




Welcome at CERN

70
1954-2024
YEARS / ANS CERN

S. Gilardoni – SY/STI

A large group of people, likely scientists and staff, are posed for a group photo in a vast, complex industrial facility. The facility is filled with intricate machinery, including scaffolding, pipes, and large cylindrical structures. The lighting is a mix of blue and yellow, creating a high-tech atmosphere. A prominent blue text box is overlaid on the upper portion of the image.

Our goal is to understand the most fundamental particles and laws of the universe.

Afterglow Light
Pattern
0.75 - 0.00 yrs

Dark Ages

Development of
Galaxies, Planets, etc.

Dark Energy
Accelerated Expansion



about 400 million yrs.

Big Bang Expansion

13.77 billion years

About CERN

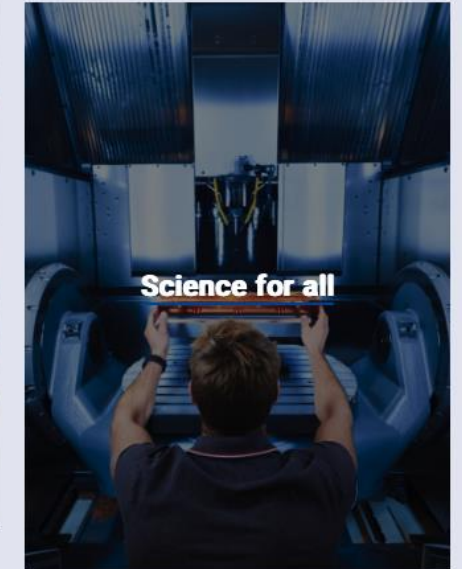
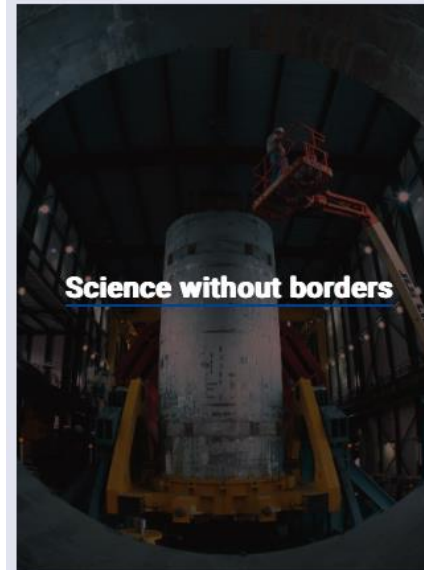
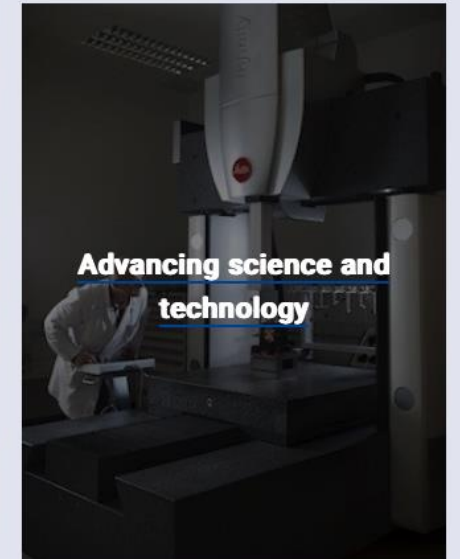
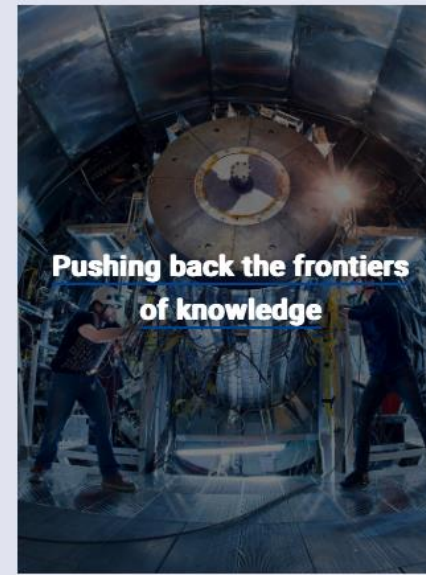
23 Member States

