

A detailed wireframe model of a particle accelerator, showing a large circular ring and several smaller, more complex structures. The model is rendered in a light gray color, highlighting the intricate geometry of the facility.

**CERN-FAIR-GSI Collaboration Meeting**

**26<sup>th</sup> April 2024**

**FAIR & GSI Status - April 2024**

**Jörg Blaurock**

Technical Managing Director FAIR GmbH & GSI GmbH

# Agenda

## FAIR Phase 0

- **Beamtime 2024**

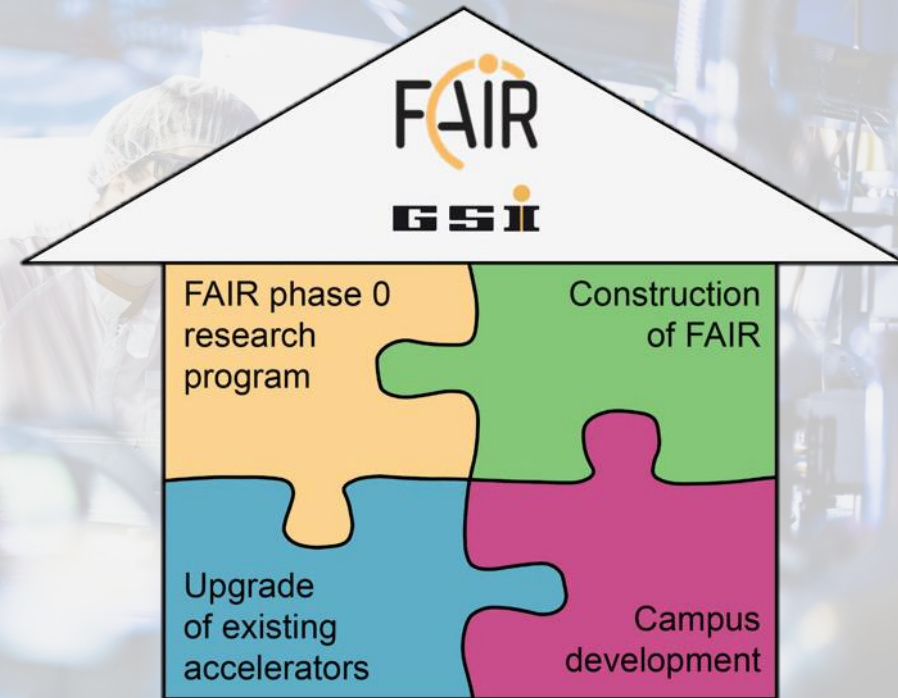
## Development on campus

- Campus Infrastructure

## Construction of FAIR

- FAIR in 2028
- FAIR Highlights
- FAIR in Construction
- FAIR Outlook 2024

## Upgrade of existing accelerators



# FAIR phase 0 beamtime 2024



102 days of user beamtime incl. HITRAP  
 commissioning + 15 days for machine studies

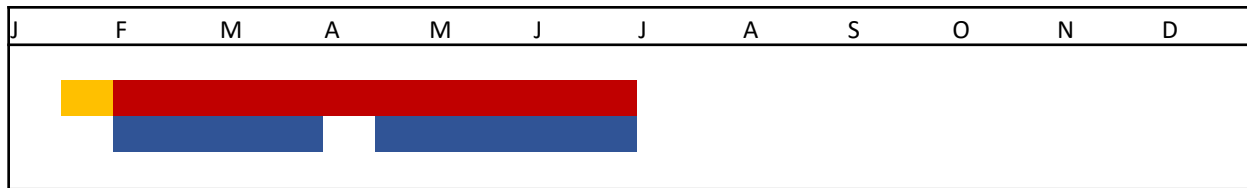
- Bake Out
- Dry-Run
- Commissioning without Beam
- Beam Commissioning
- Physics Run
- Engineering Run / Machine Studies
- UNILAC-RF commissioning
- §88 radiation safety check
- Operator Training
- Physics Run Crying standalone
- Device / Controlsystem Testblock
- Maintenance break

- physics run started on February 7<sup>th</sup> and ends on June 27<sup>th</sup>
  - Available machines: UNILAC, SIS18, FRS, ESR & Cryring
  - total 2448 hours of user operation
  - plus 15 days dedicated to machine studies
  - including 2 x 11 days for commissioning of HITRAP

