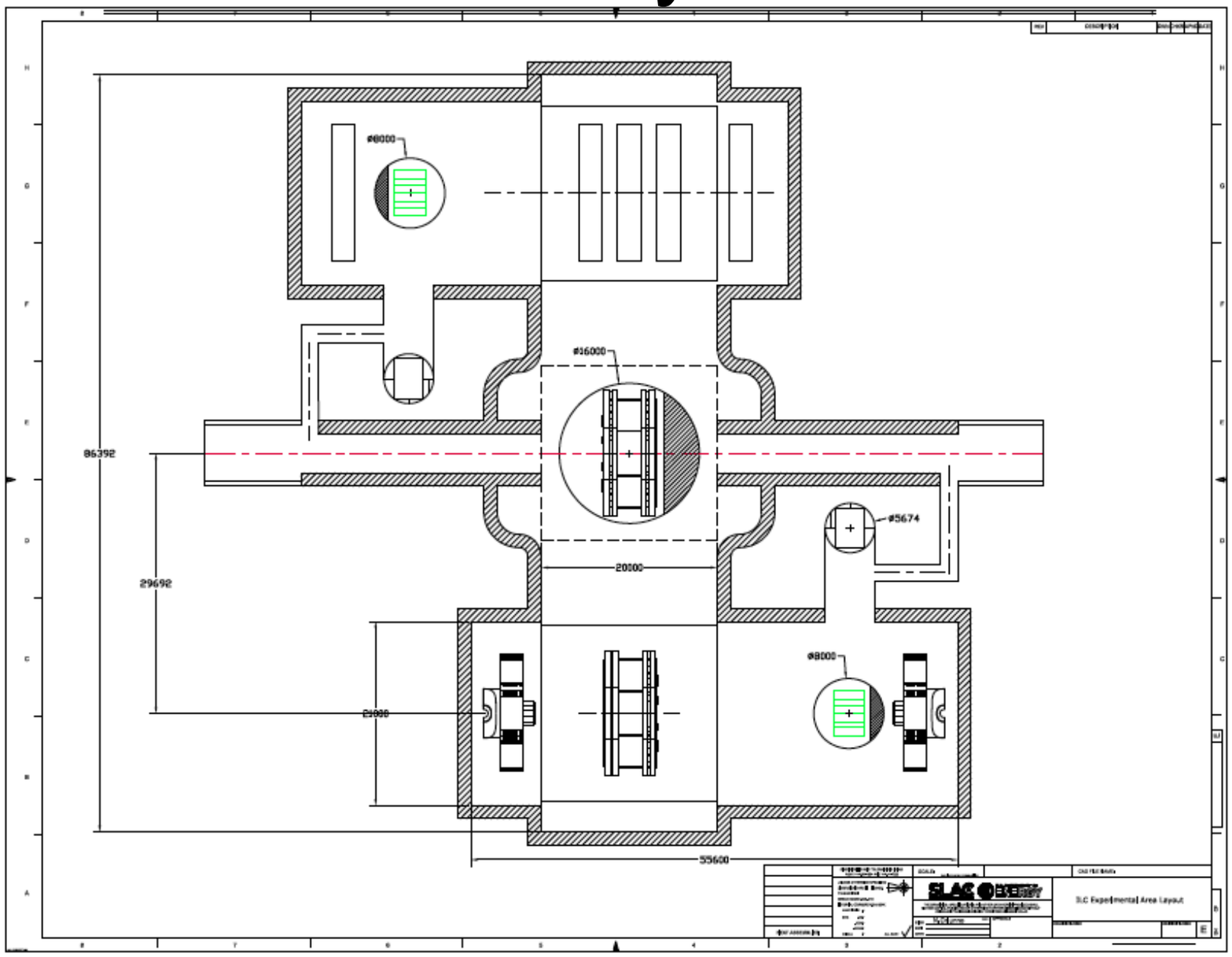
Central Region Integration



- Influence on other systems needs to be studied (push-pull)
  - in direction of the damping rings, probably only z-shape would work!