10 Associate Member States

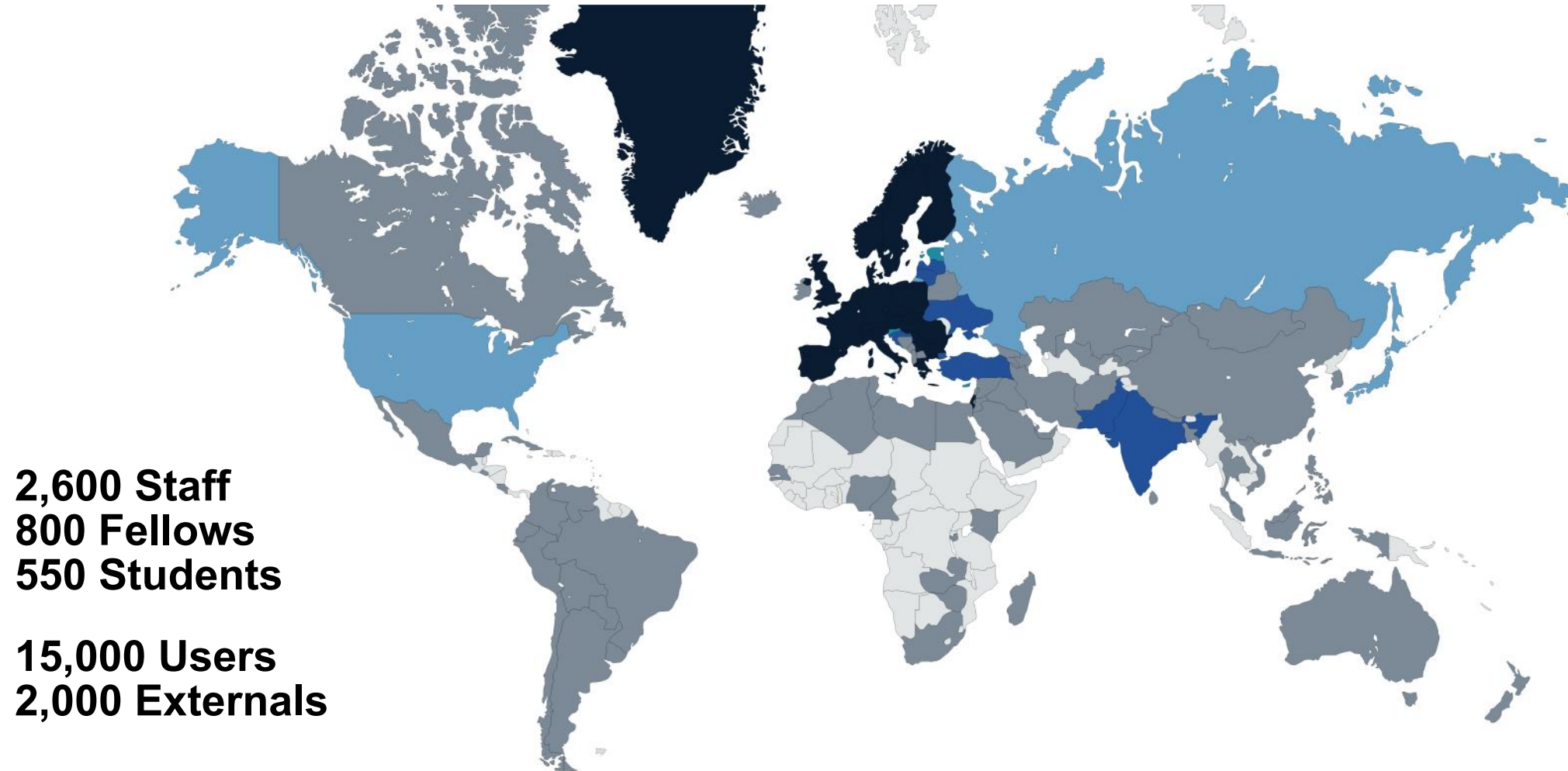
Member States of CERN

Member States (date of accession)

- | | | |
|---|---|--|
|  Austria (1959) |  Sweden (1953) | |
|  Belgium (1953) |  Switzerland (1953) | |
|  Bulgaria (1999) |  United Kingdom (1953) | |
|  Czech Republic (1993) | States in accession to Membership and Associate Members | |
|  Denmark (1953) |  Croatia (2019) | |
|  Finland (1991) |  Cyprus (2016) | |
|  France (1953) |  Estonia (2021) | |
|  Germany (1953) |  India (2017) | |
|  Greece (1953) |  Latvia (2021) | |
|  Hungary (1992) |  Lithuania (2018) | |
|  Israel (2014) |  Pakistan (2015) | |
|  Italy (1953) |  Slovenia (2017) | |
|  Netherlands (1953) |  Turkey (2015) | |
|  Norway (1953) |  Ukraine (2016) | |
|  Poland (1991) | | |
|  Portugal (1986) | | |
|  Romania (2016) | | |
|  Serbia (2019) | | |
|  Slovakia (1993) | | |
|  Spain (1961-1968, 1983-) | | |