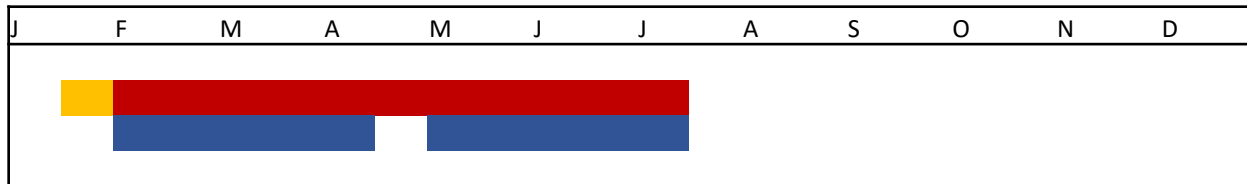
# Beam time 2024/2025/2026



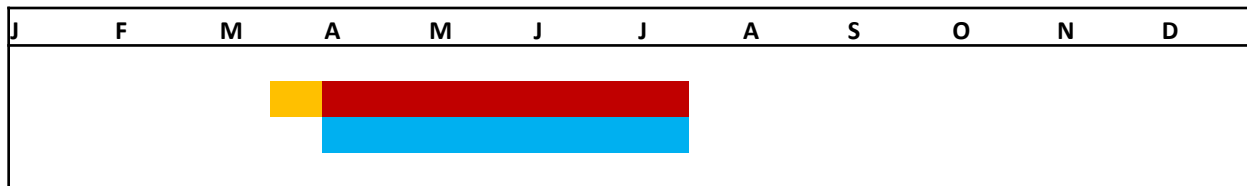
## 2024



## 2025



## 2026



- Machine Commissioning
- Beam Time
- Physics Beam Time
- Commissioning FCC & UNILAC Controls Upgrade Best Effort User Operation

# Agenda

## FAIR Phase 0

- Beamtime 2024

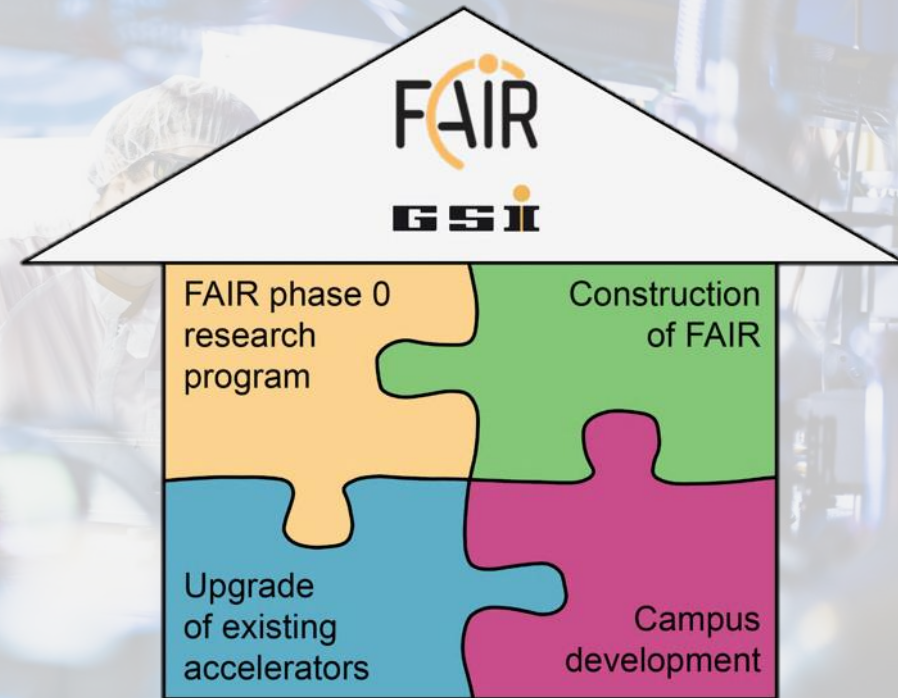
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# Campus Master Plan - Infrastructure

