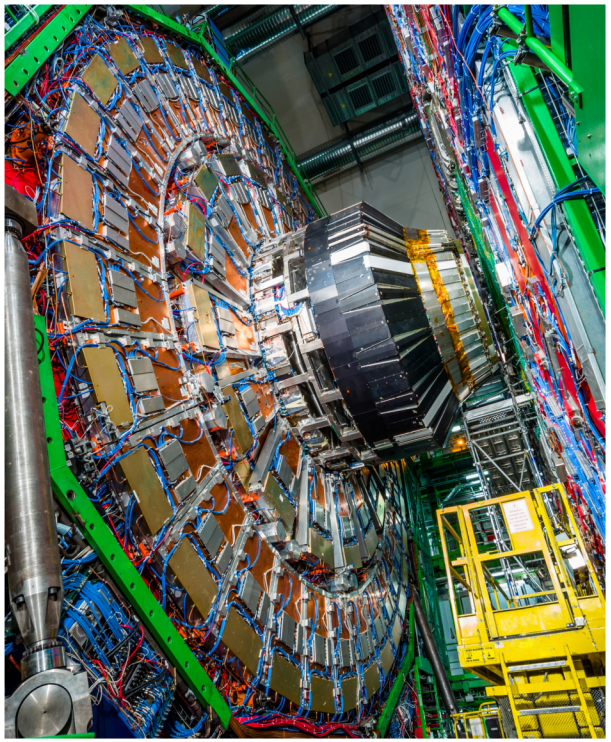
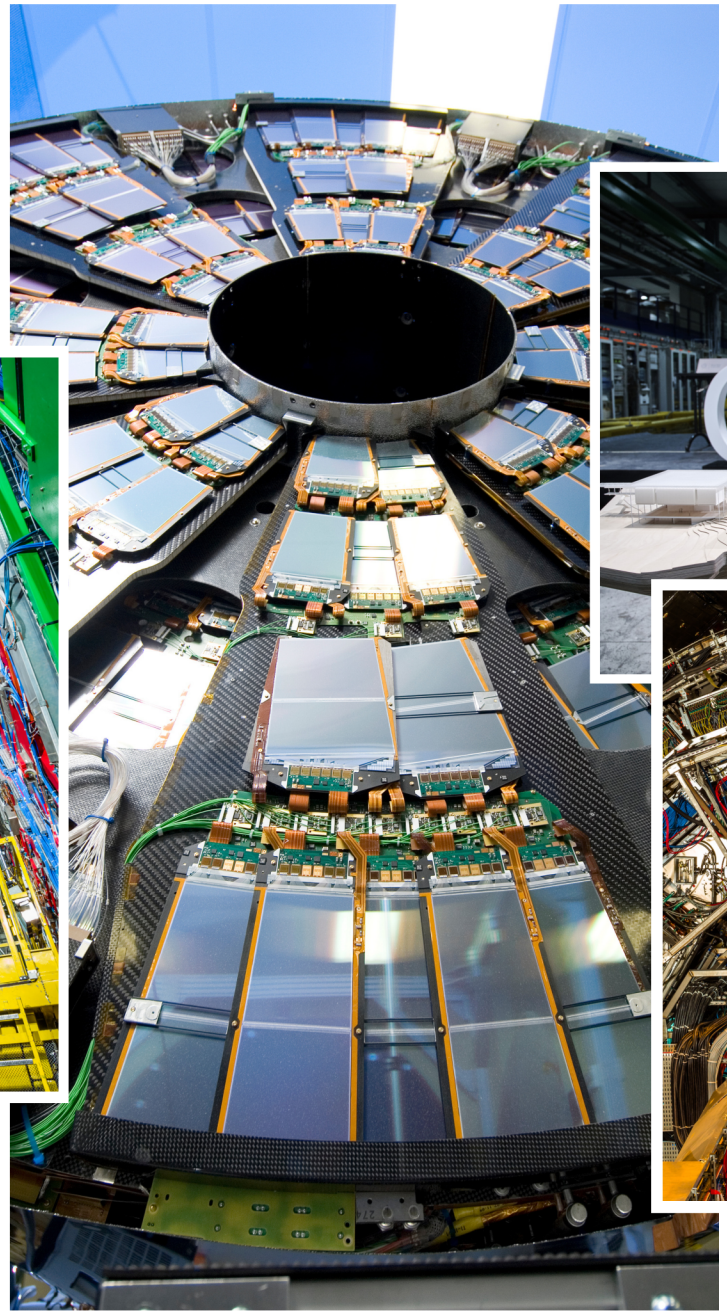
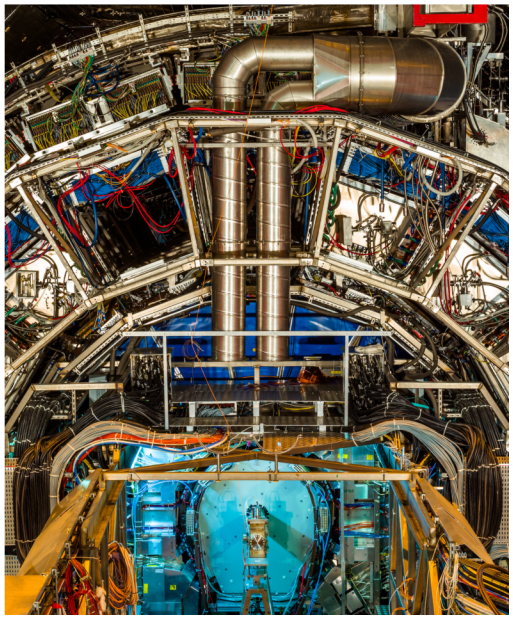
CERN photobook