More than 20,000 scientists from around the world



2,600 Staff
800 Fellows
550 Students

15,000 Users
2,000 Externals

History

1949

First steps towards civilian research in the field of nuclear technology

1952

Foundation of CERN under the auspices of UNESCO in Geneva

1953

Signing of the CERN charta

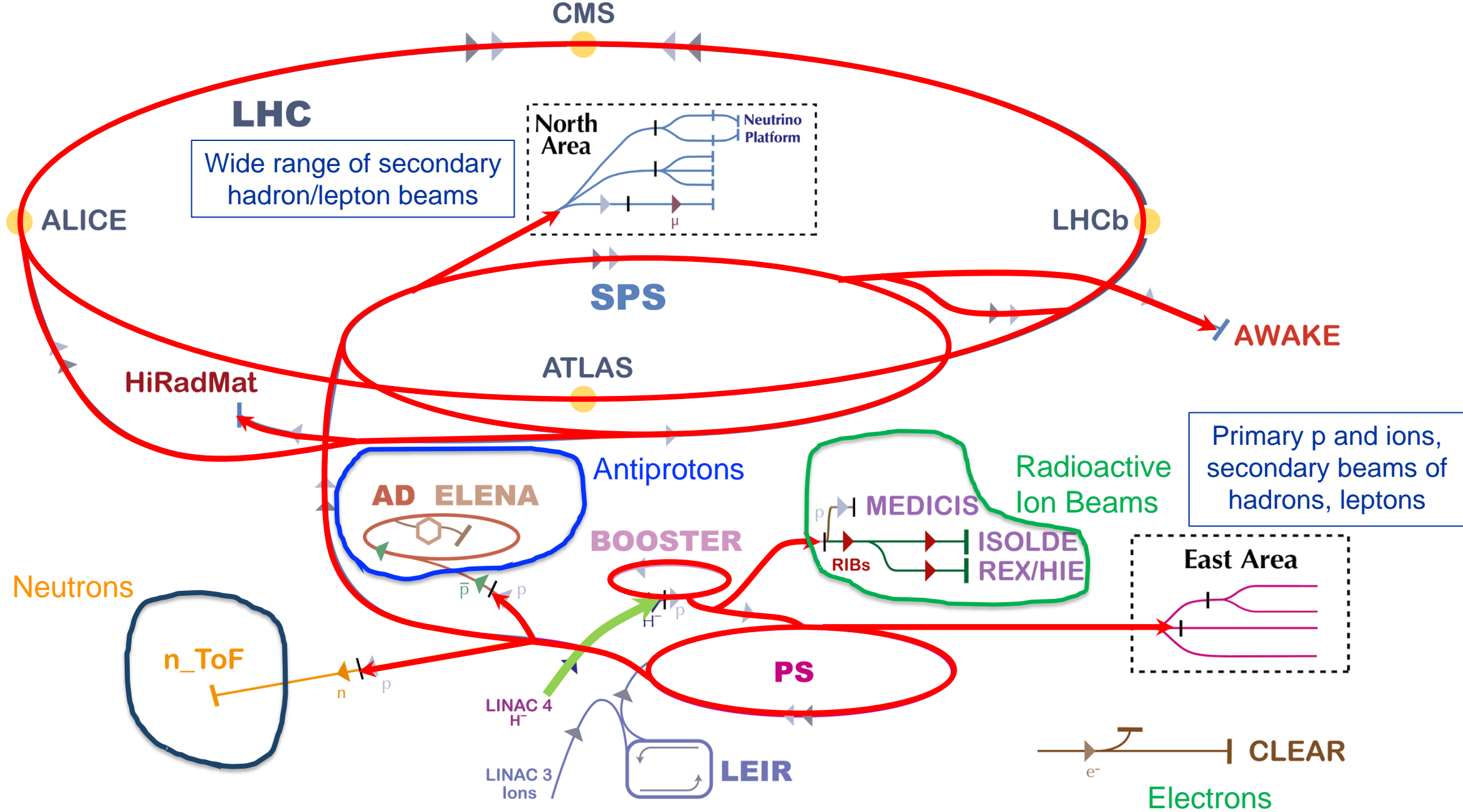
1954

Completion of the ratification process of the 12 Member States

La sixième session du Conseil fut organisée à Paris du 29 juin au 1^{er} juillet 1953. C'est à cette occasion que la Convention établissant l'Organisation fut signée, sous réserve de ratification, par douze Etats membres.

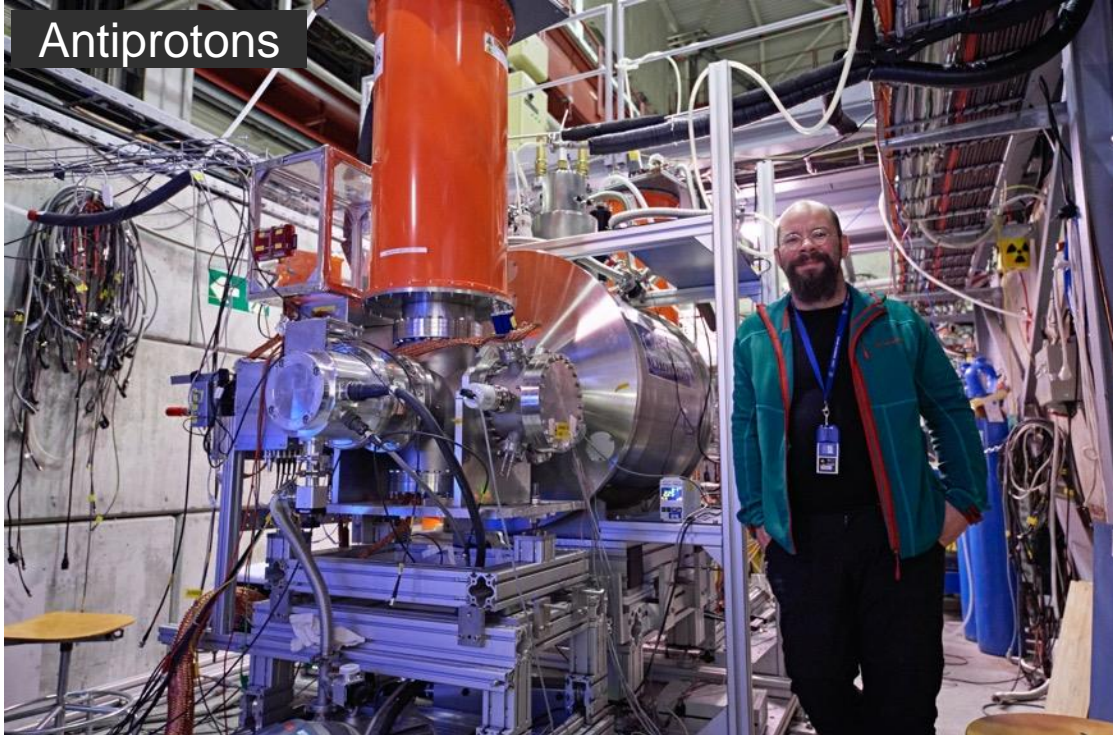


The Sixth Session of the CERN Council took place in Paris on 29 June—1 July 1953. It was here that the Convention establishing the Organization was signed, subject to ratification, by twelve States.

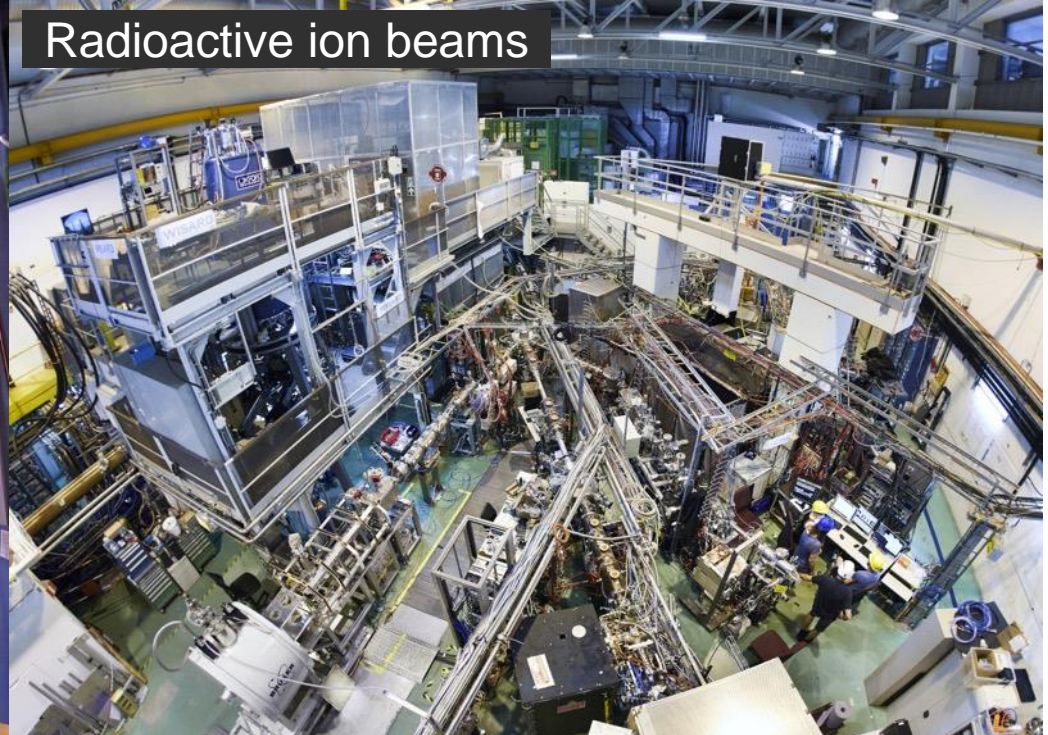


H^- (hydrogen anion) ▶ p (protons) ▶ ions ▶ RIBs (Radioactive Ion Beams) ▶ n (neutrons) ▶ \bar{p} (antiprotons) ▶ e^- (electrons)