IR Hall Layout Study (SiD)

ILC IR layout



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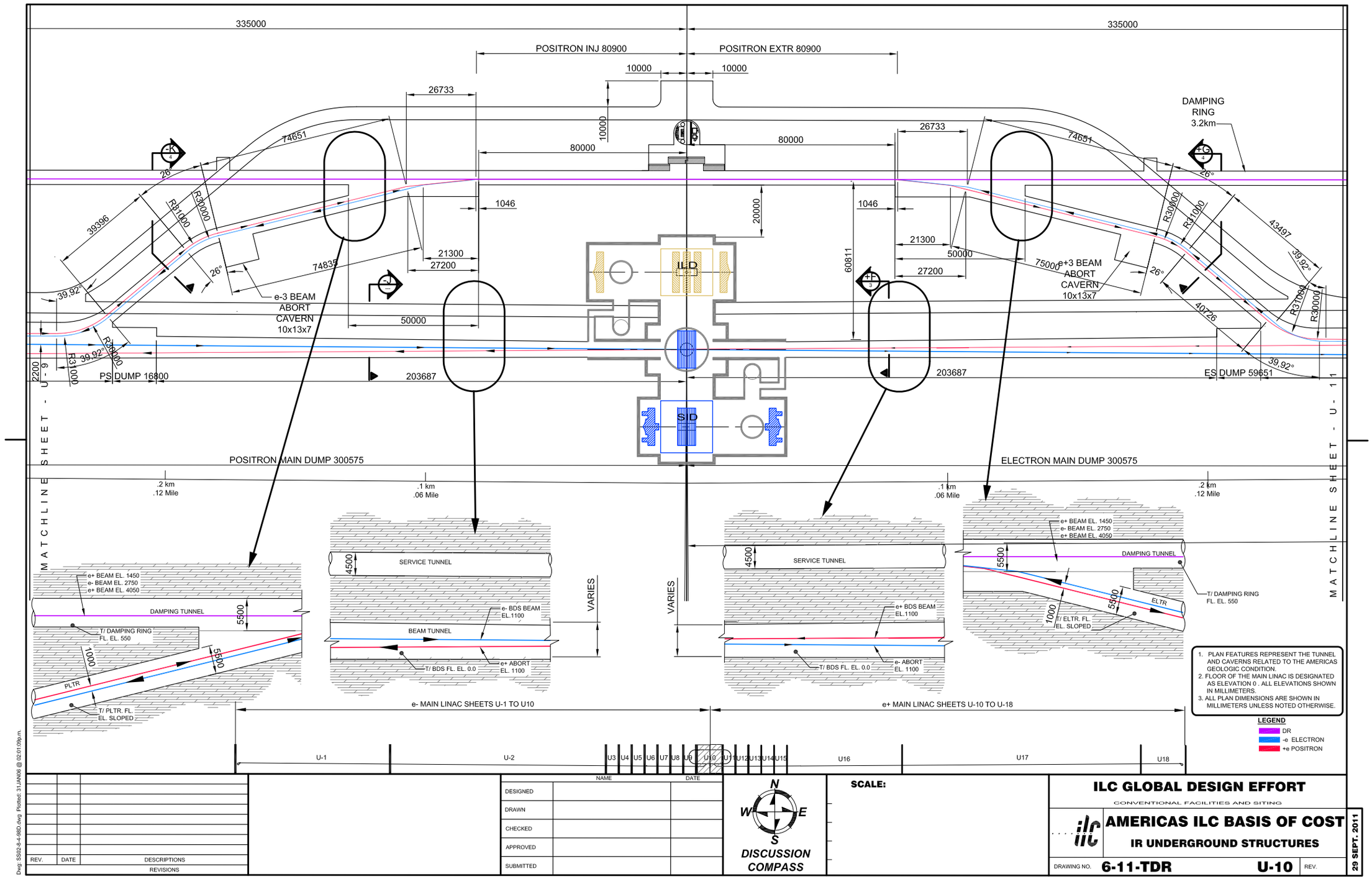
