

CERN - IPPOG Collaboration

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CERN Contribution to IPPOG 2018

1/2 FTE - IPPOG community manager (Claudia)

1/2 FTE - IMC coordinator (Uta)

5 kEuro/yr

Hosting+support of IPPOG website/database

Administration of IPPOG finances

Secretarial support for IPPOG meetings at CERN

General

CERN: 22 member states, 8 associate member states = 30 countries

- Demand for education/outreach activities largely exceeds CERN's resources

IPPOG: Link with member states, associate member states, other countries
“Insider” knowledge of national HEP and education “landscape”

- IPPOG members are ambassadors for CERN
- Possible activities:
International Masterclasses, Exhibitions, Q+A sessions/hangouts/Skype
Competitions, BL4S, Teacher programmes
- CERN can provide exhibition materials & ideas

International Masterclasses



International Masterclasses

14th International Masterclasses 2018

Each year more than 13.000 high school students in [52 countries](#) come to one of about 215 nearby universities or research centres for one day in order to unravel the mysteries of particle physics. Lectures from active scientists give insight in topics and methods of basic research at the fundamentals of matter and forces, enabling the students to perform measurements on real data from particle physics experiments themselves. At the end of each day, like in an international research collaboration, the participants join in a video conference for discussion and combination of their results. See [here](#) for media coverage.

International Masterclasses 2018 will take place from 15.2. - 28.3.2018.

Exhibition/outreach resources

“Accelerating Science” exhibition

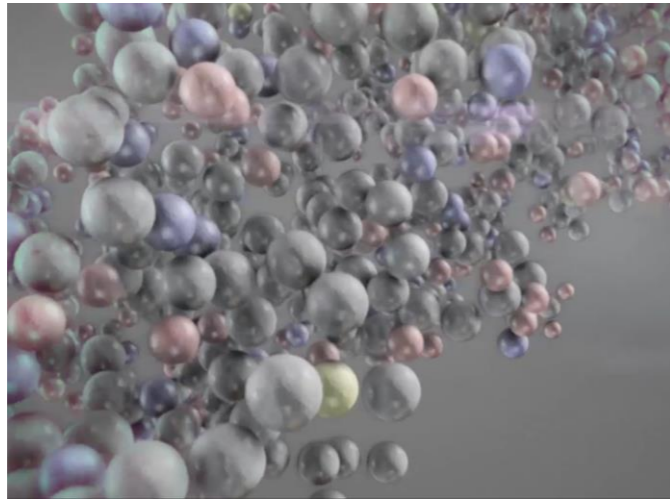


New configuration (2019):

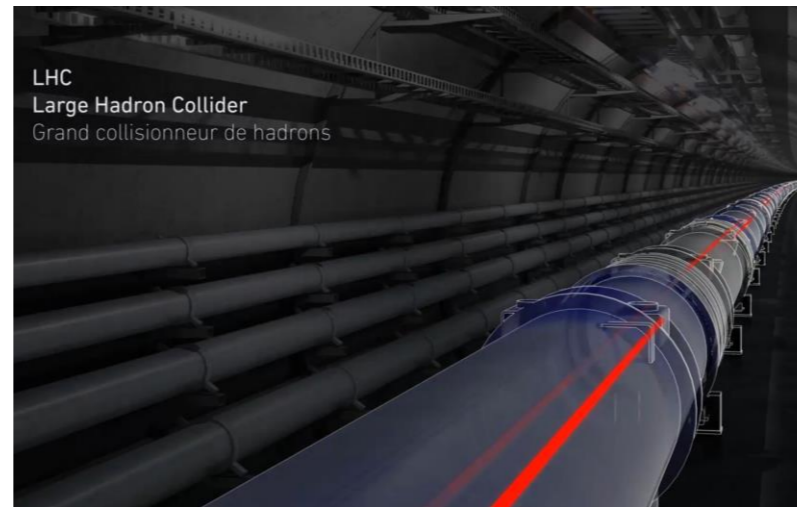
270 m², 3 pods

Cosmology, Particles, CERN/Technology

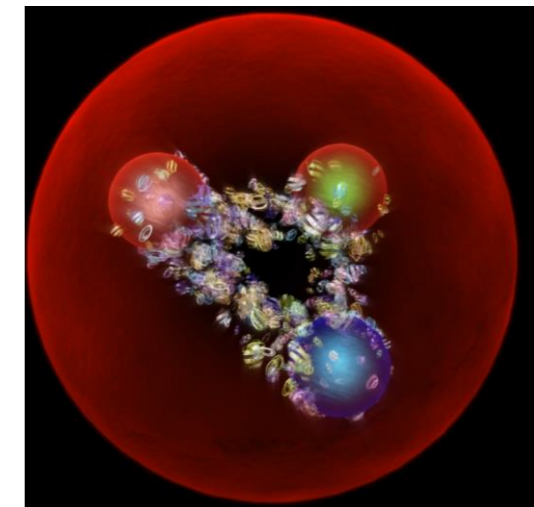
Exhibition material (animations)