Antiprotons



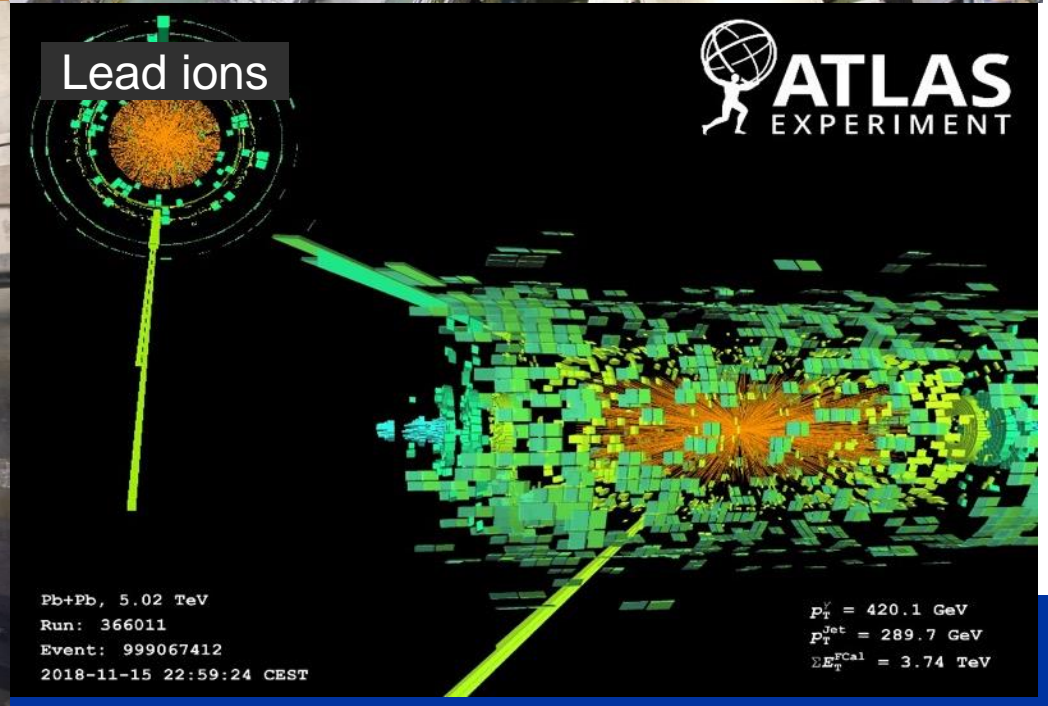
Radioactive ion beams



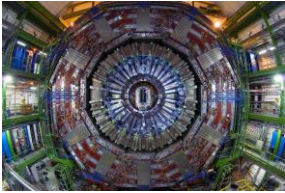
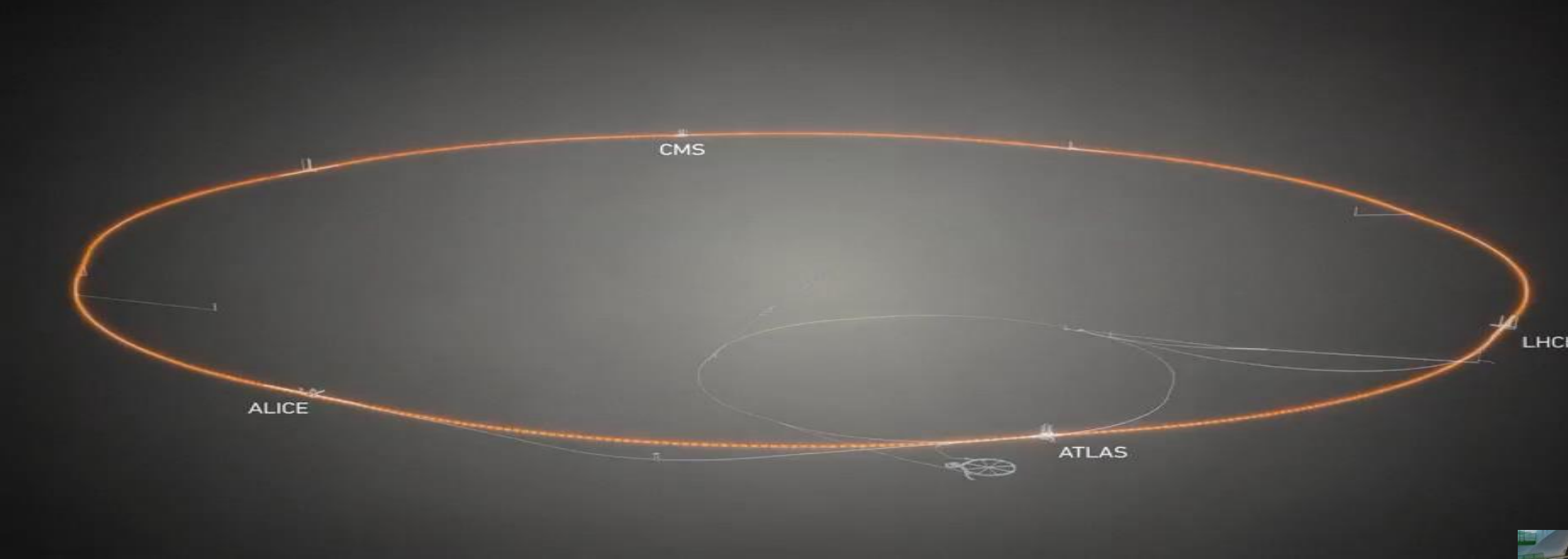
Protons