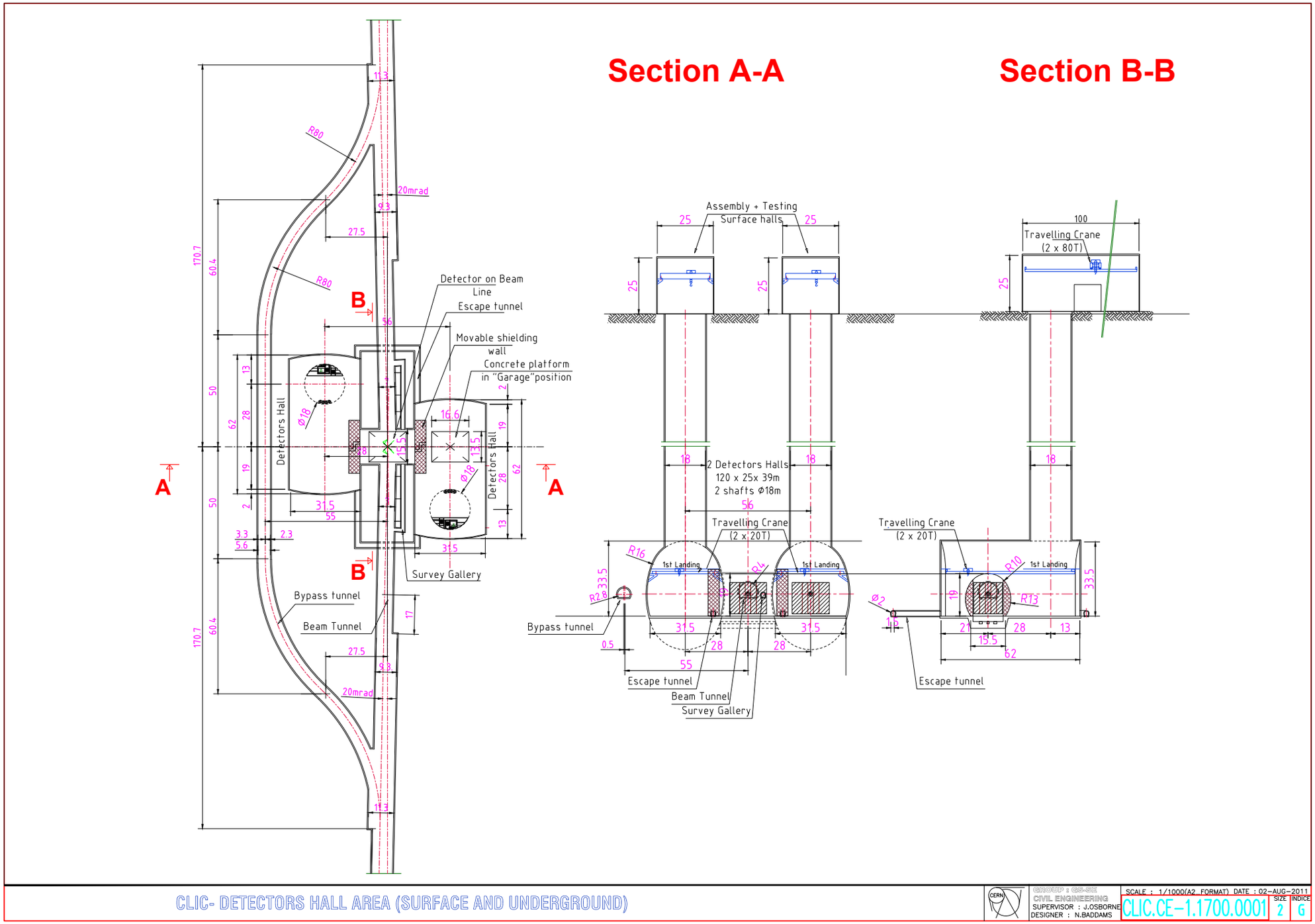
- Z-shape has been agreed upon at this workshop!
- Dimensions of hall and shaft configuration under study with CFS group