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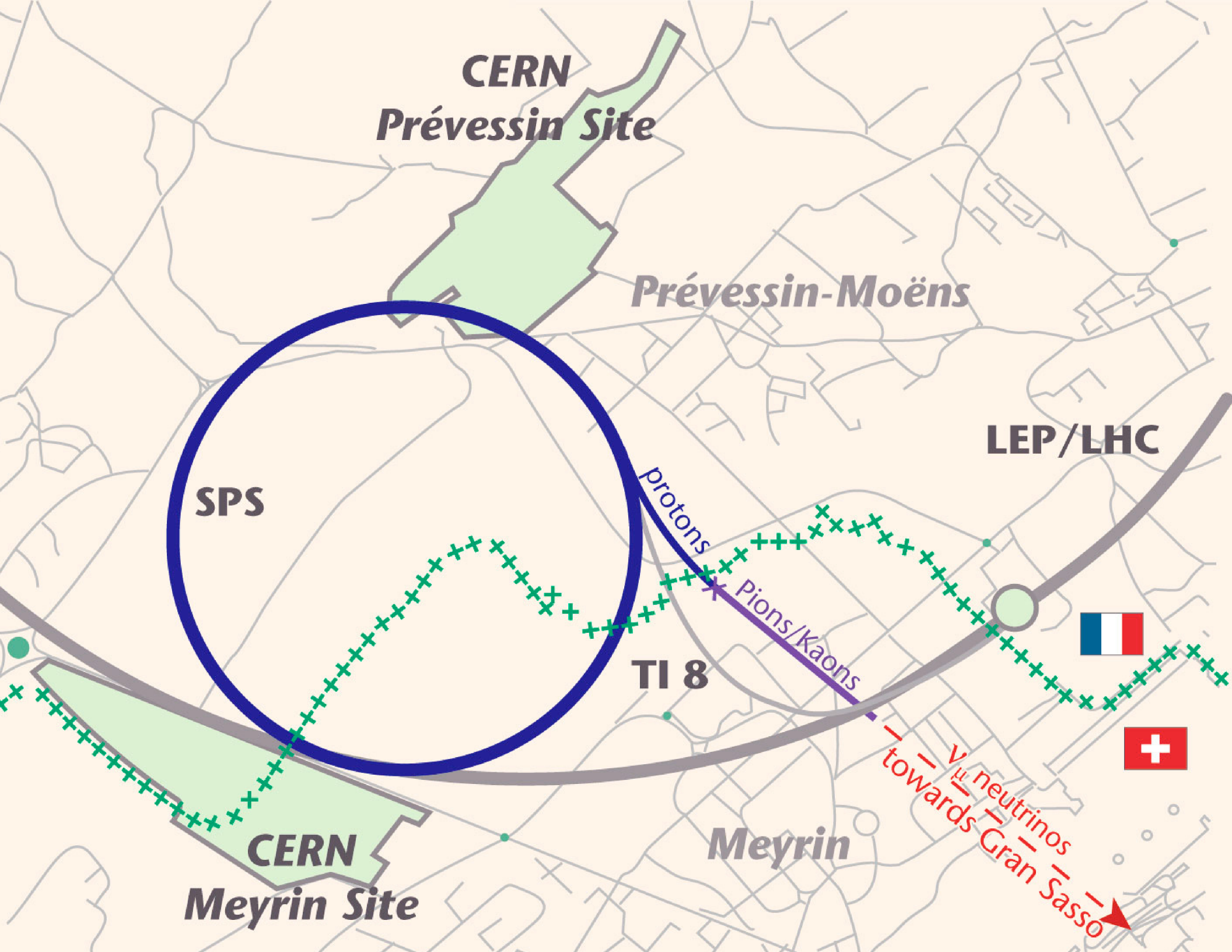
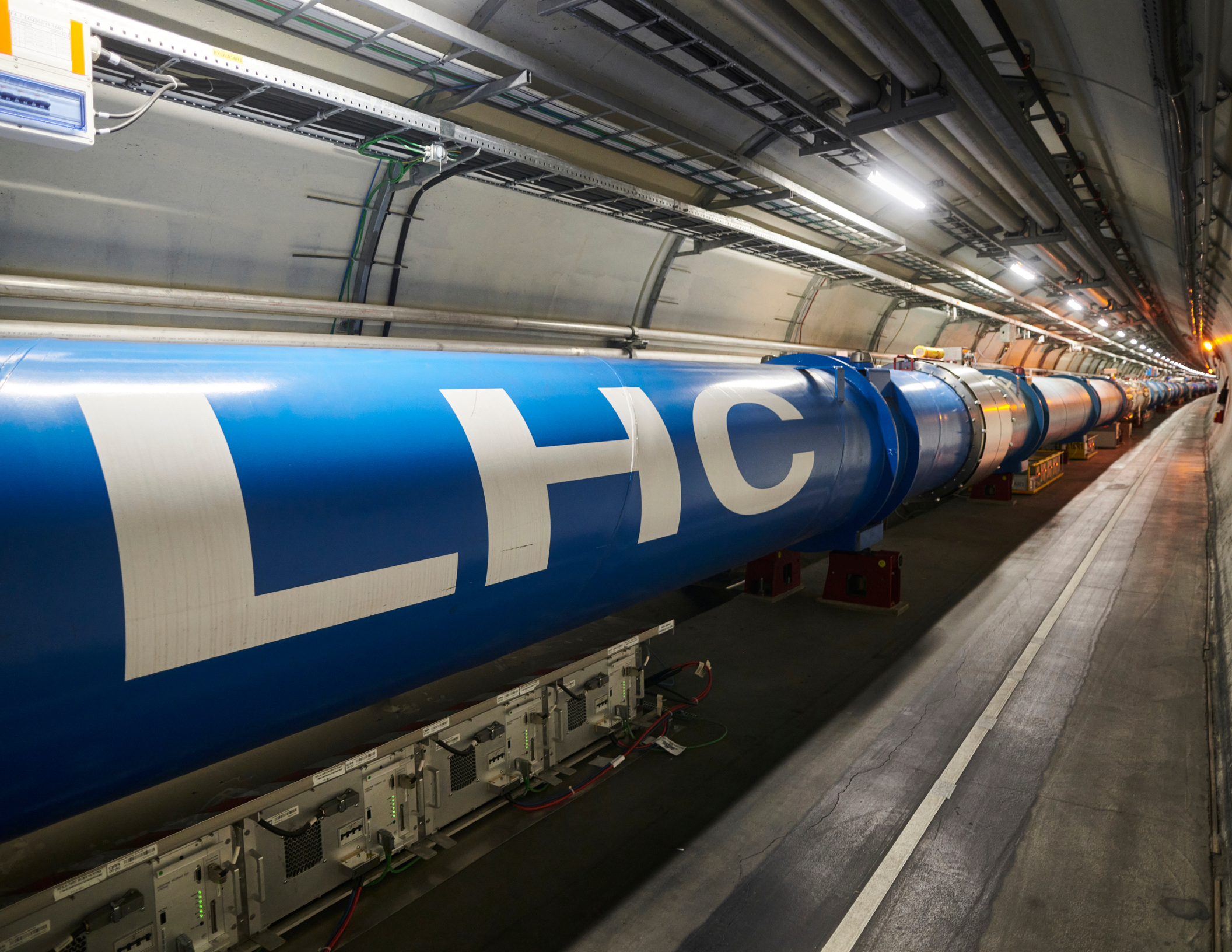
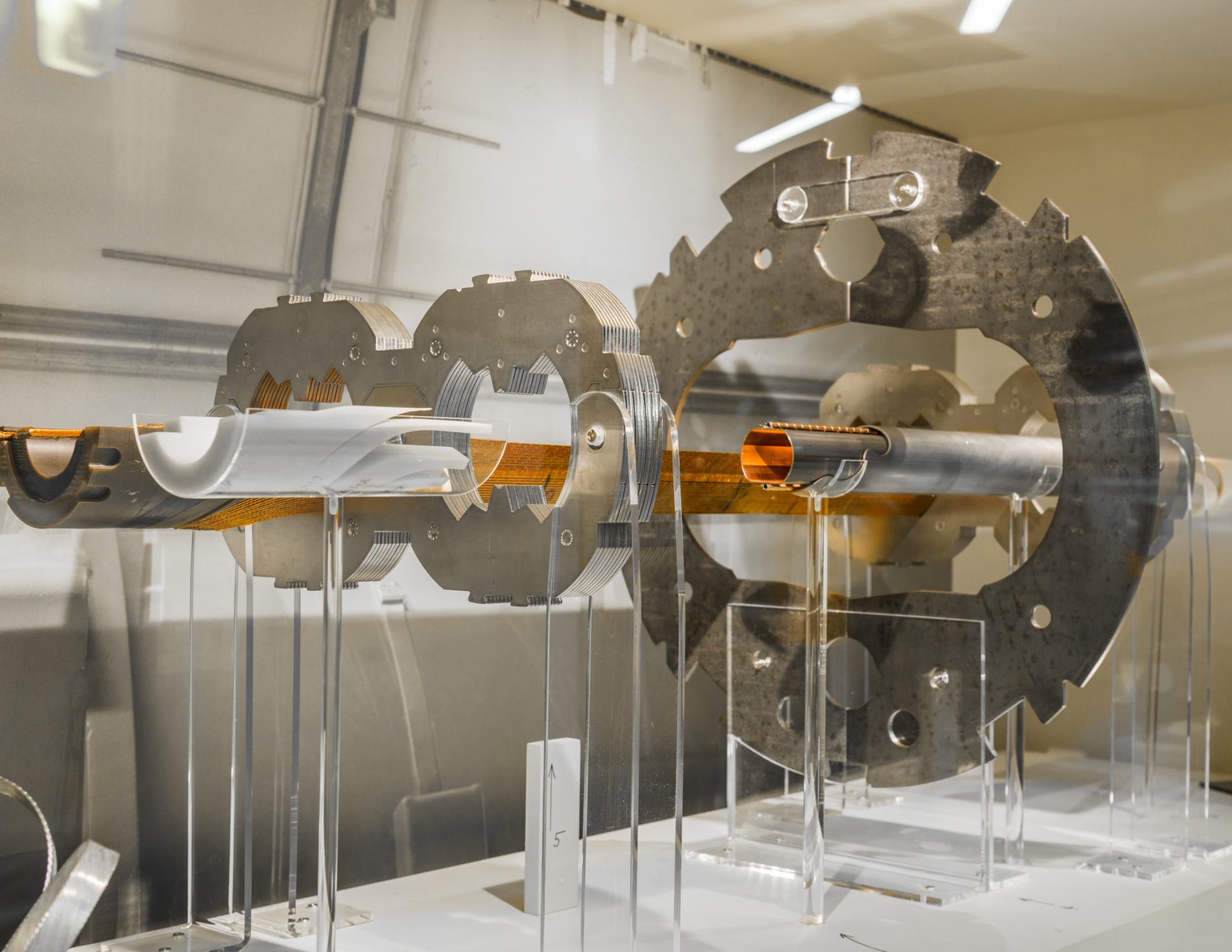

CERN
Prévessin Site
Prévessin-Moëns
LEP/LHC
SPS
protons
Pions/Kaons
TI 8
CERN
Meyrin Site
Meyrin
ν_μ neutrinos
towards Gran Sasso