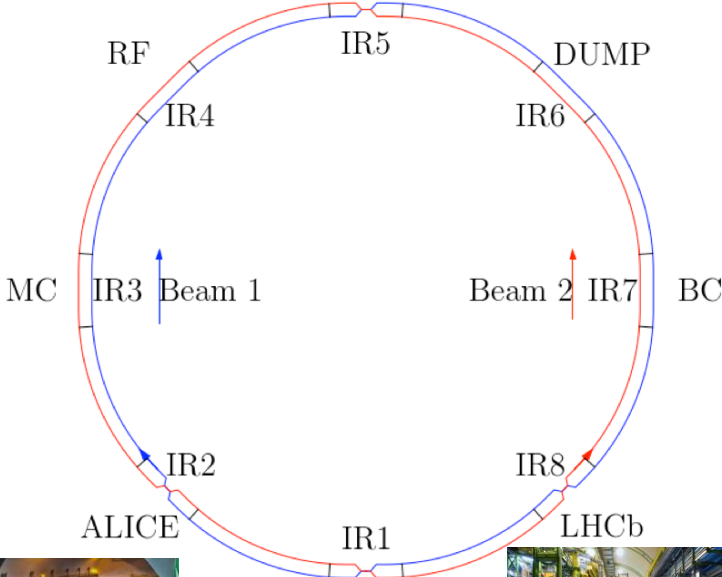
Lead ions



Collider: LHC with 4 collision points (IP)



