

# CERN

# Outreach in the International Context

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CERN



# International Relations

Education, Communication, and Outreach

Protocol Office

Stakeholder Relations

Editorial Content Development

Media and Press Relations

Global Constituency Engagement

Visitors and Local Engagement

Teacher and Student Programmes

Audiovisual Production Service

Design and Visual Identity Service

Member States

Non-Member States

Host States

International Organizations

Partnerships and Fundraising



@CERN – A New Sector is Born

Education, Communication, and Outreach

# Activities

INTERNATIONAL JOURNAL OF HIGH-ENERGY PHYSICS

# CERN COURIER

VOLUME 56 NUMBER 5 JUNE 2016

## Cosmic collisions

**COMPUTING**  
CERN's IT faces the challenges of Run 2 p16

**NA62**  
The kaon factory will take data until 2018 p24

**SIXTY YEARS OF JINR**  
Celebrating the institute's past, present and future p37

## CERN Bulletin

Issue No. 22-23/2016 - Monday 30 May 2016  
More articles on <http://bulletin.cern.ch>

### LHC REPORT: FOCUS ON LUMINOSITY

The intensity ramp-up of the LHC beams resumed last Friday after the main powering system of the PS accelerator was put back to service.

**A WORD FROM ECKHARD EISEN**

WHAT MAKES CERN'S RESEARCH GREAT

As a newcomer to CERN, I find myself both honoured and humbled to have had the role of Research Director confided in me for five years.

#### In this issue

- LHC Report: focus on luminosity 1
- What makes CERN's research great 1
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## CERN press office

### CERN experiment points to a cloudier pre-industrial climate

Geneva, 25 May 2016. In two papers published today in the journal *Nature*, new results from the CLOUD<sup>1</sup> experiment at CERN<sup>2</sup> imply that the limiting pre-industrial climate may have been cloudier than previously thought. CLOUD shows that regions enriched by trace particles abundant around particles in the atmosphere in the absence of sulphates and, formally, it was thought that sulphates and - which largely stems from fossil fuels - are essential to initiate aerosol particle formation. CLOUD finds that these so-called biogenic regions are also key to the growth of the newly-formed particles up to sizes where they can seed clouds.

**These results are the most important ever by the CLOUD experiment at CERN<sup>3</sup> and CLOUD's significance, Diego Kollip, "When the nucleation and growth of pure biogenic aerosol particles is included in climate models, it should change our understanding of the impact of human activities on clouds and climate." The Intergovernmental Panel on Climate Change (IPCC) considers that the increase in aerosols and clouds since pre-industrial times represents one of the largest sources of uncertainty in climate change<sup>4</sup>. CLOUD is designed to understand how aerosol particles form and grow in the atmosphere, and their effect on clouds and climate.**

CLOUD also finds that ions from galactic cosmic rays appear to enhance the production rate of pure biogenic particles - by a factor 10-100 compared with particles without ions. This suggests that cosmic rays may have played a more important role in aerosol and cloud formation in pre-industrial times than in today's polluted atmosphere.

A paper published simultaneously in *Science* (Shenai, F., et al. Science, doi:10.1126/science.1242077, 2016) describes an observation of pure organic nucleation at the Jungfrau observatory by the same mechanism reported by CLOUD. The measurements did not involve CLOUD directly but most of the authors are also members of the CLOUD collaboration.

"The observation of pure organic nucleation at the Jungfrau is very exciting," said Kollip. "It confirms that the same process observed by CLOUD in the laboratory also takes place in the atmosphere."

**Notes:**  
 1 - CLOUD experiment - Swiss research  
 2 - CERN experiment points to a cloudier pre-industrial climate  
 3 - CERN experiment points to a cloudier pre-industrial climate  
 4 - IPCC Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (AR5), Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (AR5), Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (AR5), Working Group I Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (AR5)

**Photos:**  
 Available from:  
 CERN  
 http://home.cern/

**CERN** @cern

Organization · Meyrin, Switzerland  
4.6 ★★★★★

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Elio Tolosa and 99 other friends

66,768 people have been here  
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**ABOUT**