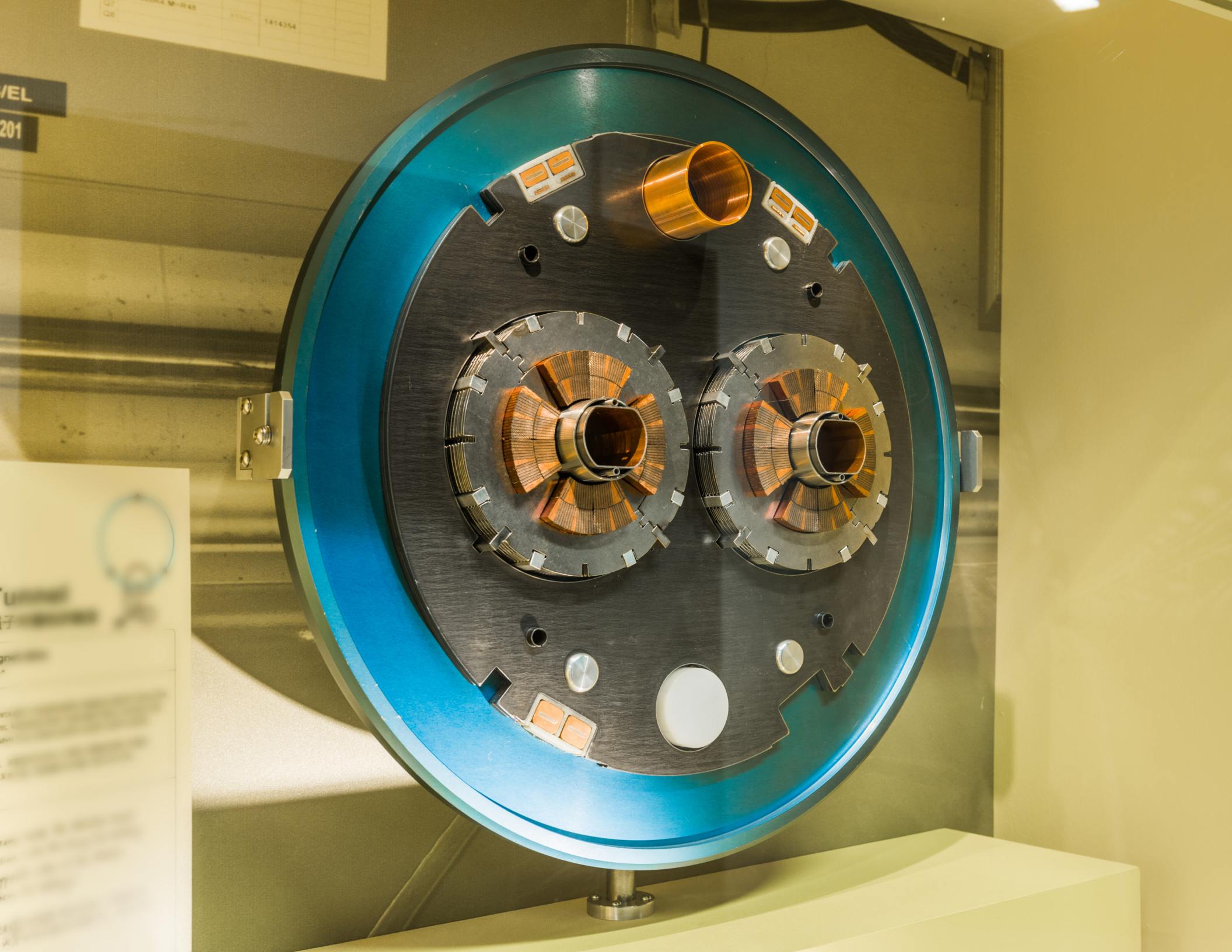


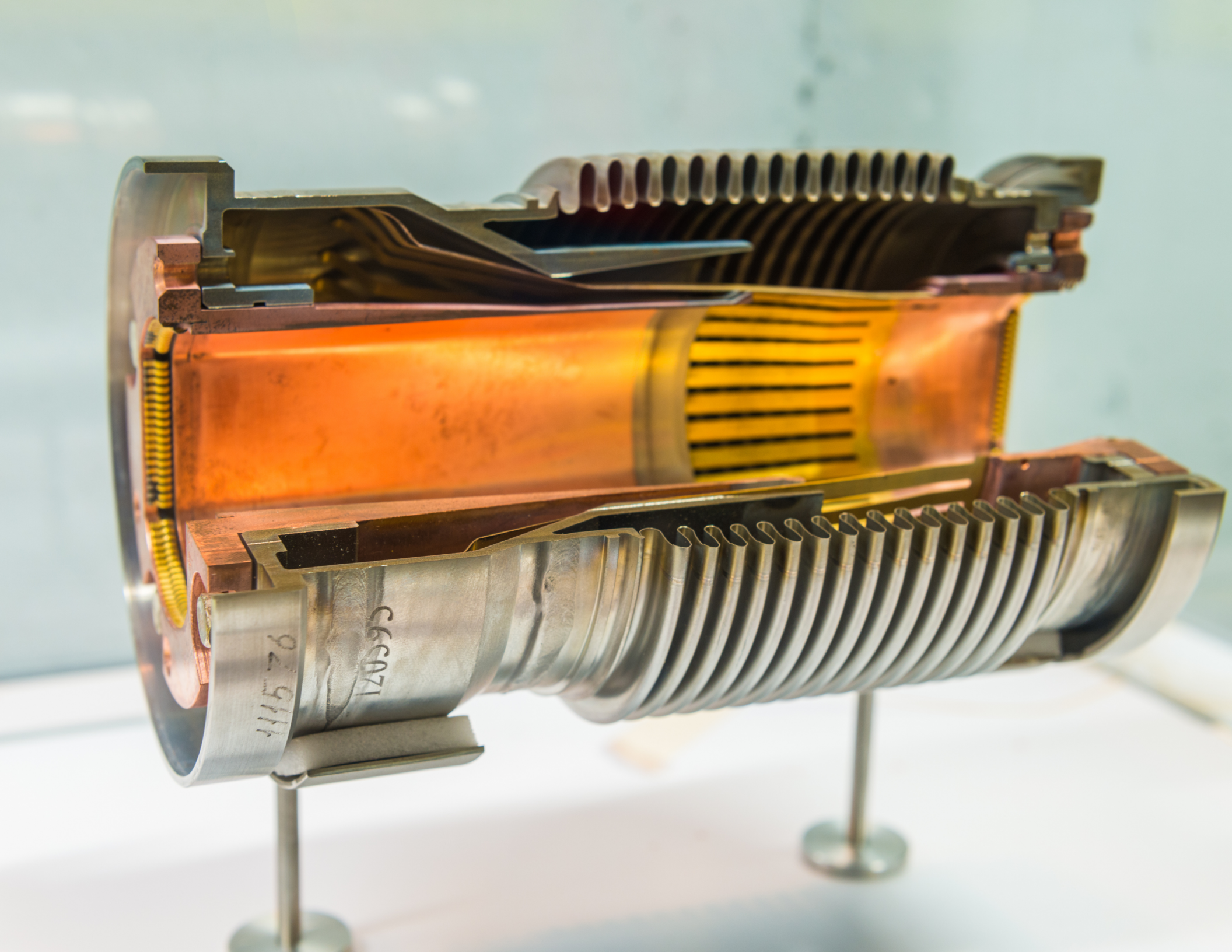
LHC (LARGE HADRON COLLIDER)

The Large Hadron Collider (LHC) at CERN is the world's largest and most powerful particle accelerator, designed to explore the fundamental particles and forces of the universe. It's a 27-kilometer ring of superconducting magnets located underground near Geneva, Switzerland. The LHC enables physicists to recreate conditions just after the Big Bang by colliding particles at high energies, leading to groundbreaking discoveries like the Higgs boson