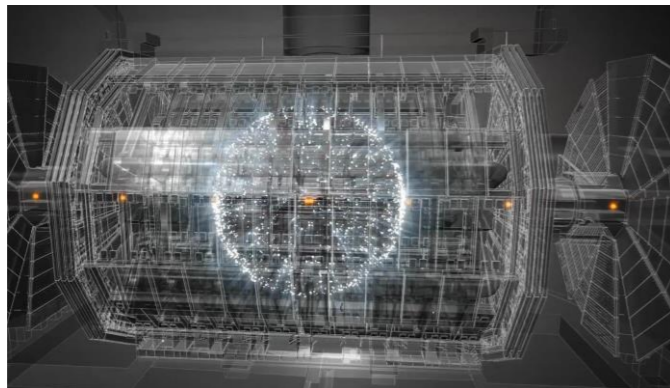
Voyage into a hair



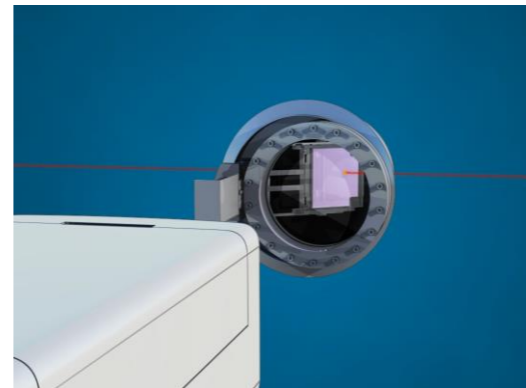
Accelerator journey



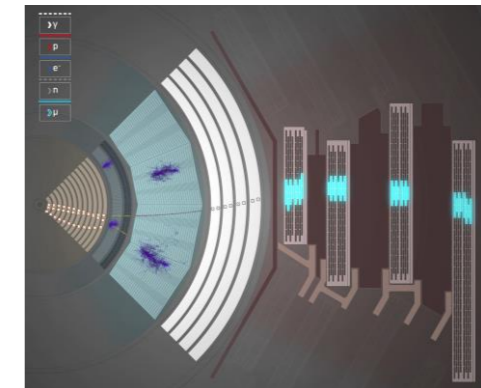
Proton



LHC collisions



Beam screen



Detector layers

+ Virtual reality visits (e.g. CMS, LHC, ...)

Exhibition Materials - Posters, Screens



CERN in Images =

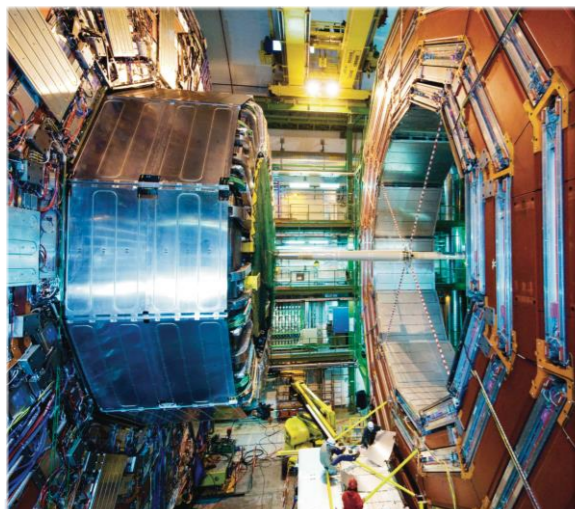
Small exhibition (100 m²)

19 posters: CERN, LHC, experiments

Easy to move

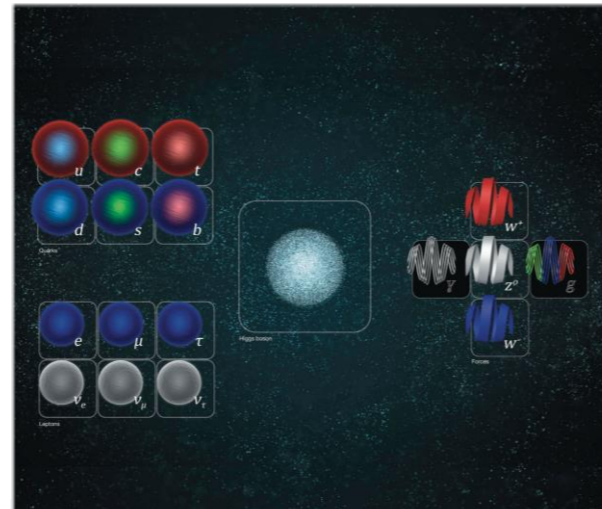
often shown together with the

“LHC interactive tunnel”



THE CMS EXPERIMENT

The CMS experiment is one of the largest and most complex particle detectors ever built. It is designed to study the properties of the Higgs boson and to search for new particles and phenomena. The detector is a large, cylindrical structure made of steel and copper, with a length of 15 meters and a diameter of 7 meters. It is located in the LHC tunnel at CERN.