Hauptgelände | GSI und FAIR  
Perspektive für Endausbau 2030



# FAIR Highlights - FAIR Control Center (FAIR CC)

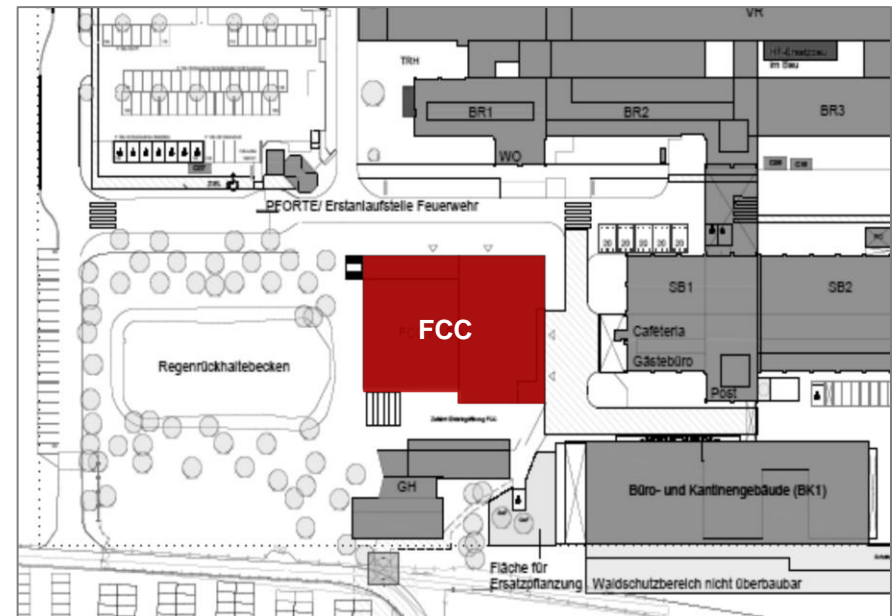


In accordance with the Campus Master Plan (CMP) the FAIR Control Center building will house the new Main Control Room (MCR) and scientific & technical office workplaces.

Use: MCR, Visitor access  
206 Office workplaces  
5 levels plus one underground level