LHC



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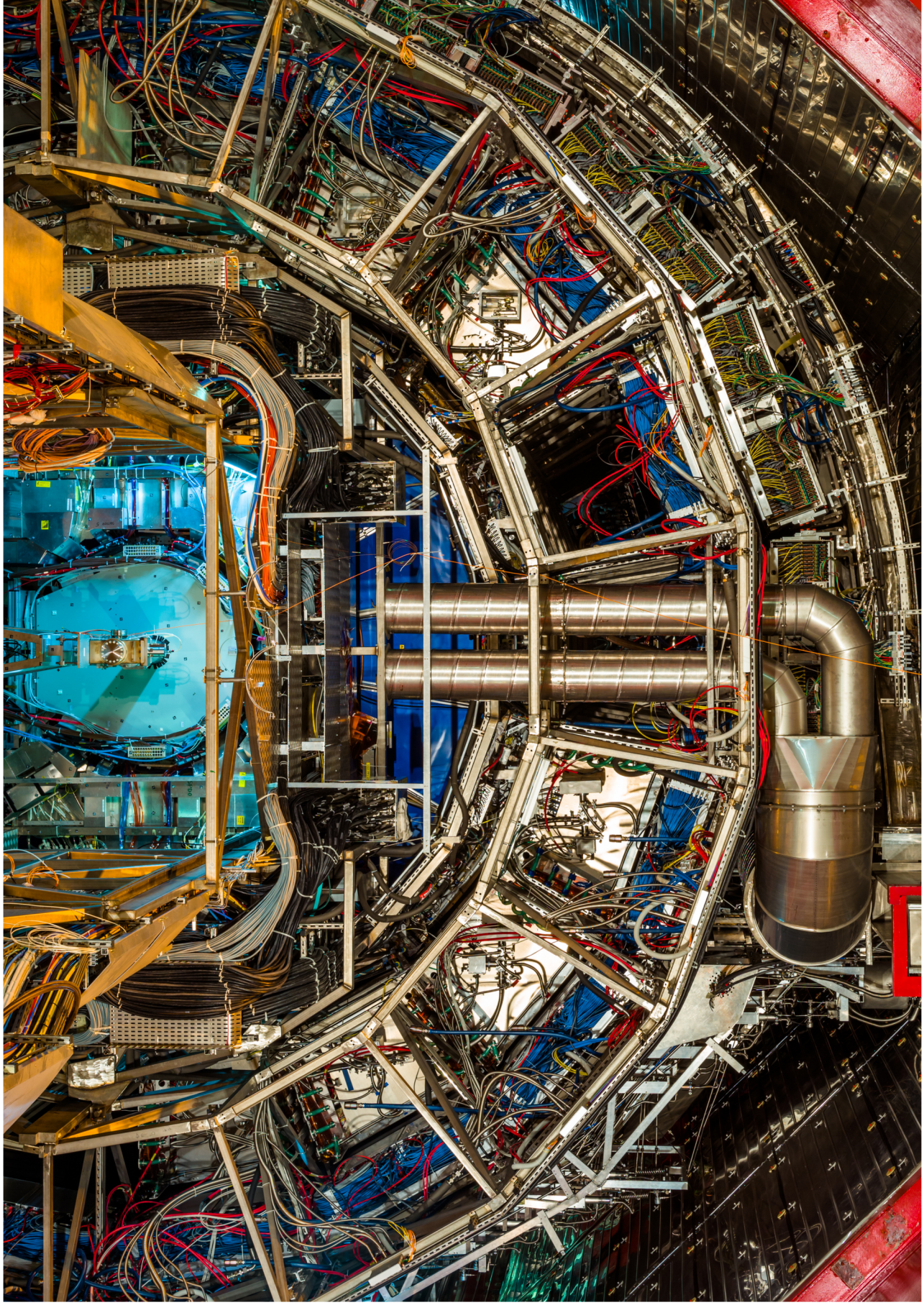
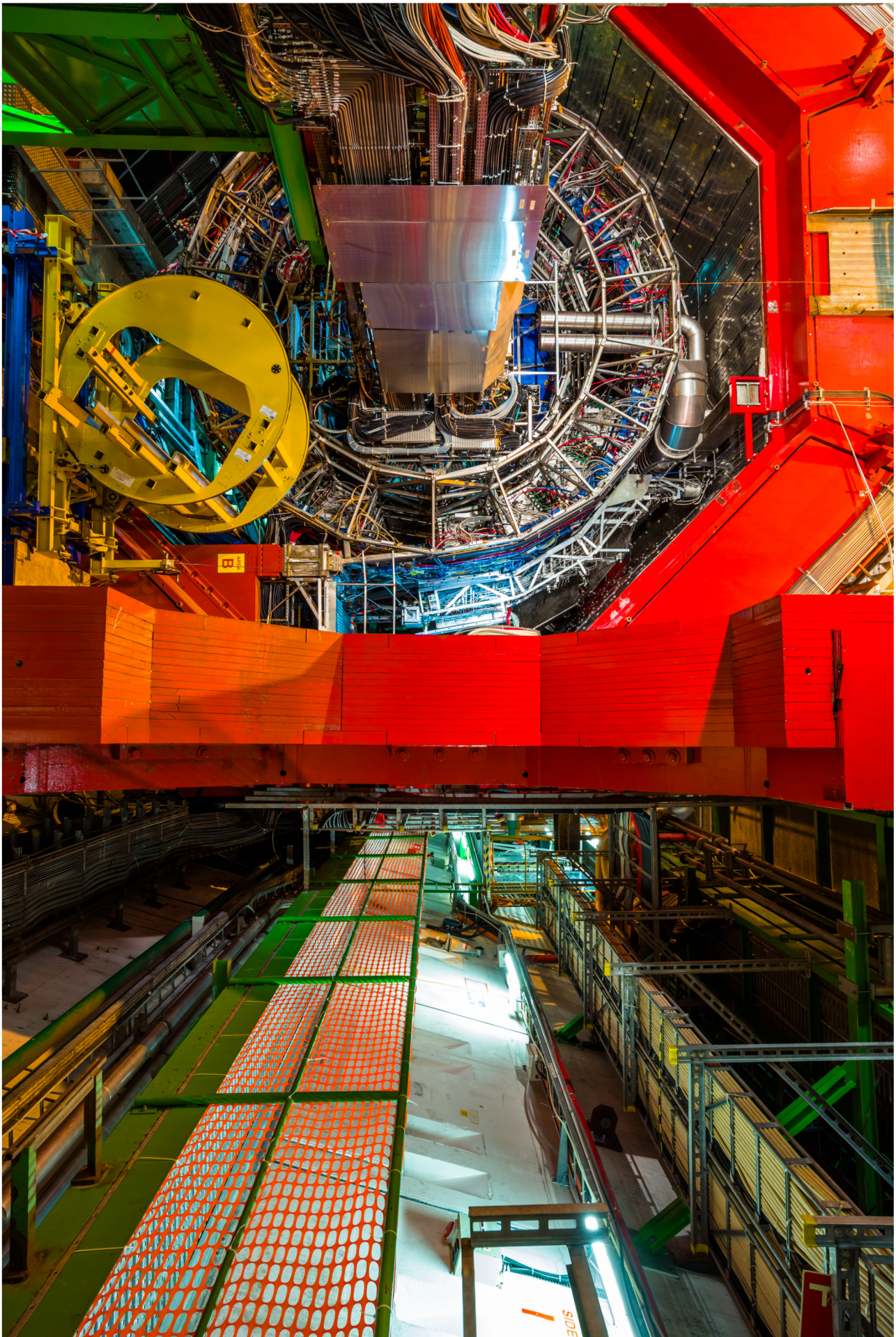
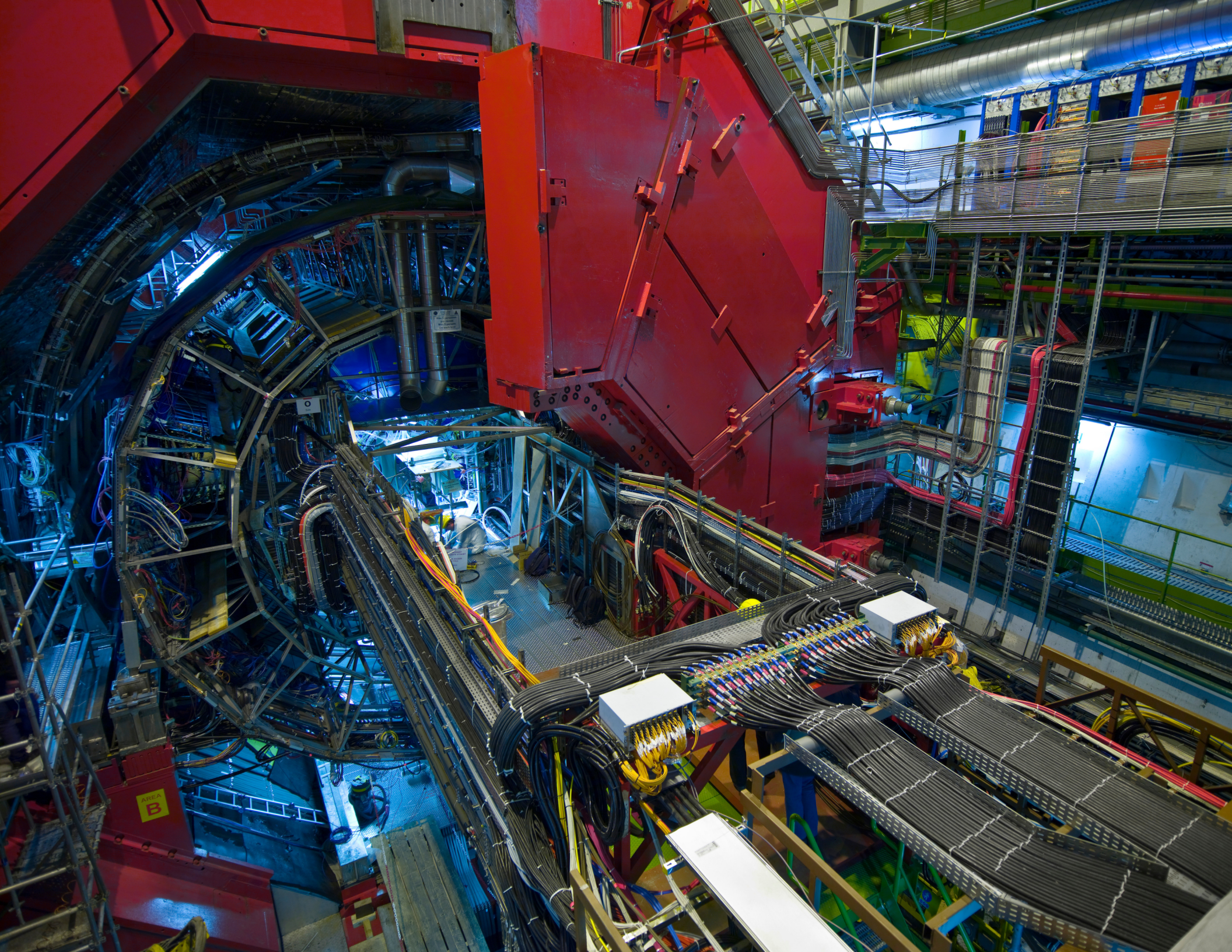


ALICE EXPERIMENT

The ALICE experiment is a bit like a super-advanced microscope designed to study what happens when tiny particles smash into each other at incredibly high speeds, allowing scientists to explore the properties of quark-gluon plasma (QGP).