1 Located Inside Organisation Européenne pour la Recherche Nucléaire (CERN), Meyrin, Switzerland, 1217

Ask for CERN's phone  
Ask for CERN's hours  
http://home.cern/

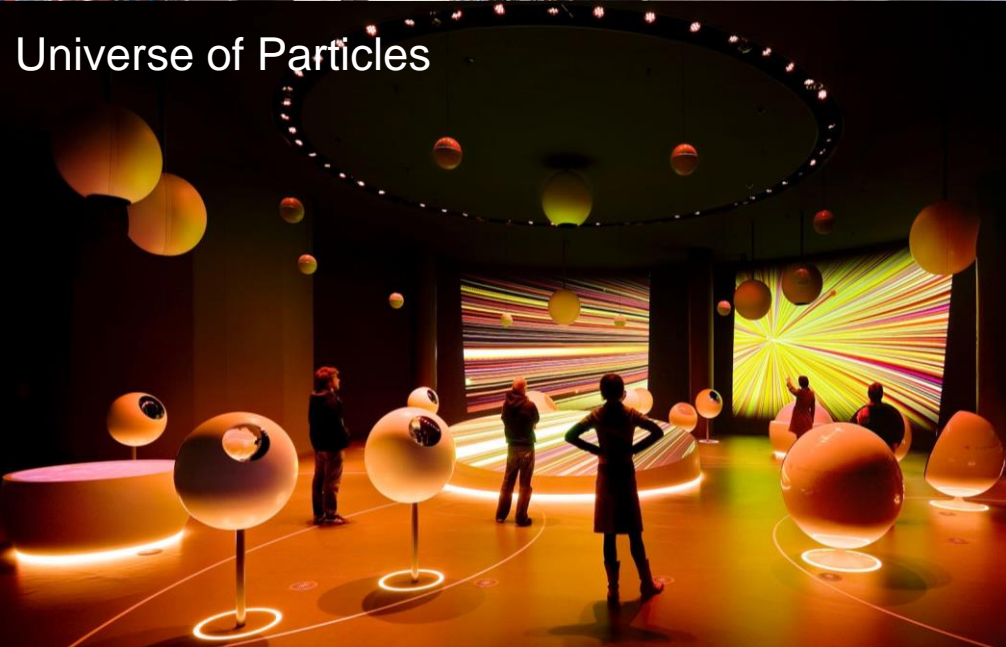
## Tweets by @CERNpress

CERNpress Retweeted

**CERN** @CERN

Intensity rises in the LHC: more protons, more collisions and more data #RestartLHC #13TeV  
[cern.ch/go/j9mp](http://cern.ch/go/j9mp)  
[pic.twitter.com/CZx29CQkwM](http://pic.twitter.com/CZx29CQkwM)