A Real Workshop



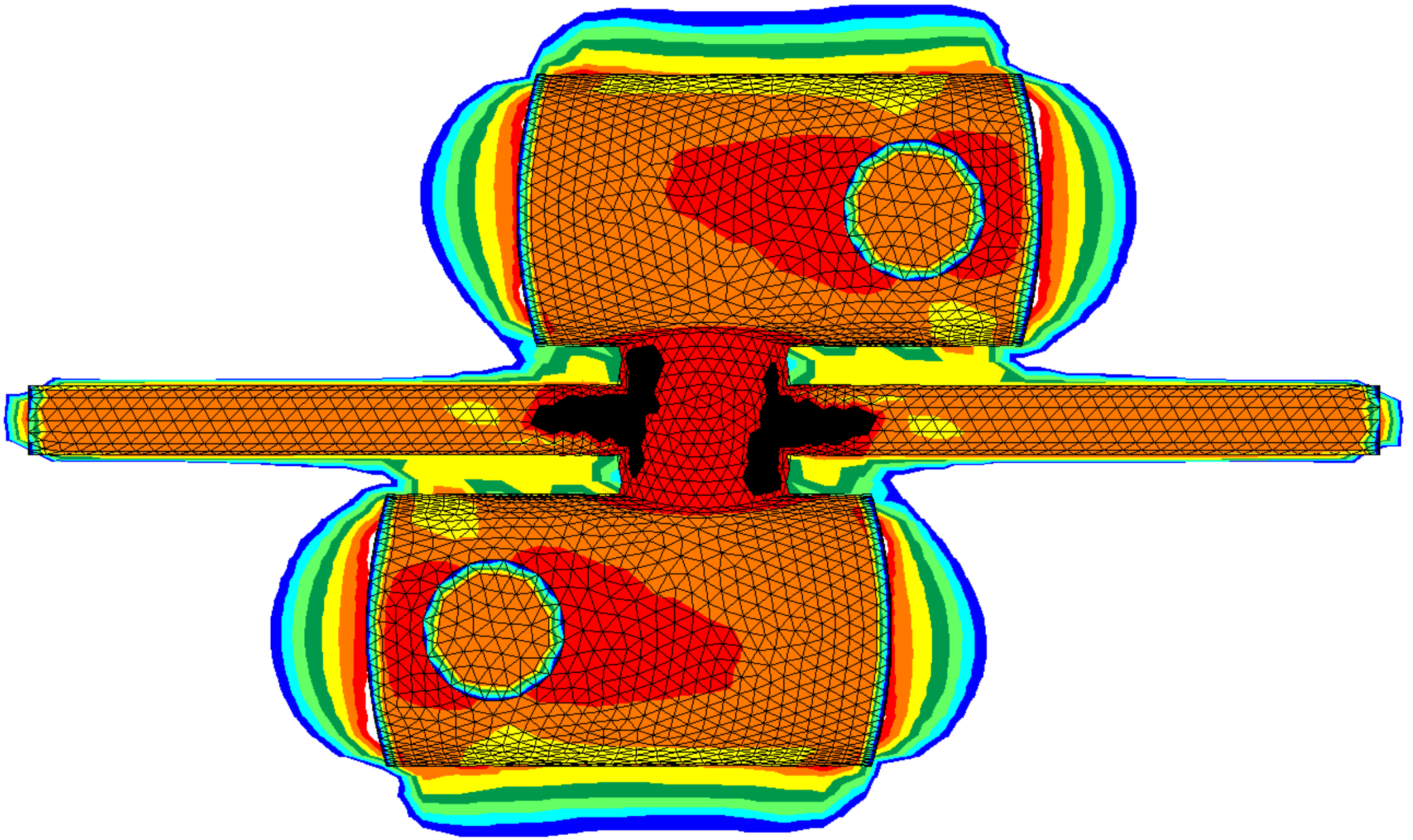
- New drawing provided by CFS group yesterday!