In these collisions, temperatures can reach more than 100,000 times hotter than the center of the Sun, causing protons and neutrons to "melt" and freeing quarks from their bonds with gluons

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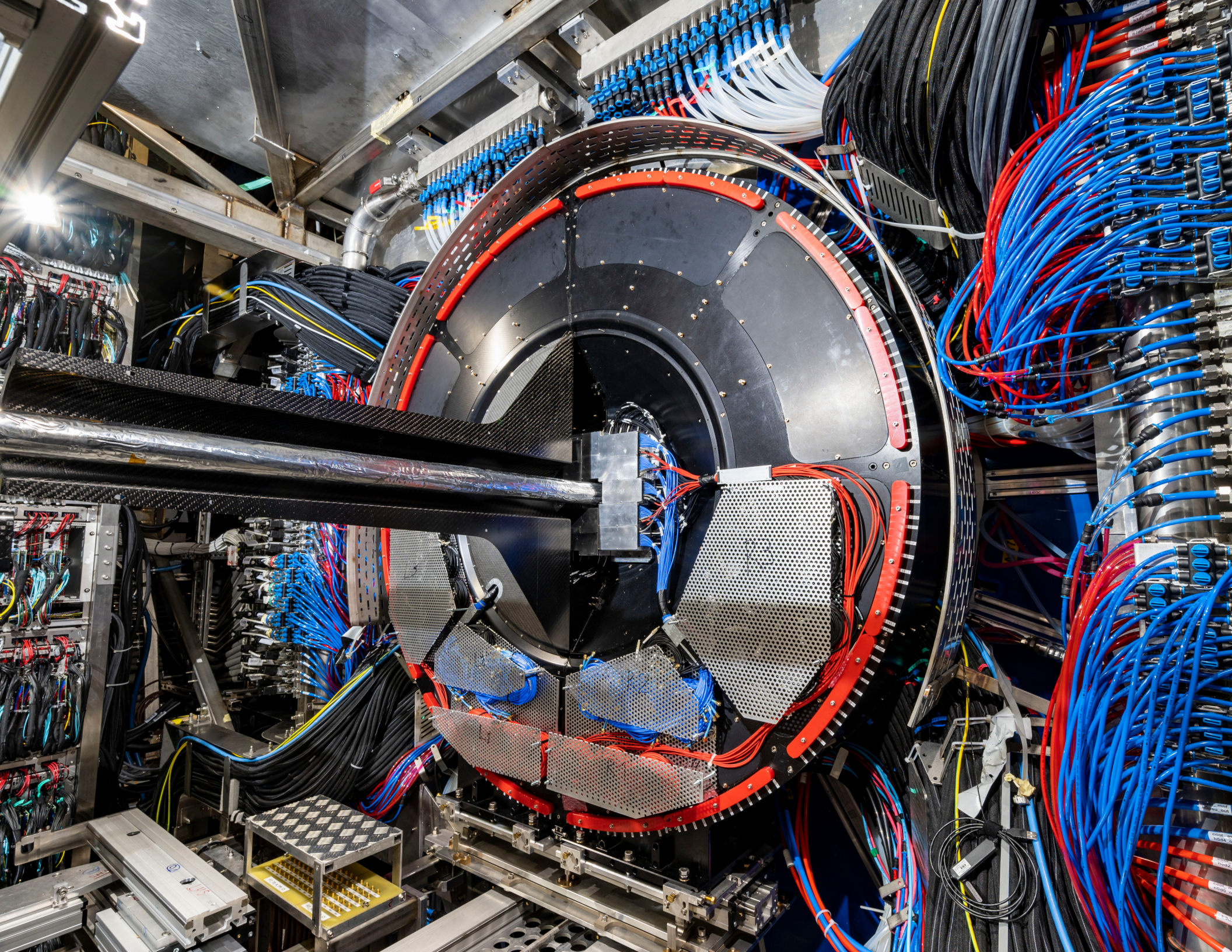
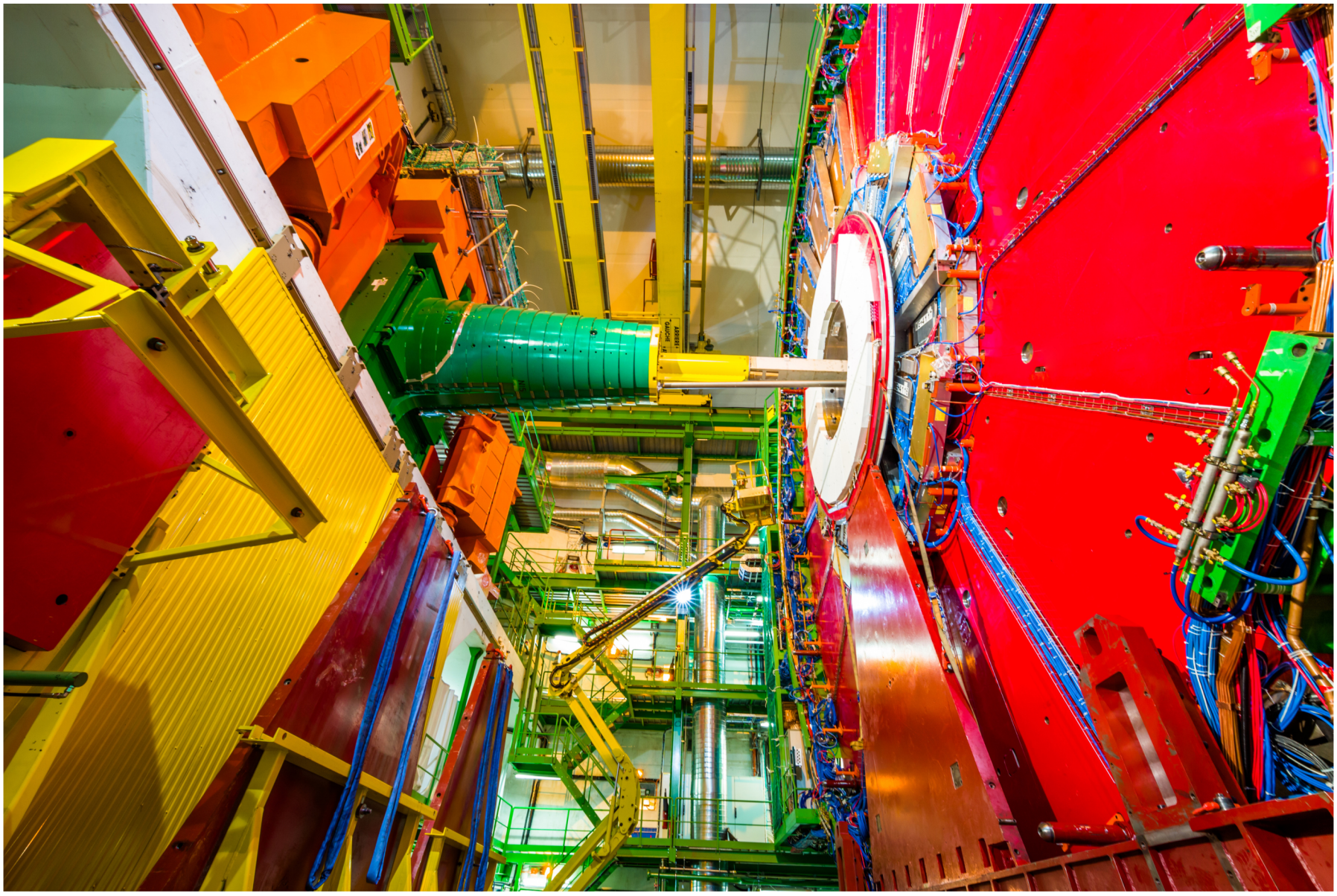
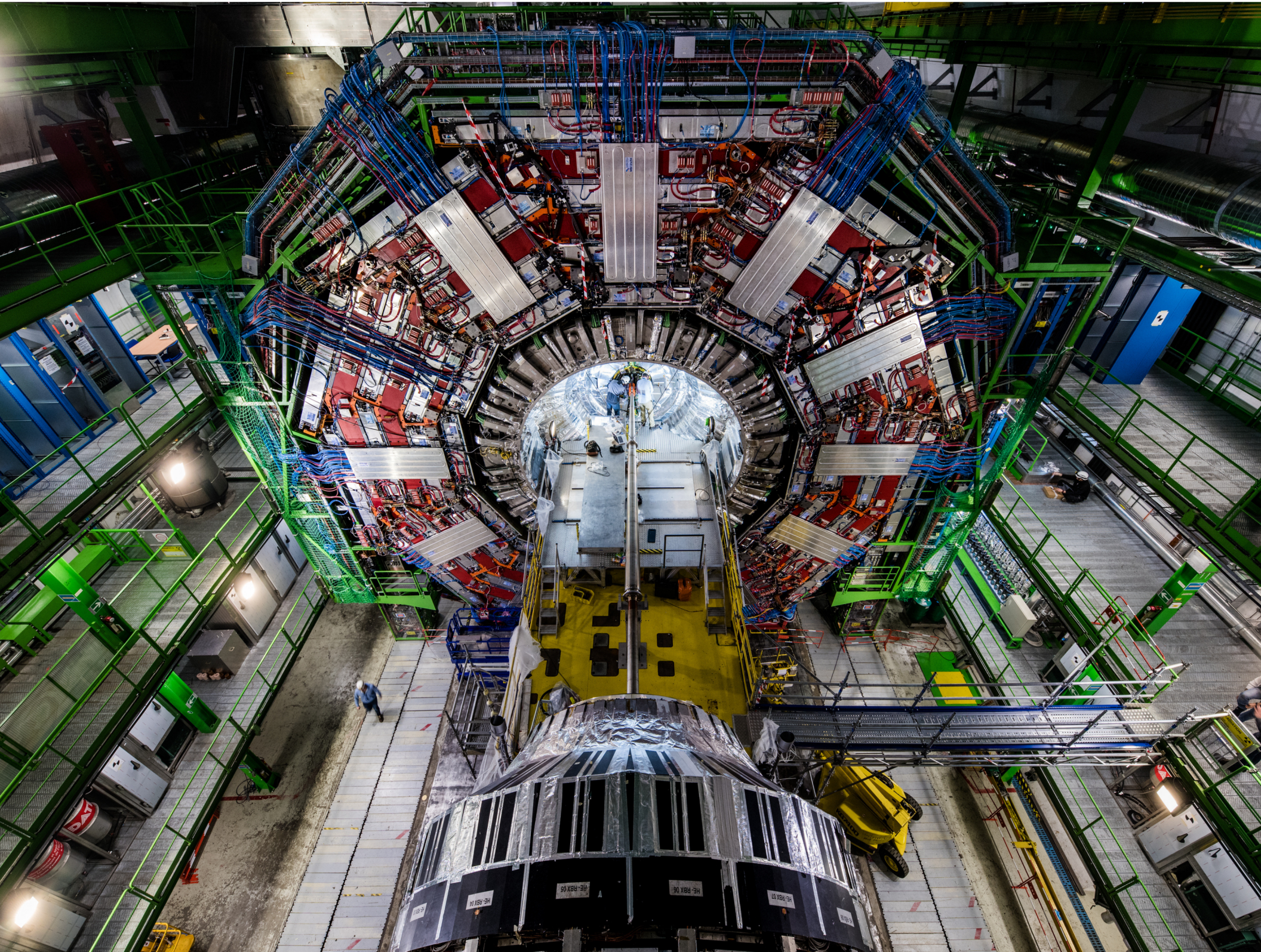