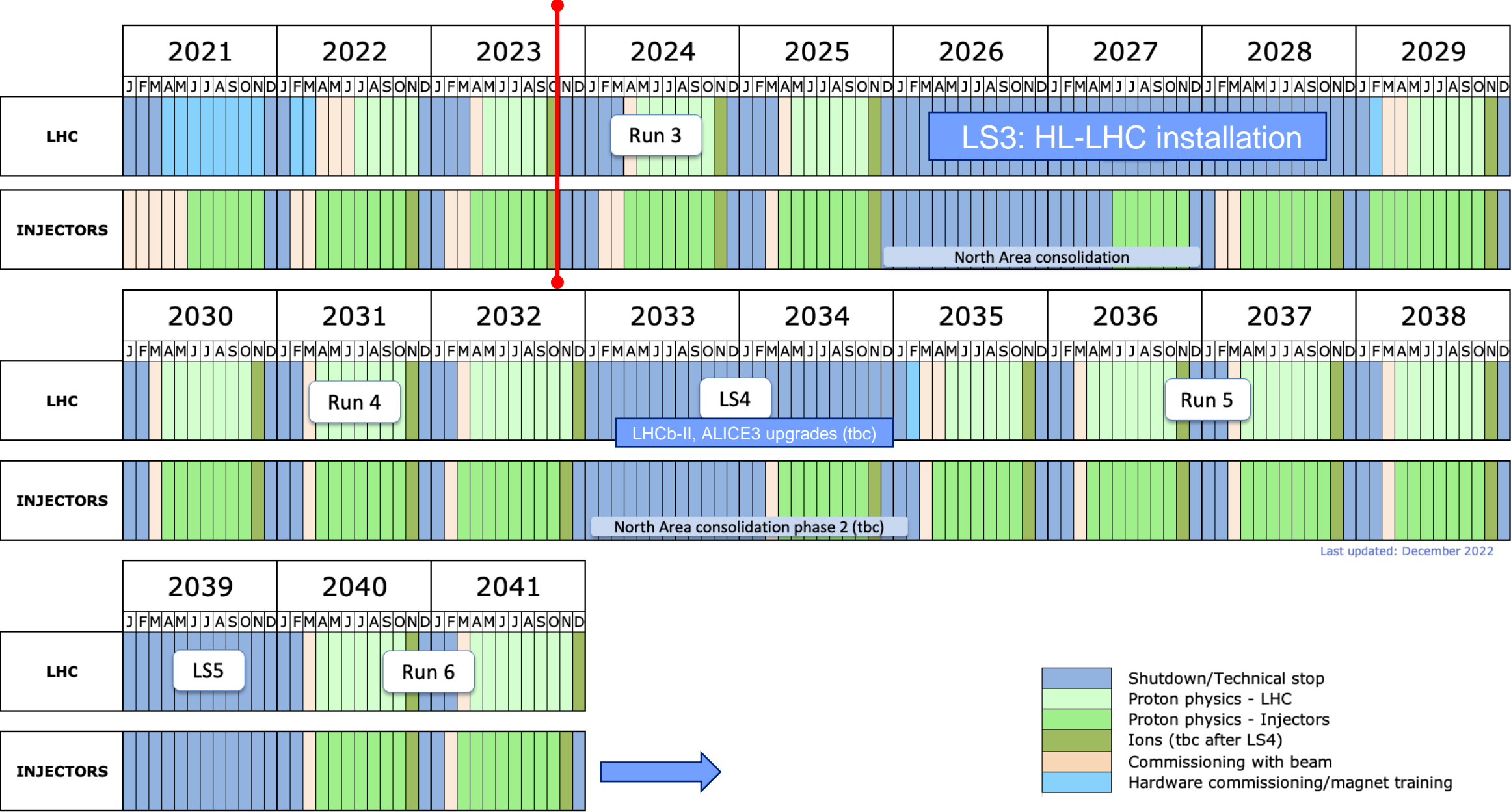
CMS/TOTEM

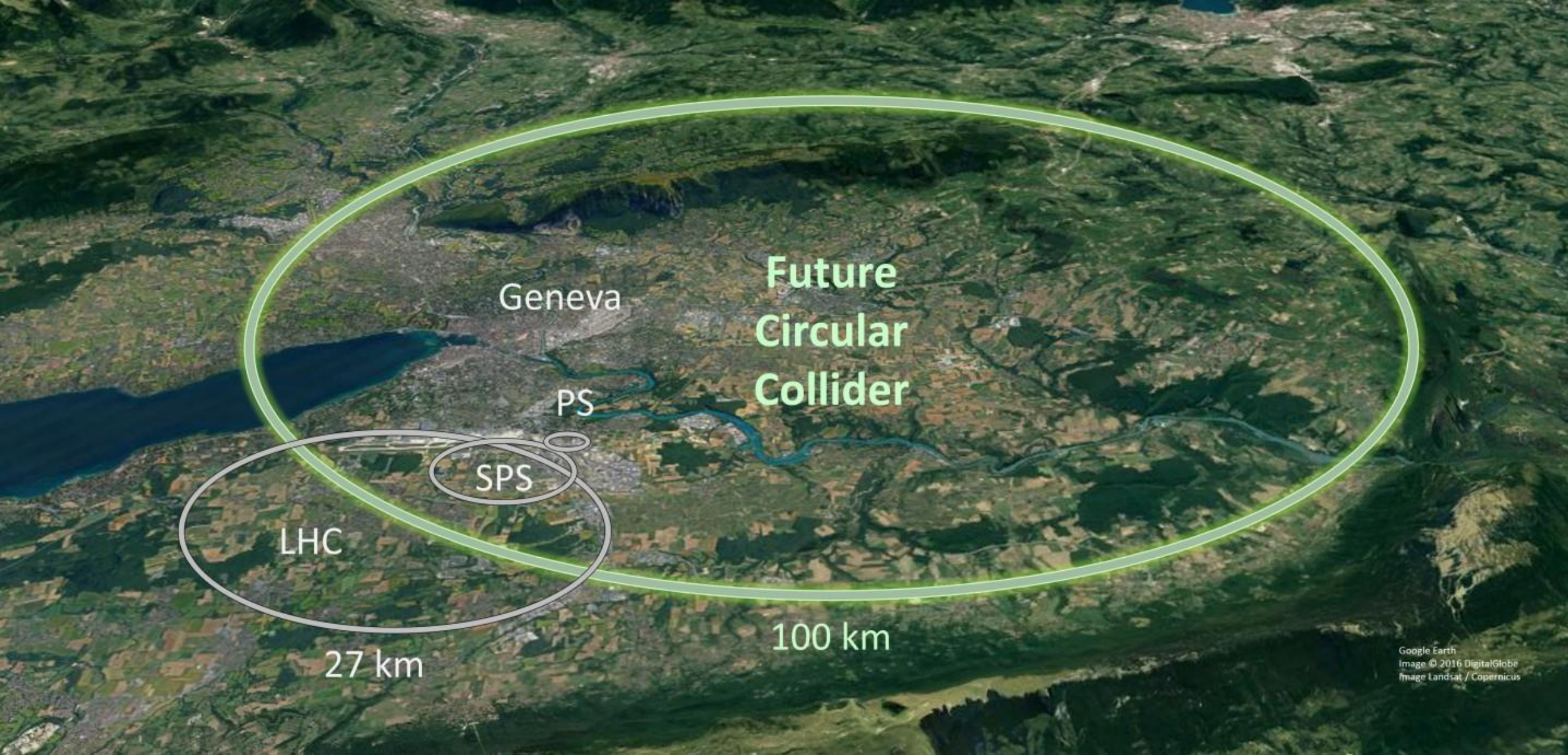


ATLAS/LHCf



Indicative timeline - full and diverse physics programme



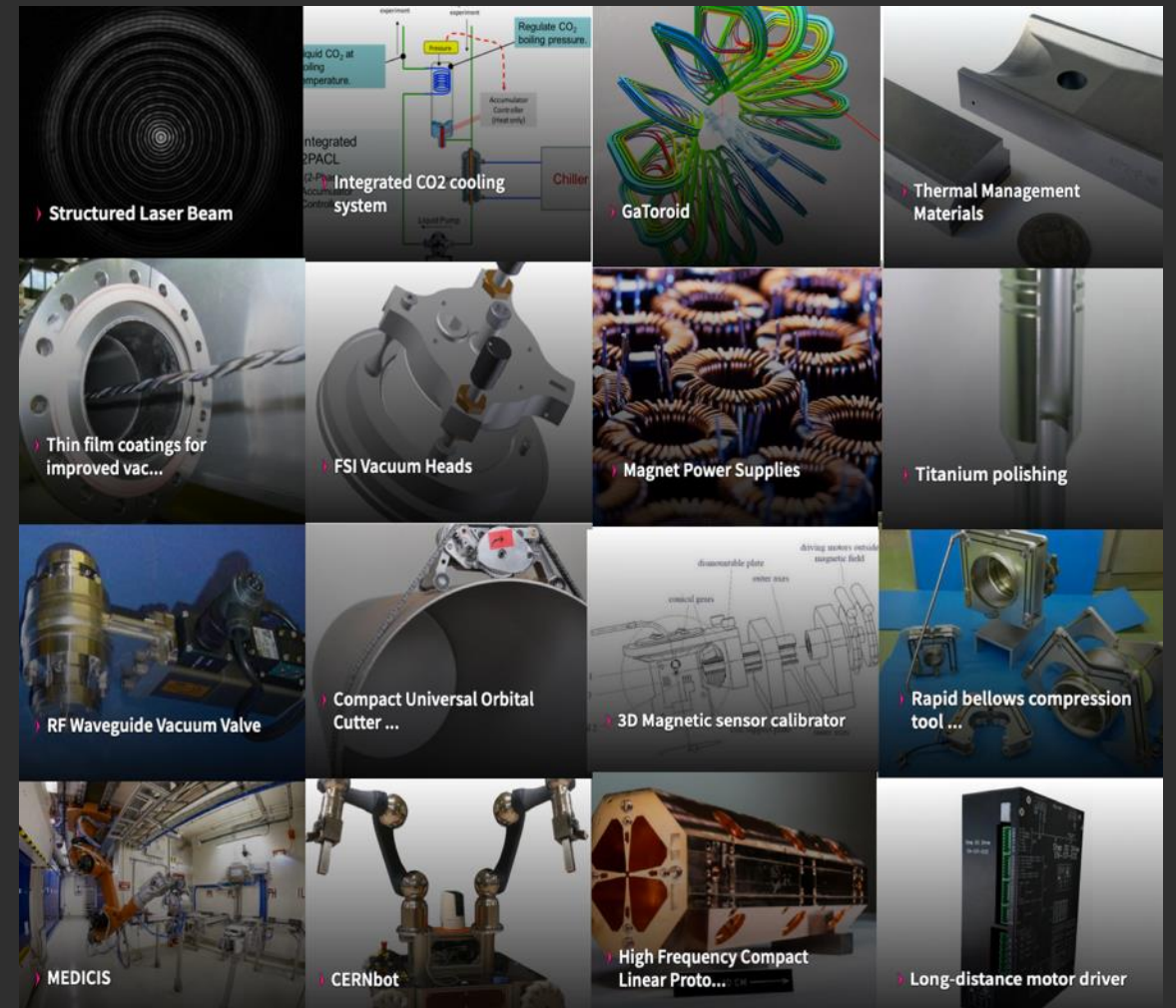


Google Earth
Image © 2016 DigitalGlobe
Image Landsat / Copernicus



SY
Accelerator Systems

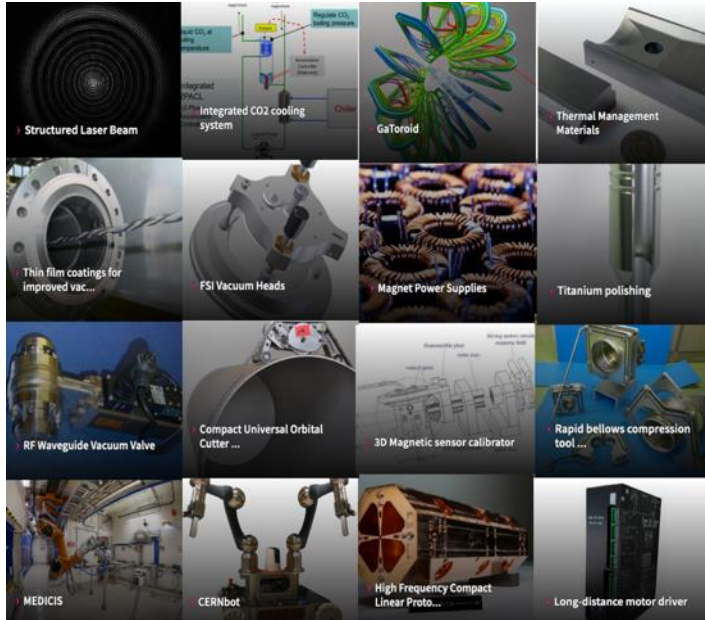




“Places like CERN contribute to the kind of knowledge that not only enriches humanity, but also provides the wellspring of ideas that become the technologies of the future”

Fabiola Gianotti

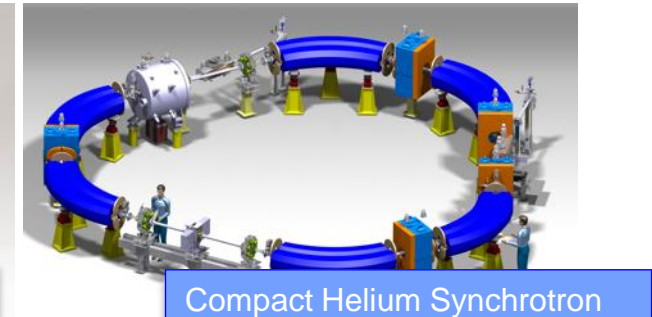
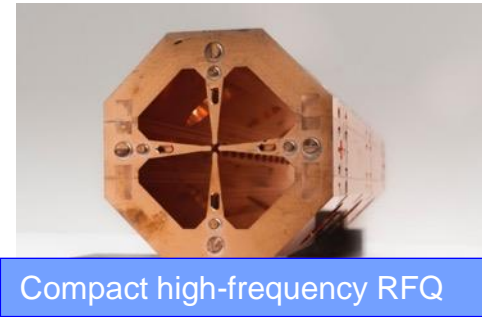
Knowledge Transfer