Synergies with CLIC Studies



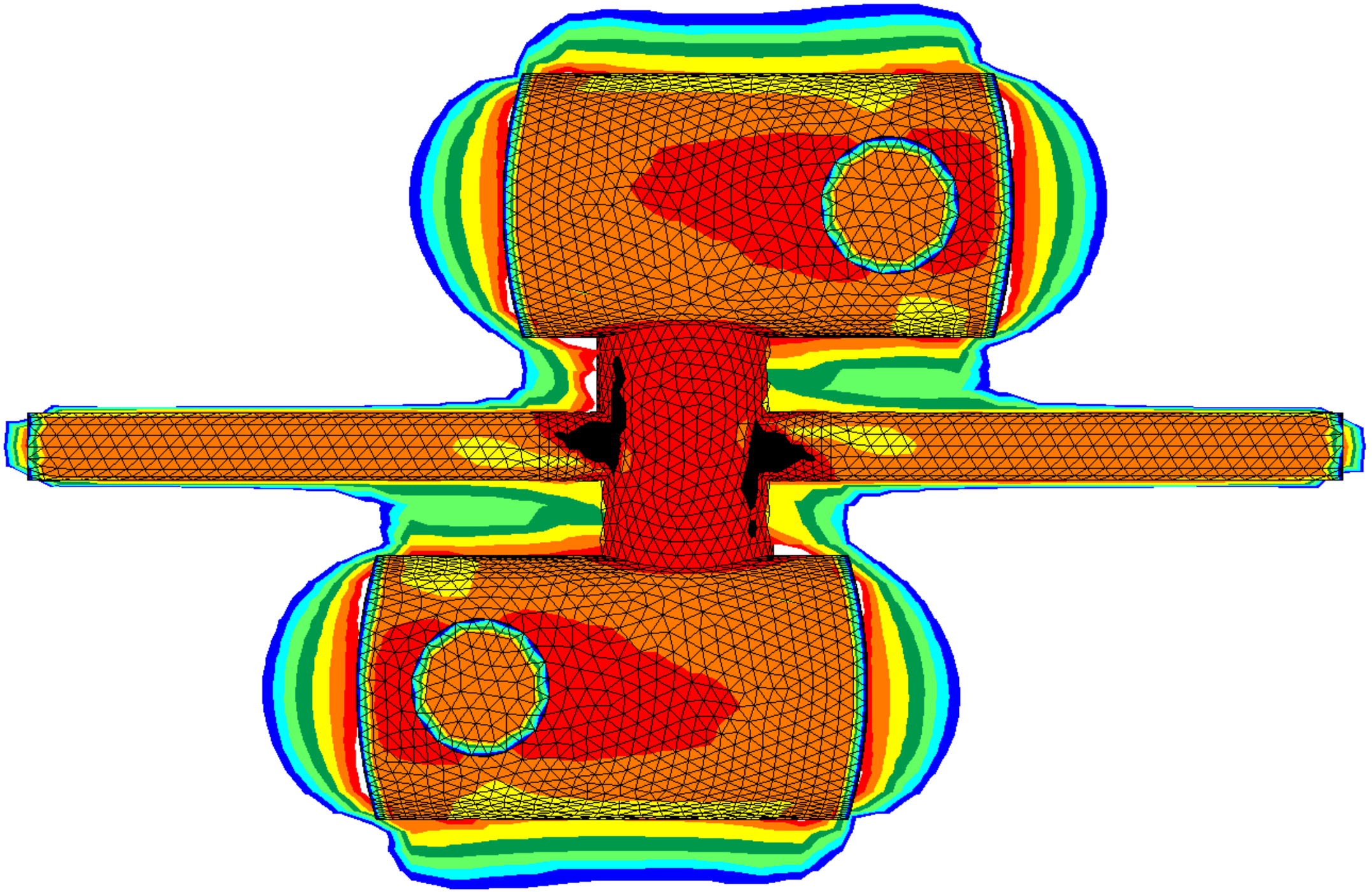
- CLIC hall is z-shaped

CLIC Cavern: Stresses in Rock