CMS EXPERIMENT

The CMS (Compact Muon Solenoid) experiment is like a high-tech camera that captures what happens when protons, the tiny particles found in the nucleus of an atom, crash into each other at speeds nearly as fast as light.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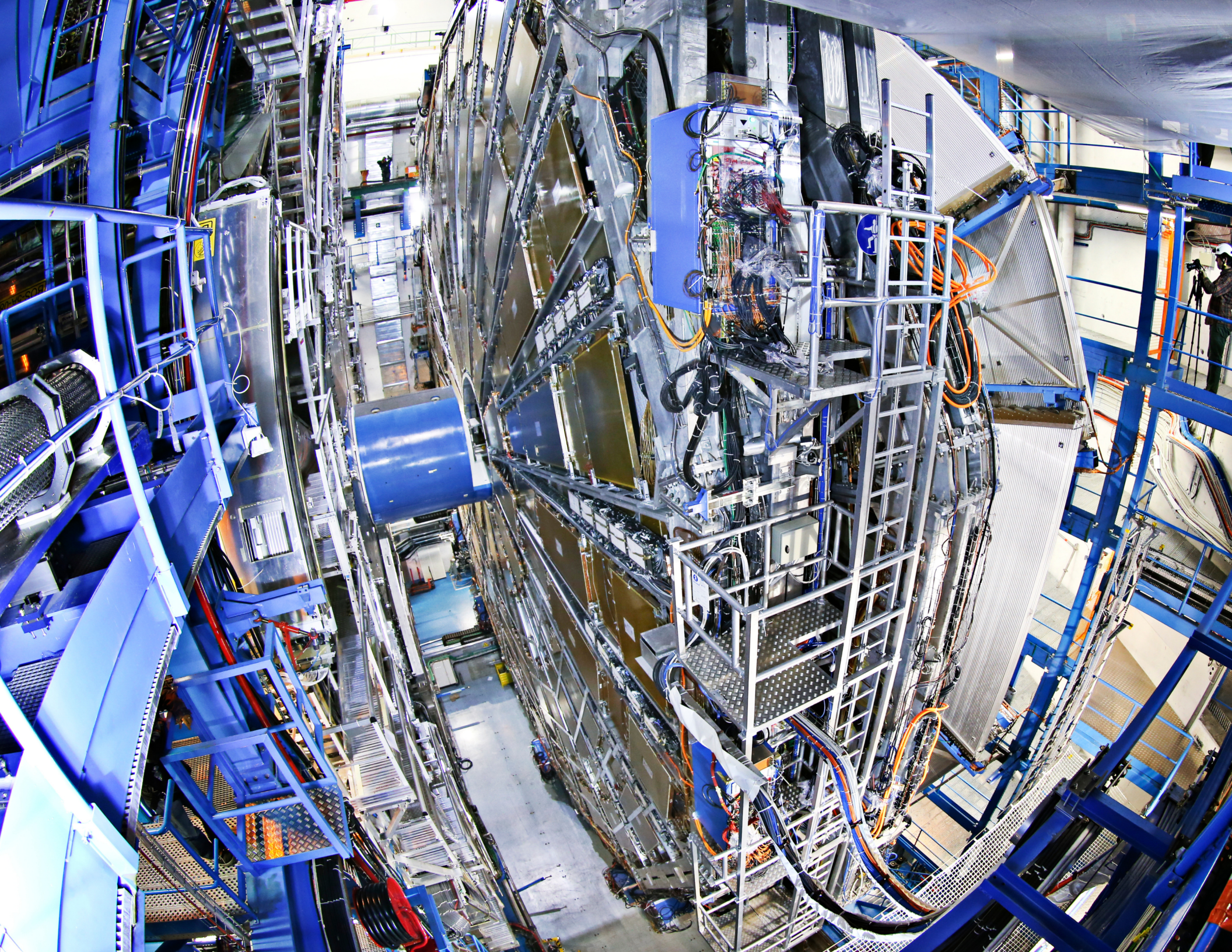
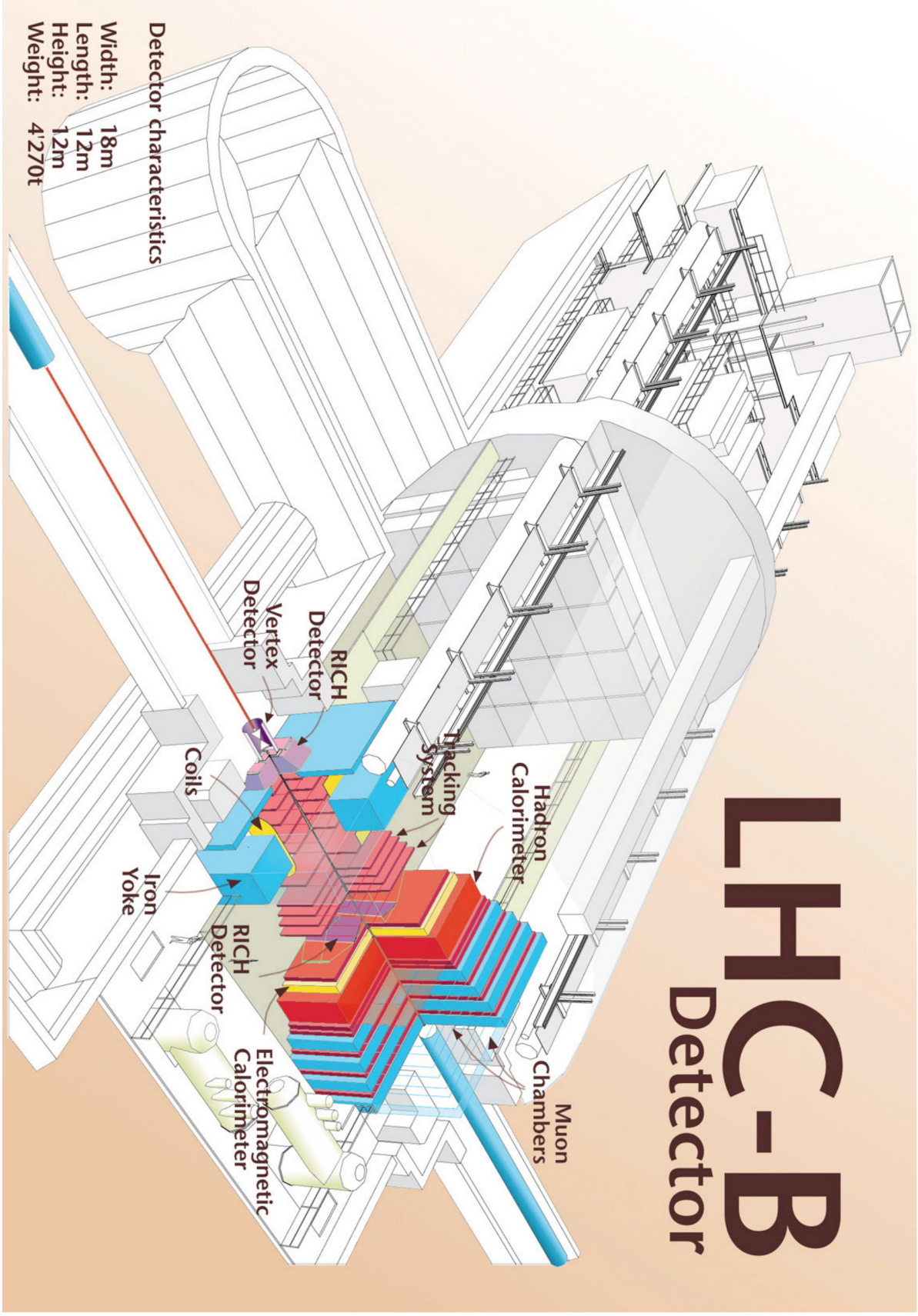
ATLAS EXPERIMENT