A RECIPE FOR ALL MATTER

The basic building blocks of all matter are the elementary particles. They are the quarks and leptons, and the force carriers. The Standard Model of particle physics describes how these particles interact with each other. The Higgs boson is a special particle that gives other particles mass. The LHC is the only machine in the world that can create and study these particles at high energies.

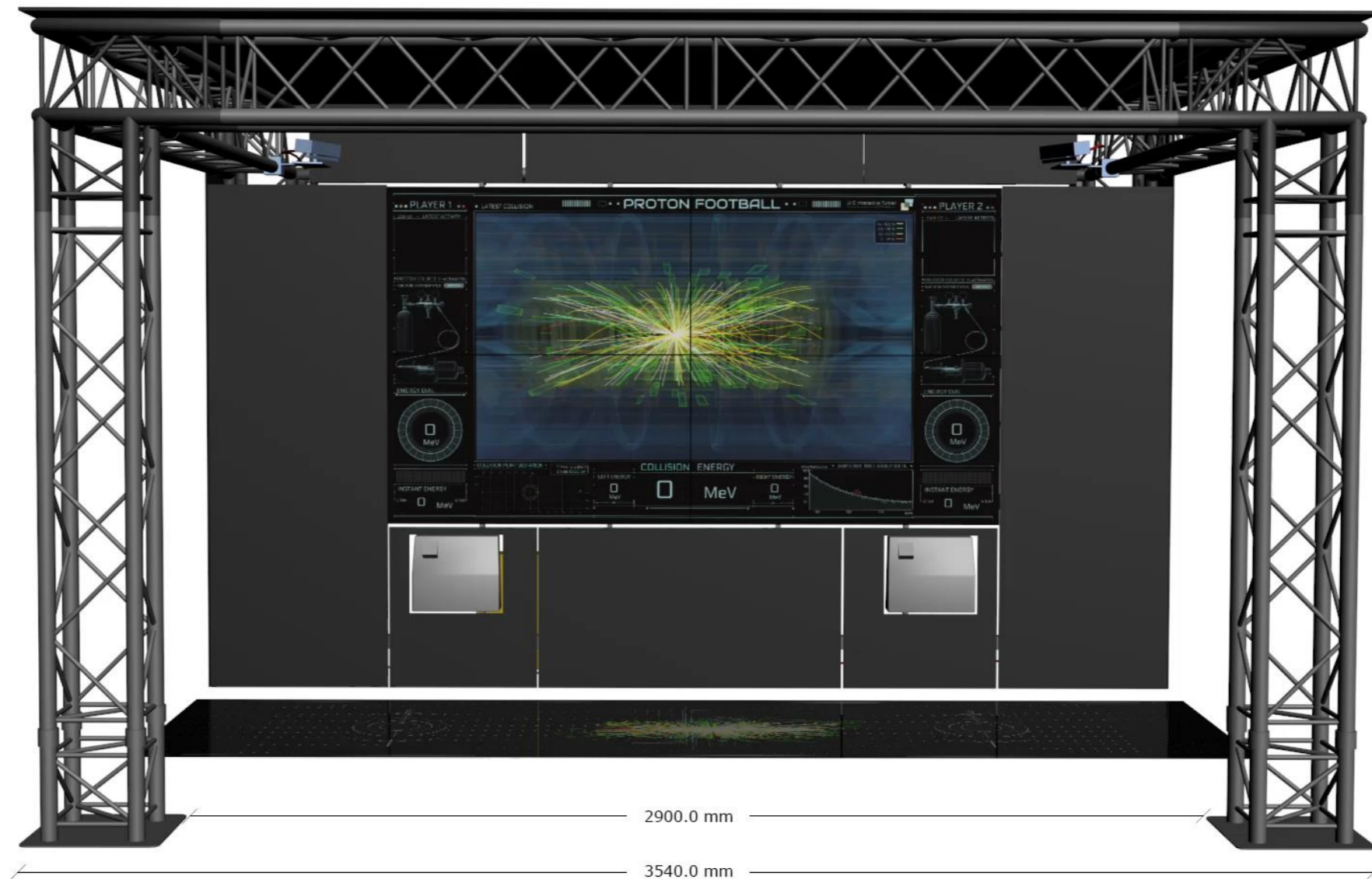


THE LHC

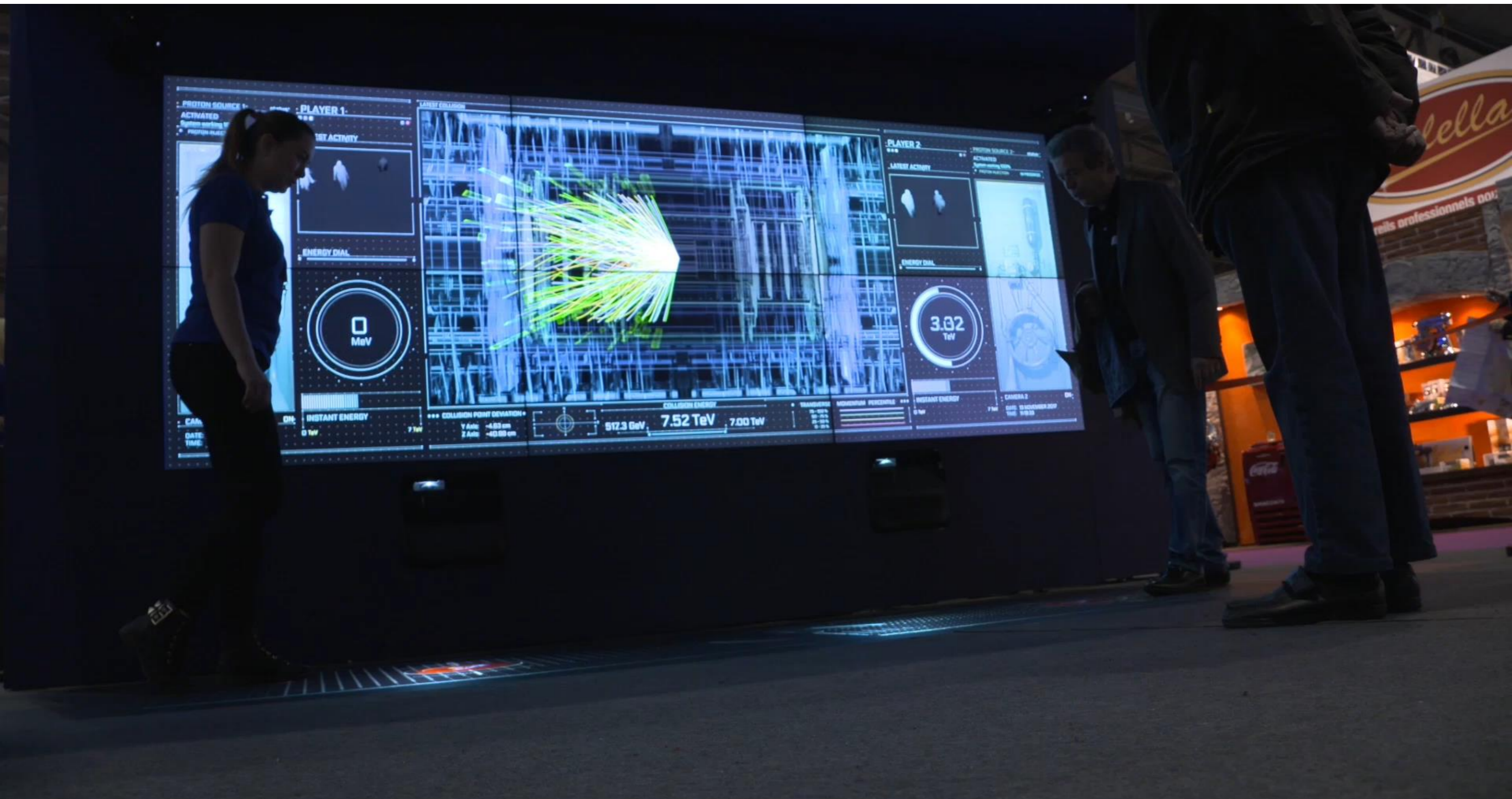
The Large Hadron Collider (LHC) is the world's largest and most powerful particle accelerator. It is a 27-kilometre-long ring-shaped tunnel located in the Swiss-French border area near Geneva. The LHC accelerates two beams of protons in opposite directions to nearly the speed of light and then smashes them together. The collisions produce a wide range of particles, which are then studied by experiments like CMS and ATLAS.



LHC interactive tunnel



LHC interactive tunnel in action



Resources from all CERN exhibitions are also available:

Exhibitions at CERN

Universe of Particles
Microcosm

CERN control centre
Data centre
SM18
Synchrocyclotron
AMS
ALICE Visitor Centre

ATLAS Visitor Centre
CMS entrance hall

Traveling exhibitions

Accelerating Science
LHC interactive tunnel
CERN in Images

Special exhibitions

Angels & Demons, 2009
Open Days, 2013
Automnales 2017, Geneva