Constr. period: Q2/2021 – Q3/2025

Commissioning: Q4/2025





# FAIR Highlights - FAIR Control Center (FAIR CC)



View on the north and south facade



View on the façade in the MCR



View on the main entrance

# Agenda

## FAIR Phase 0

- Beamtime 2022

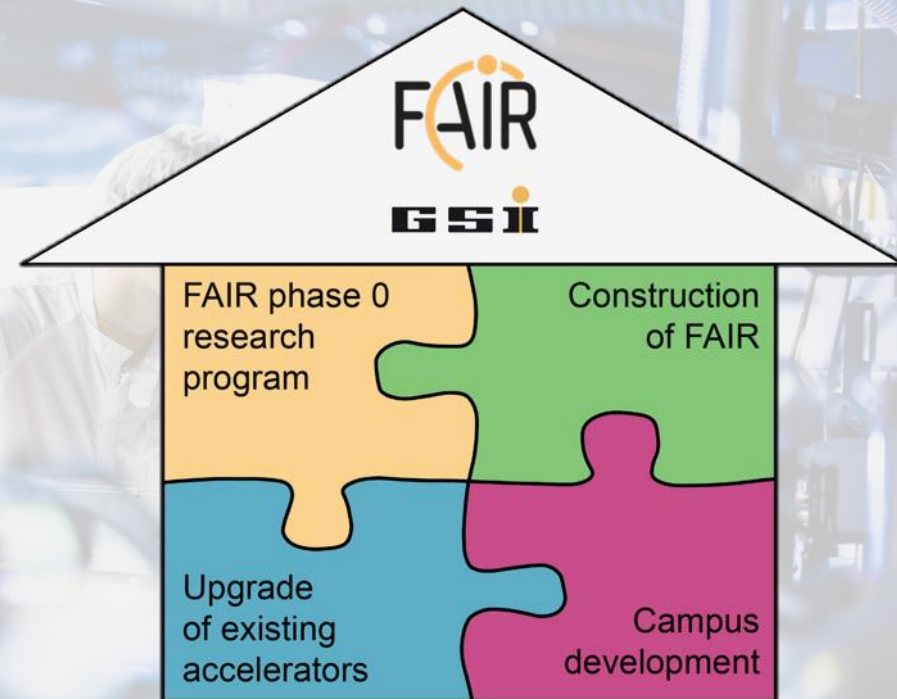
## Development on Campus

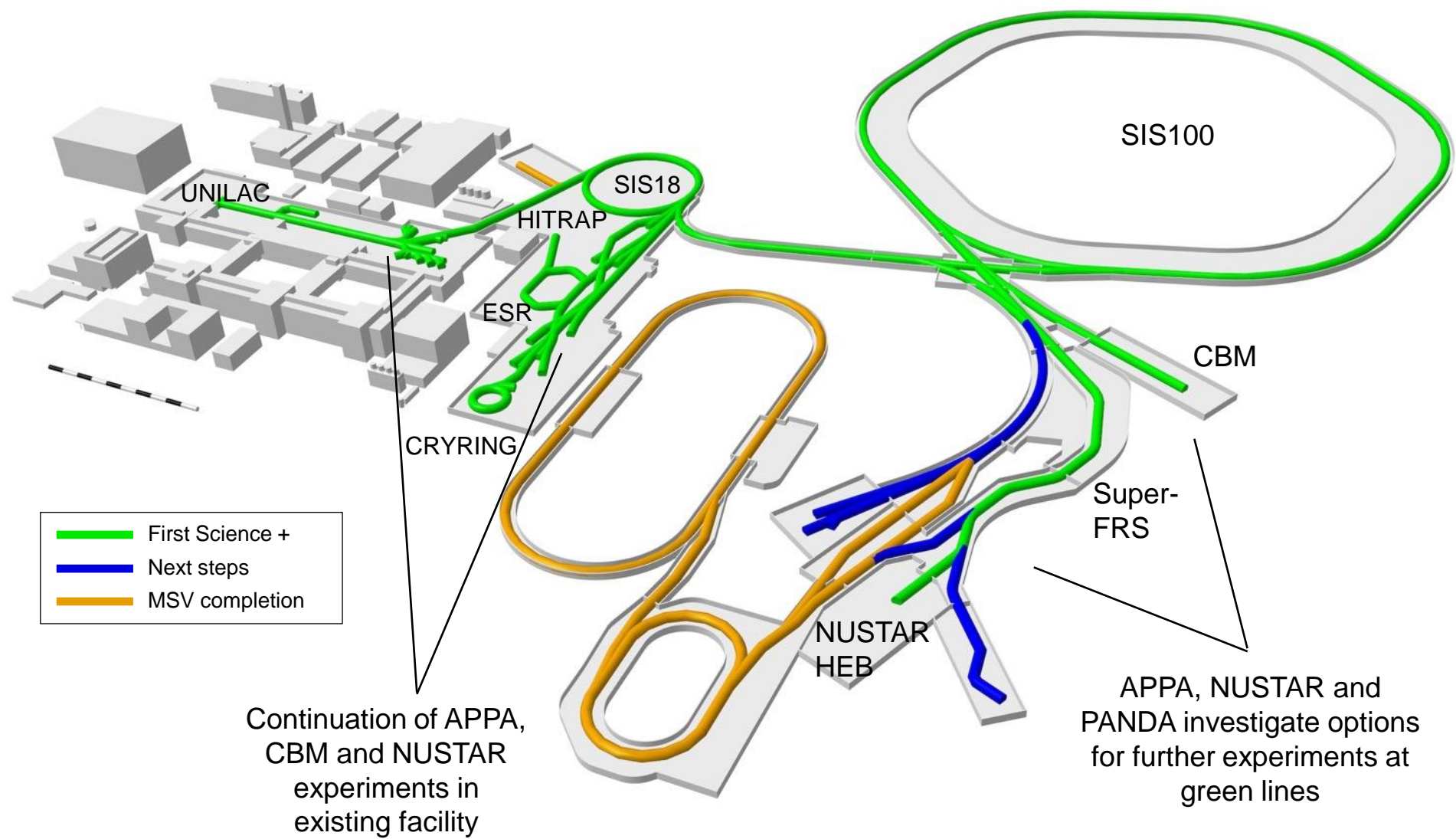
- Campus Infrastructure

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January 2024

First Power Supply Units  
placed in the SIS100 tunnel



April 2024

First cryogenic bypass lines  
SIS100 placed in SIS100 tunnel



April 2024

Delivery of SIS100 Dipole  
magnets in SIS100 tunnel

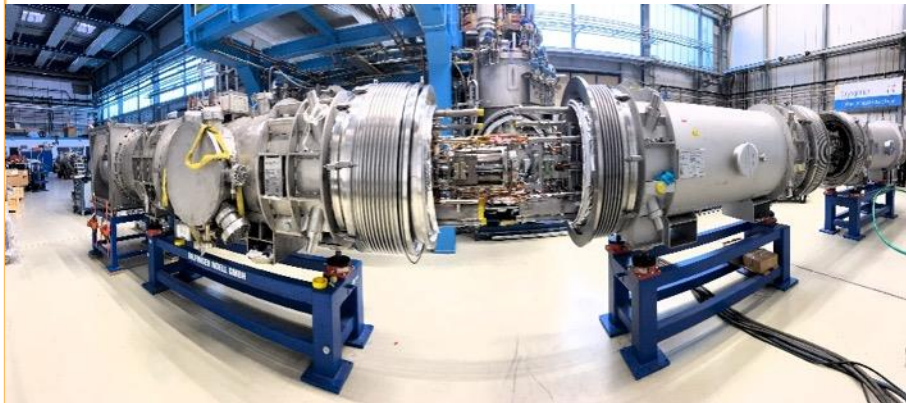


April 2024: First superconducting dipoles and cryo bypass lines were placed in the SIS100 tunnel



## December 2023

Successful completion of the first thermal cycle of the SIS100 string.