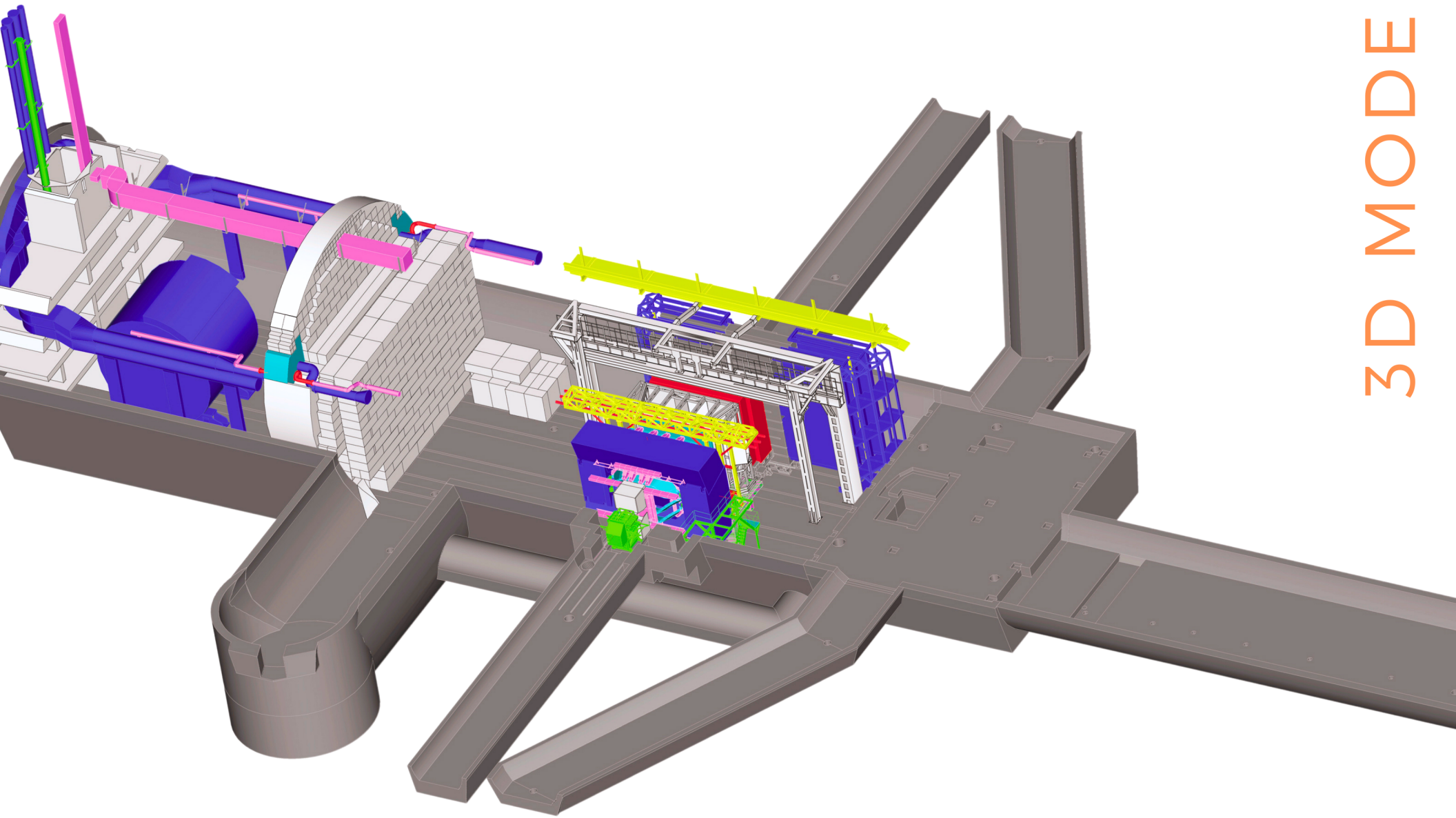
The ATLAS experiment, located 100 meters underground near Geneva, is a key player in particle physics research. It's a massive 7,000-tonne detector that investigates everything from the elusive Higgs boson to potential components of dark matter. ATLAS is part of the Large Hadron Collider (LHC) at CERN and is instrumental in exploring the fundamental structure of our universe





LHCB EXPERIMENT

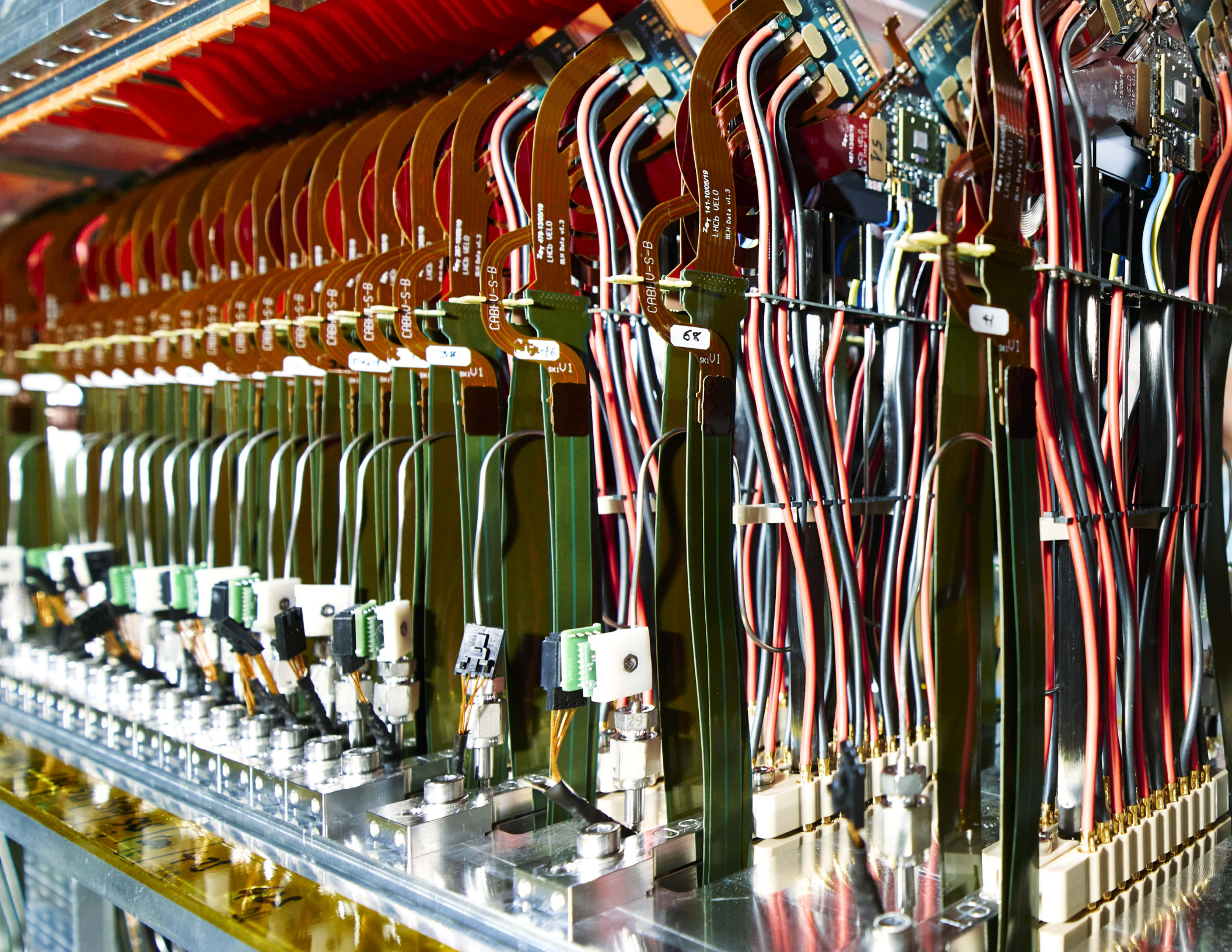
The LHCb experiment, deep underground at the French-Swiss border, explores the mystery of why the universe is made mostly of matter, not antimatter, by studying particles with beauty and charm quarks. With a unique forward-facing design, the 5,600-tonne LHCb detector captures particles produced in the direction of the proton beams, contributing to our understanding of fundamental physics.