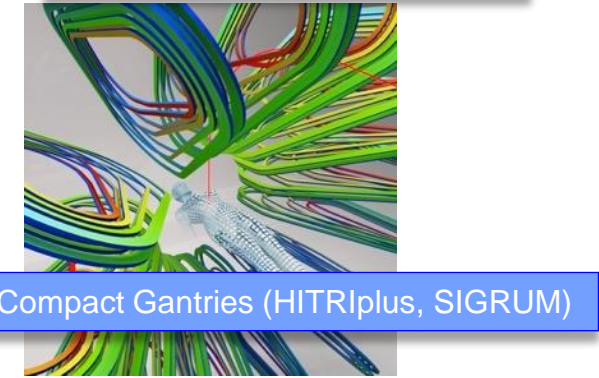
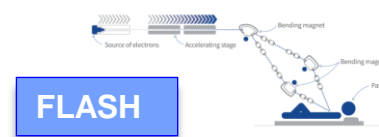
Sustainability



Medical Applications



Innovative Radiation Therapy with Electrons



Horizon



I.FAST	Fostering Innovation in Accelerator Science and Technology
RADNEXT	Radiation facility network
PRISMAP	European Medical Isotope programme
HITRIplus	Heavy Ion Therapy Research Integration
FCC-IS	FCC Innovation Study
EURO-LABS	European Labs for Accelerator Based Sciences

Rich collaborative ecosystem



CERN's strengths as a research infrastructure are well proven and it is a nexus for international collaboration, innovation, knowledge creation and dissemination.