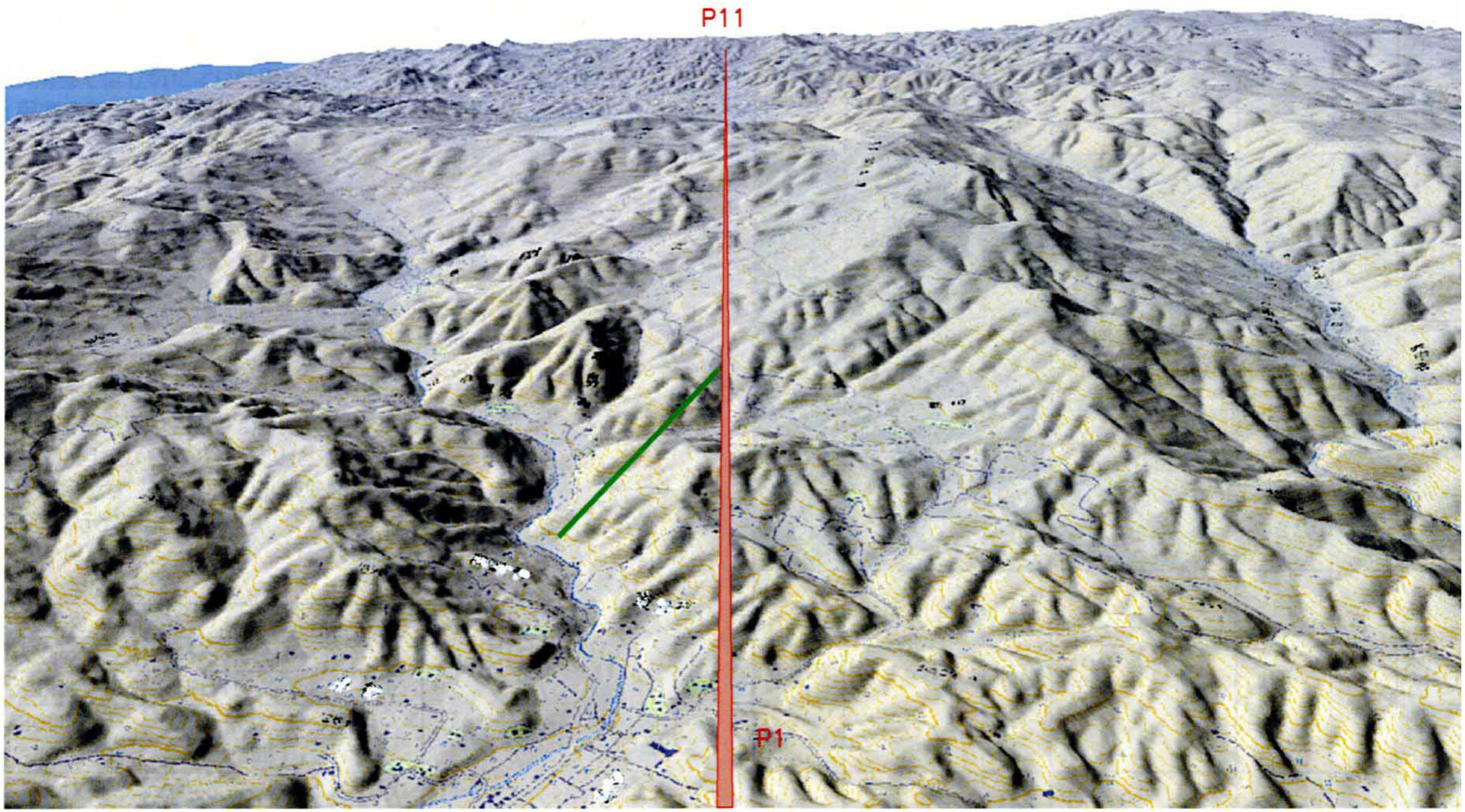
- Stress upon IR region is large (arching of caverns adds up)