3D MODEL



LHCb has been instrumental in numerous discoveries and research areas, including the study of rare decays, CP violation, and the discovery of new hadron states like tetraquarks and pentaquarks, enriching our understanding of the quantum world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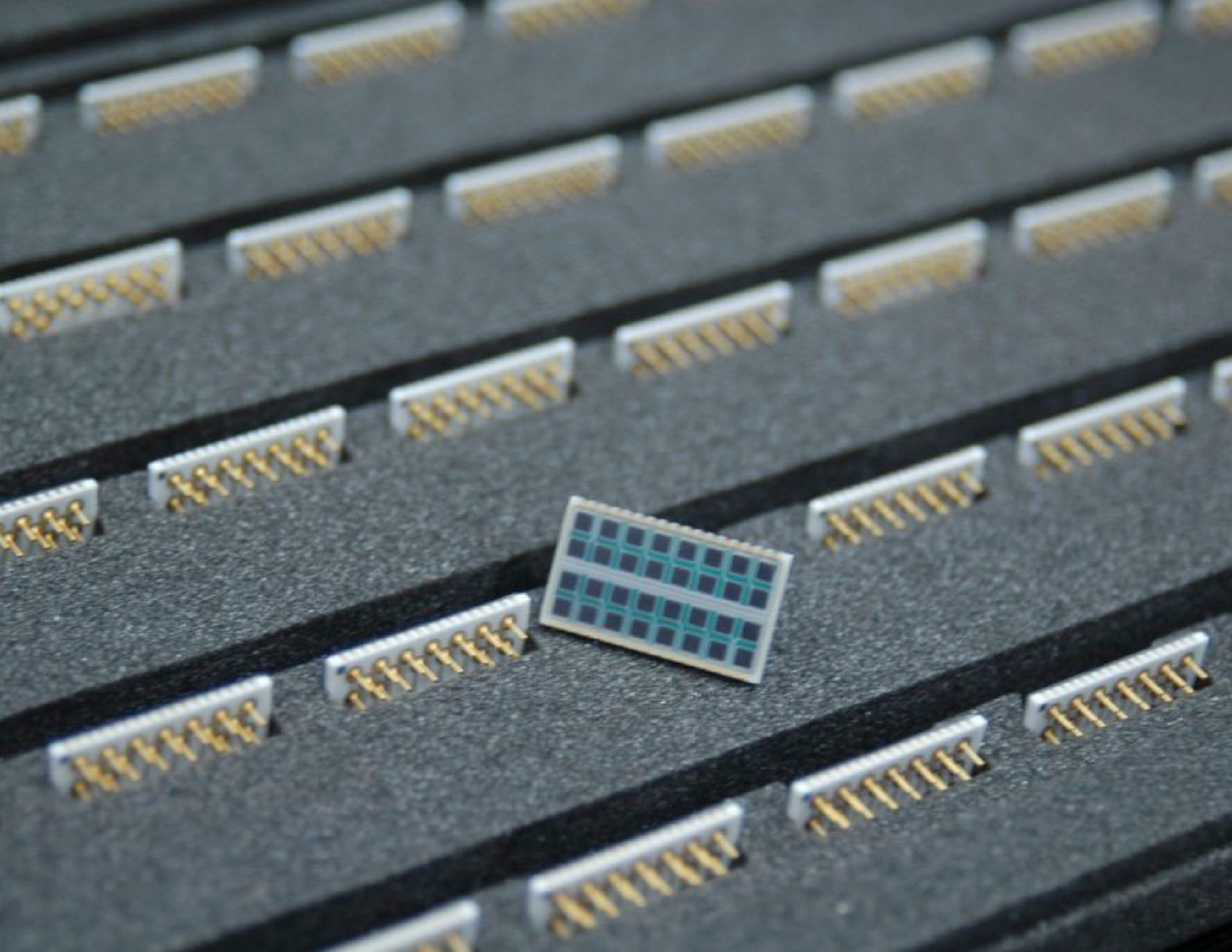
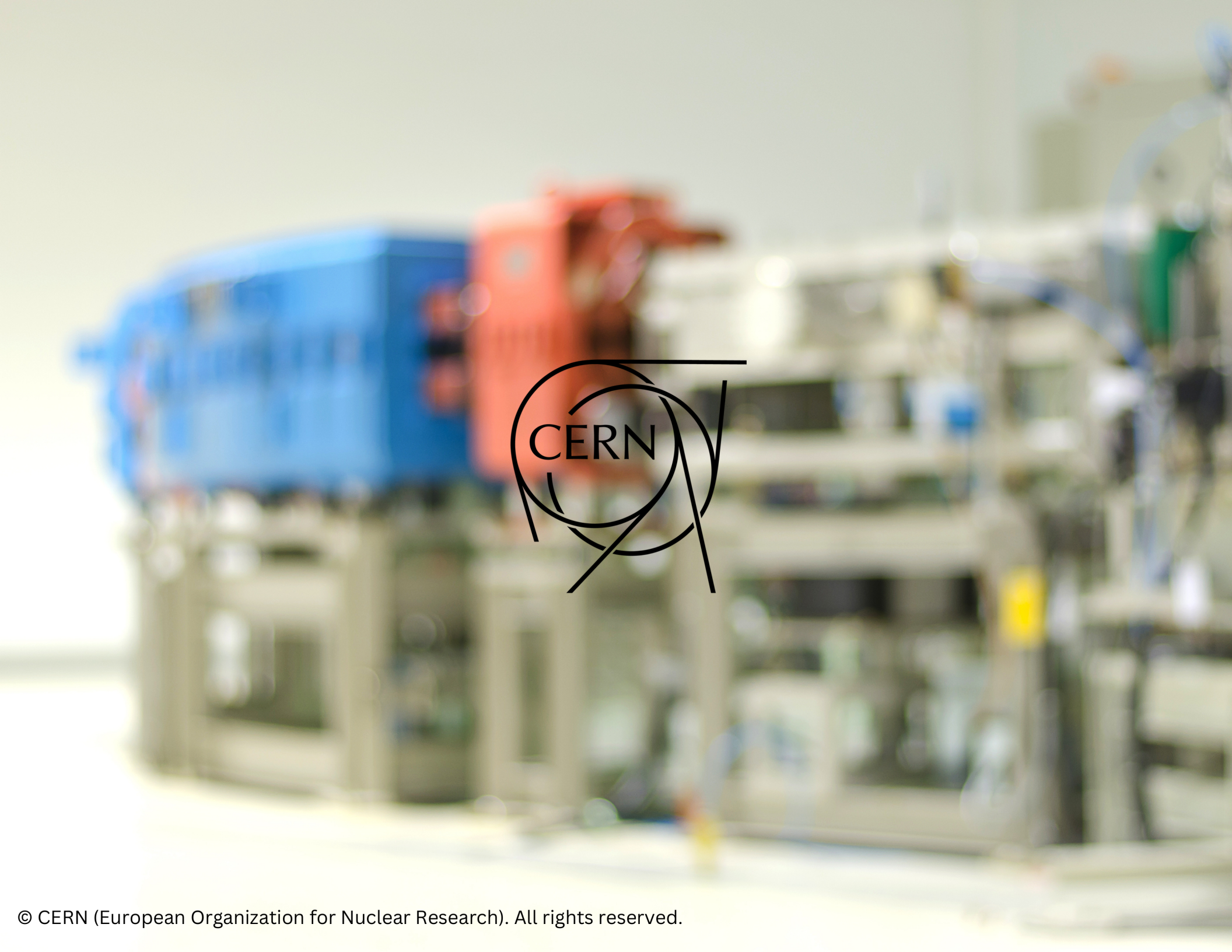
DATA CENTER



The CERN Data Centre is the heart of CERN’s entire scientific, administrative, and computing infrastructure. All services, including email, scientific data management and videoconferencing use equipment based here.

The 450 000 processor cores and 10 000 servers run 24/7. Over 90% of the resources for computing in the Data Centre are provided through a private cloud based on OpenStack, an open-source project to deliver a massively scalable cloud operating system.





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