26<sup>th</sup> FAIR Machine Advisory Committee took place from 11<sup>th</sup> - 13<sup>th</sup> December, 2023.



March 2024

Transport of Quadrupole magnets for beam line section T1S2



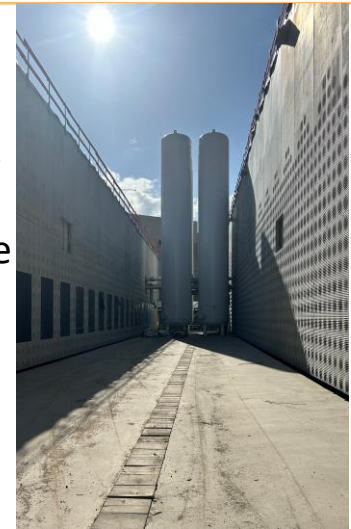
April 2024

Center piece Cold Box of the cooling system for the superconducting magnets. Start of Commissioning in 2025



April 2024

6 Helium tanks of the Cryo facility were installed on construction site





# FAIR Highlights - Compressor room



# FAIR Highlights - Storage and Logistics

*completed and delivered high-tech components for accelerator & experiments*



SIS100 Dipoles complete

He-Bypass lines from Poland

Racks from India

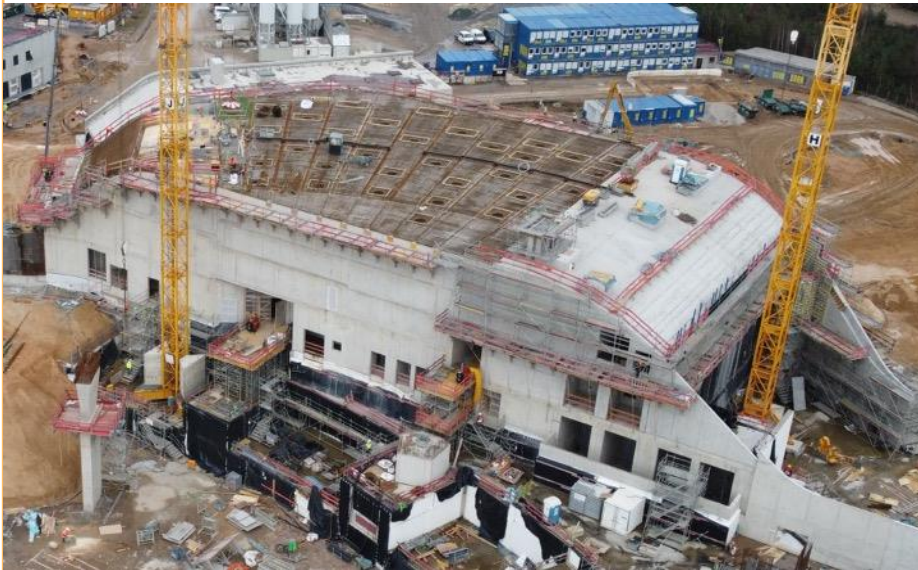


Storage area Weiterstadt: approx. 9.900 m<sup>2</sup>  
4.195 objects (Components, assemblies, boxes)