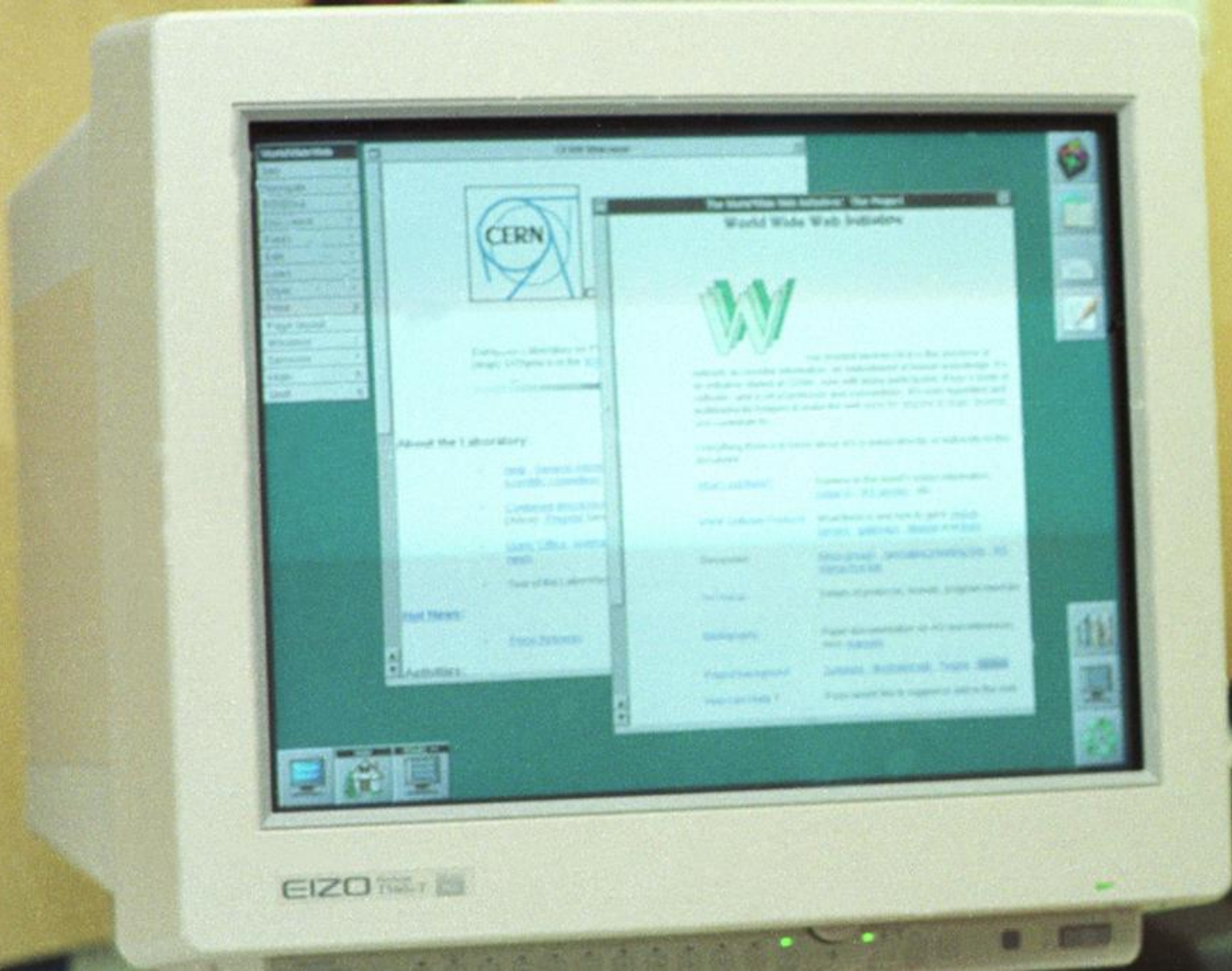
How do we MAXIMISE IMPACT?



CERN, 1970s

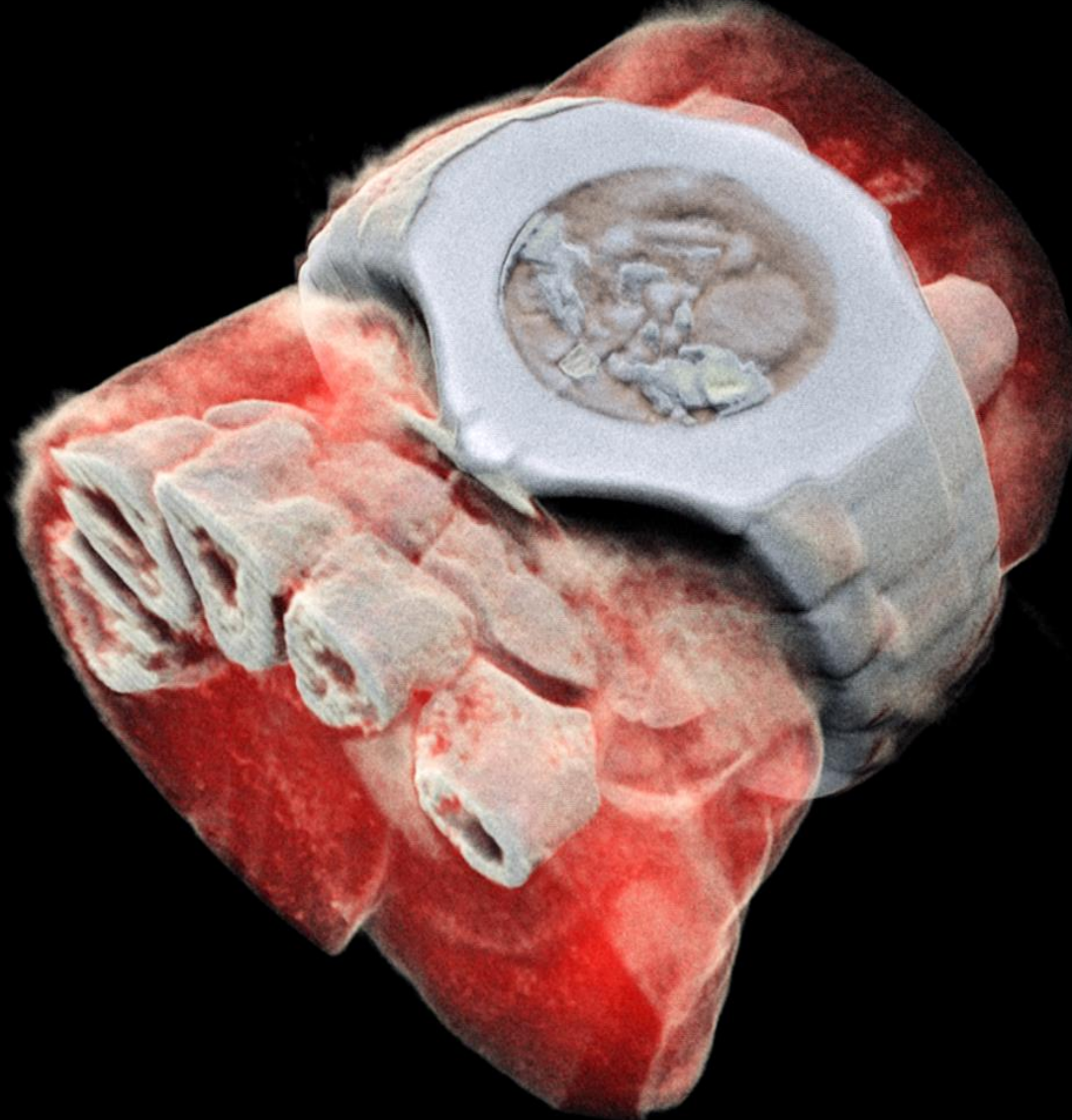


WWW



First 3D colour X-ray images of a human – using Medipix3 technology

July 2018





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