CLIC Cavern: Stresses in Rock



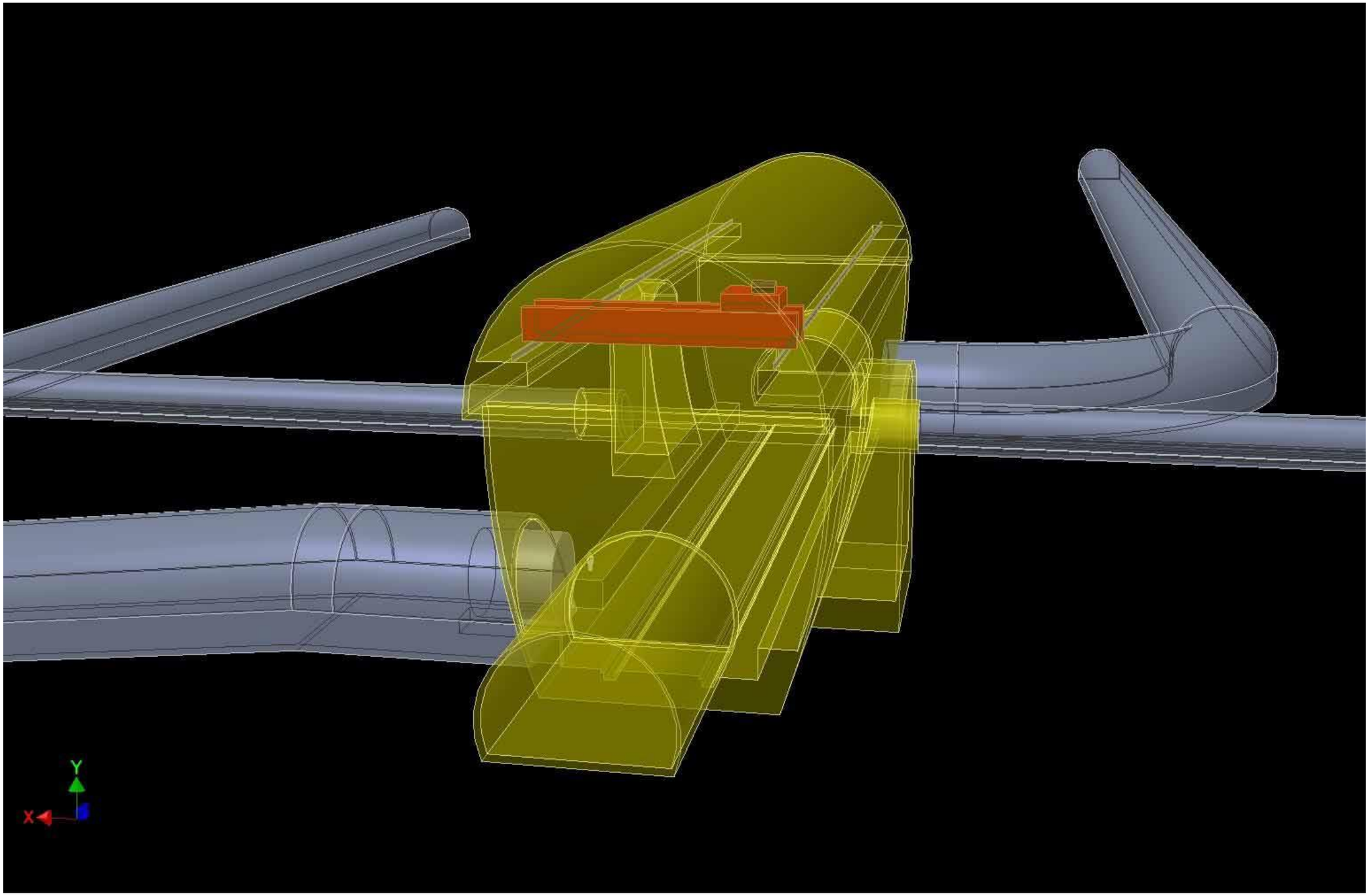
- Modified layout with decreased stress on IR region

Japanese Mountain Site



- ILC site might be very different from the ideal study cases!

Cavern Study



- Access not through vertical shafts, but via horizontal access tunnels

Handling Heavy Devices is Difficult!

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Summary

- Many interesting contributions to the MDI sessions
- The focus of the MDI work at ILC is now embedded in the collaborative efforts between ILD, SiD, ILC-CFS and CLIC on
  - Underground experimental area design
  - Push-pull system
- A platform based push-pull motion system is under development with the help of experts
- An assessment of the experimental hall layout is being done together with the CFS experts
- Site-specific modifications need to be taken into account
  - e.g. mountainous site has different requirements than flat site
- Time is short until the TDR/DBD!