50% of SIS100 components stored  
90% of HESR components stored

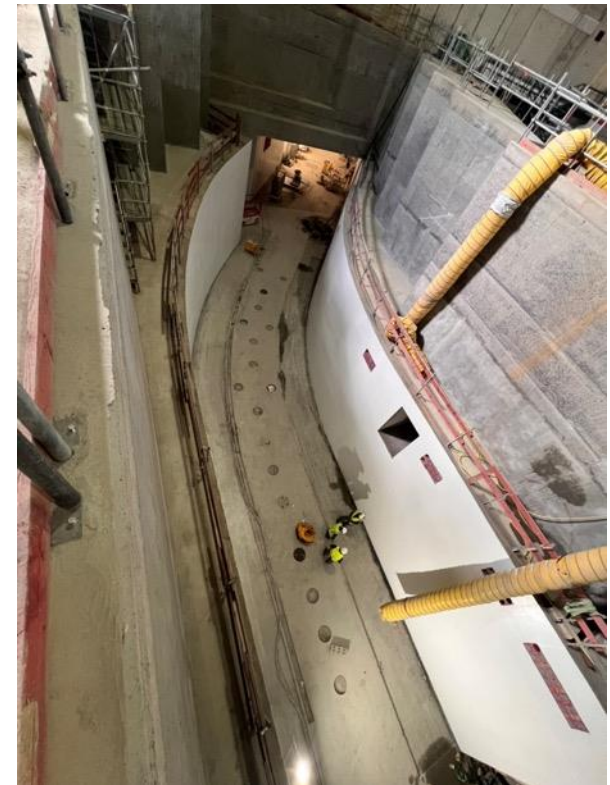
March 2024

Shell construction of Super-FRS Building  
“L0516A” completed



February 2024

Start of Interior coating work in Super-FRS  
Building “L0516A”



February 2024

Integration of the emergency power supply units NEA by Natus



# FAIR in construction



# FAIR in construction Area North



# FAIR in construction Area South



# FAIR in construction

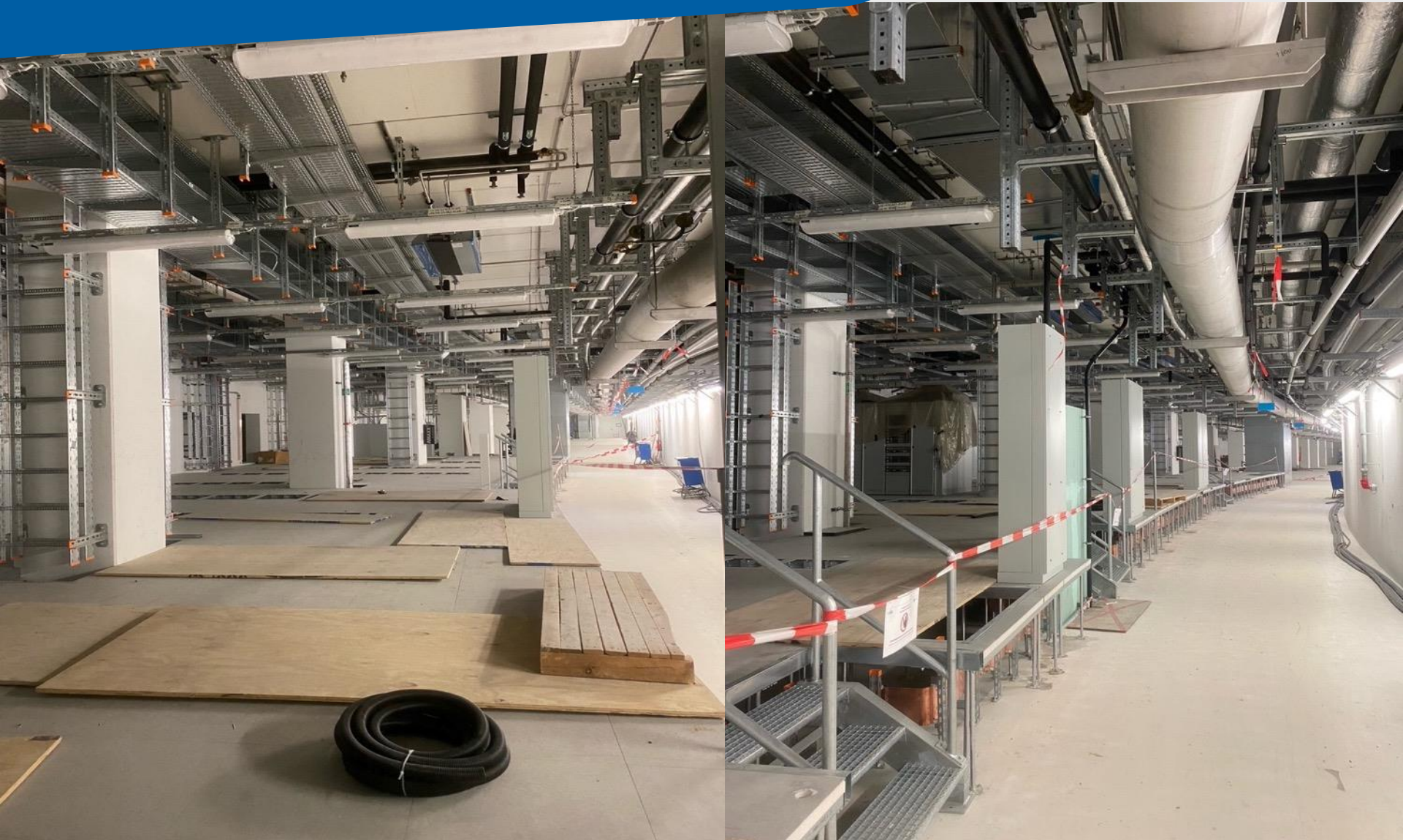
First 2 air coolers installed on the building H0719 A





# FAIR in construction

## SIS100 Tunnel – Technical Building Installation



# FAIR in construction

Transfer building – massive delivery of components of the cooling water system



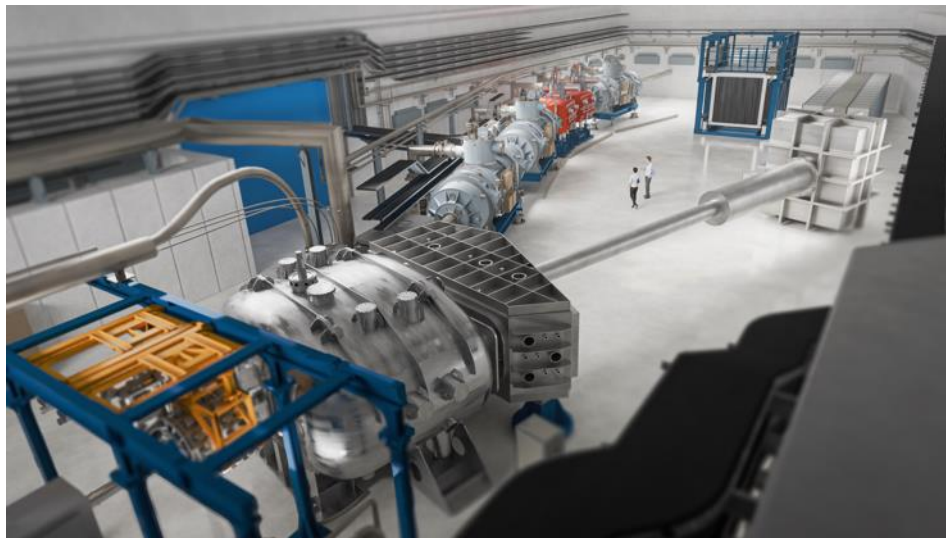
# FAIR in construction

Transfer building – ventilation system installation



- ACC installation started in January 2024
- TBI installation works in buildings progressing well aiming at completion and commissioning in 2026
- Essential for the ACC installation progress: Continuous delivery of ACC components to secure the timely completion of ES/FS
- Essential: Further international Shareholder contributions for the realization of First Science + (Poland, France, Sweden, Romania, India)
- Decision in July 2024 on new budget line for commissioning in the years 2025 to 2028 and operation from 2029 onwards as well as on the company model

# 3D models - NUSTAR HEB cave



# 3D models - SIS100 tunnel



Thank you for your attention !