Embed View on Twitter



- Creation of
- immersive exhibitions
  - interactive visits points

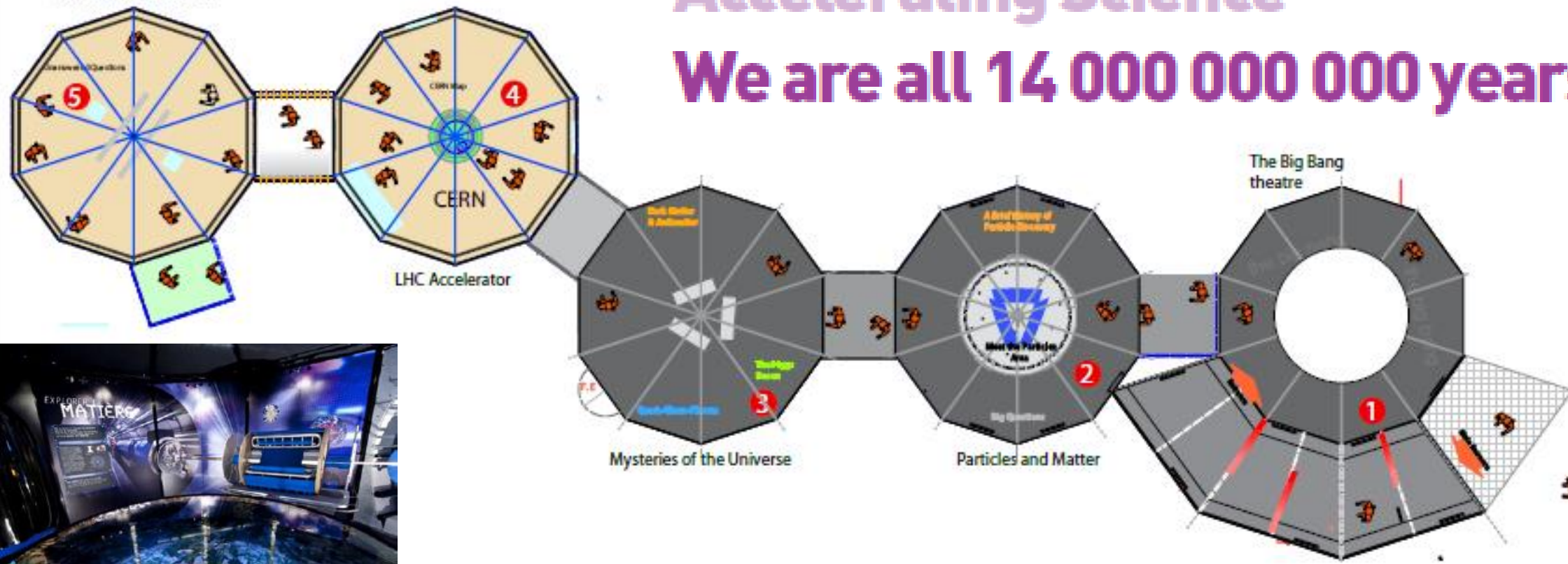


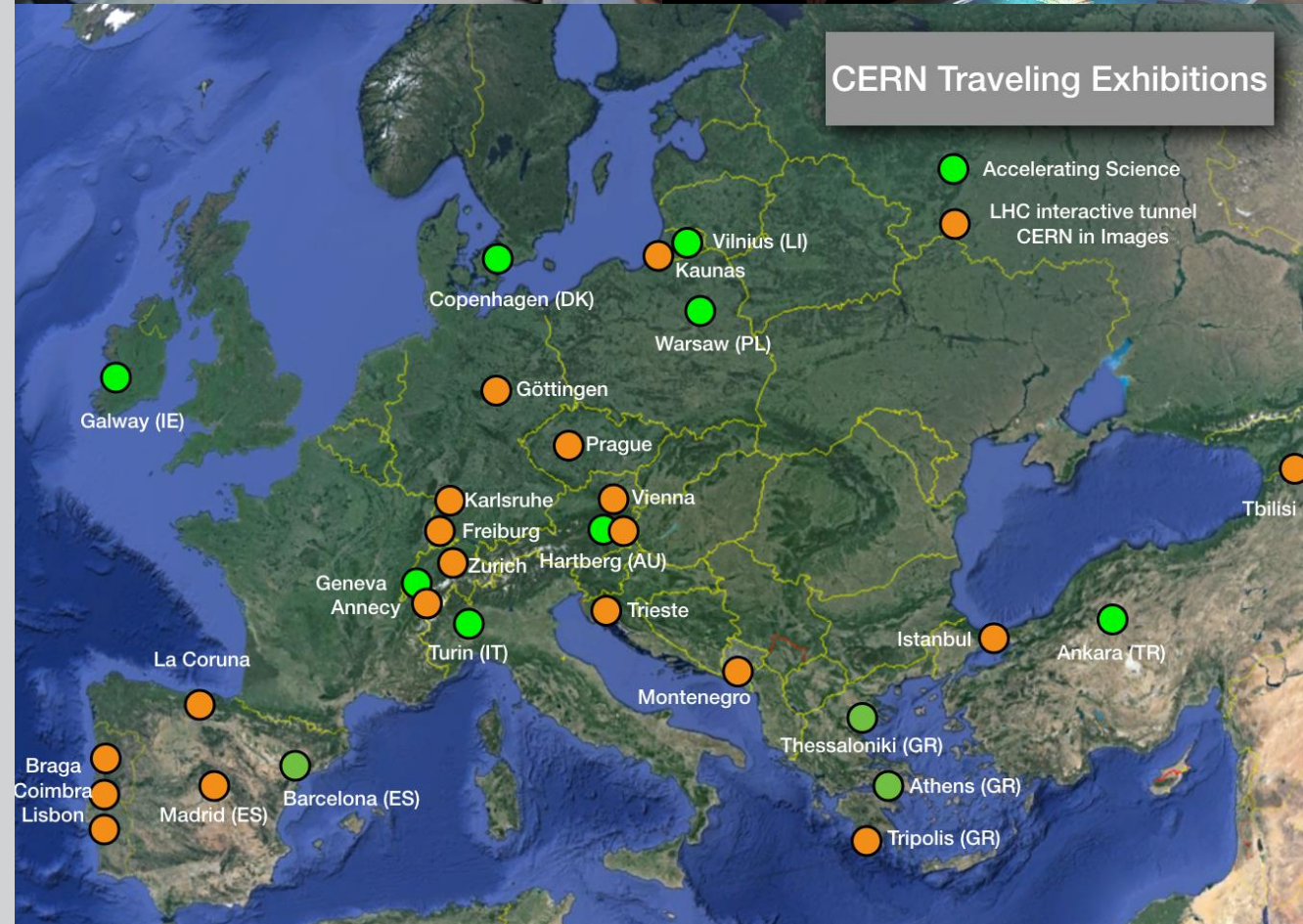
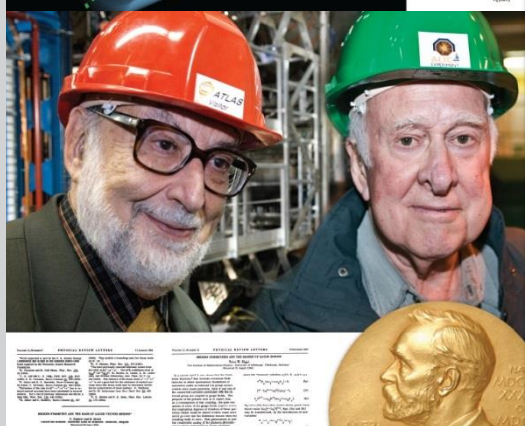
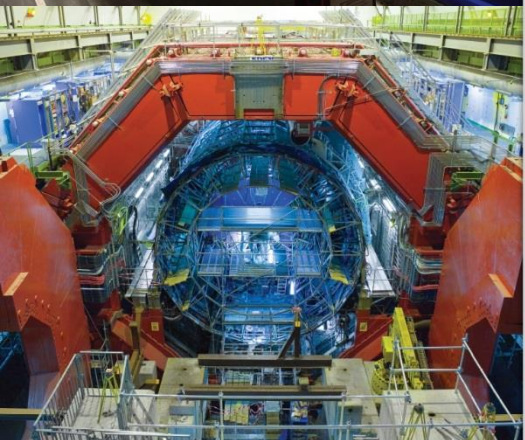
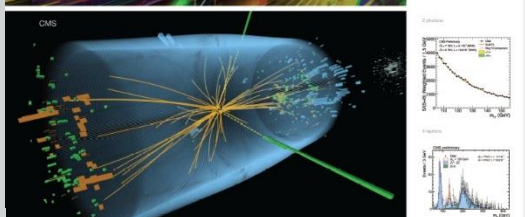
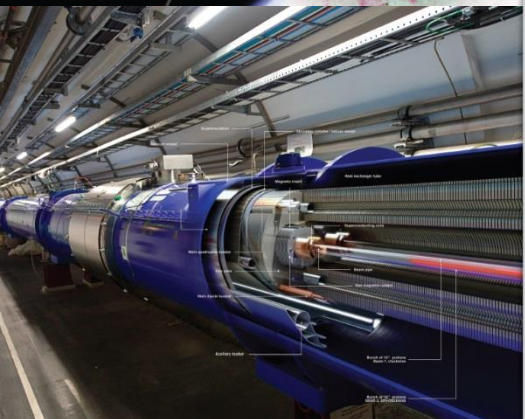
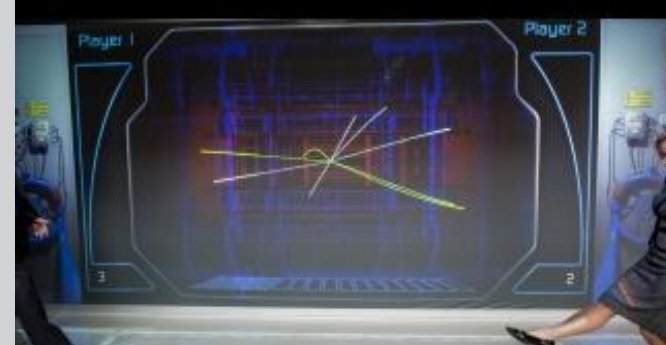
# Global Constituency Engagement

Our world is built on  
fundamental research

# Accelerating Science

## We are all 14 000 000 000 years old!





### CERN Traveling Exhibitions

- Accelerating Science
- LHC interactive tunnel CERN in Images



# CERN in Images • LHC Interactive Tunnel





**CREATIVE  
COLLISIONS  
BETWEEN  
THE  
ARTS  
AND  
SCIENCE**

Collide@CERN



**Collide@CERN**

**Collide@CERN** – 3 months residency • since 2011

- explores elements even more elusive than the Higgs Boson: human ingenuity, creativity, and imagination
- competitive open calls - fully funded residency

**Accelerate@CERN** – 1 month residency • since 2014

- two artists from two different countries
- in cooperation with partner countries (e.g. Austria, Taiwan, Lithuania, UAE)

**Visiting Artists programme** – 1-2 days CERN visit

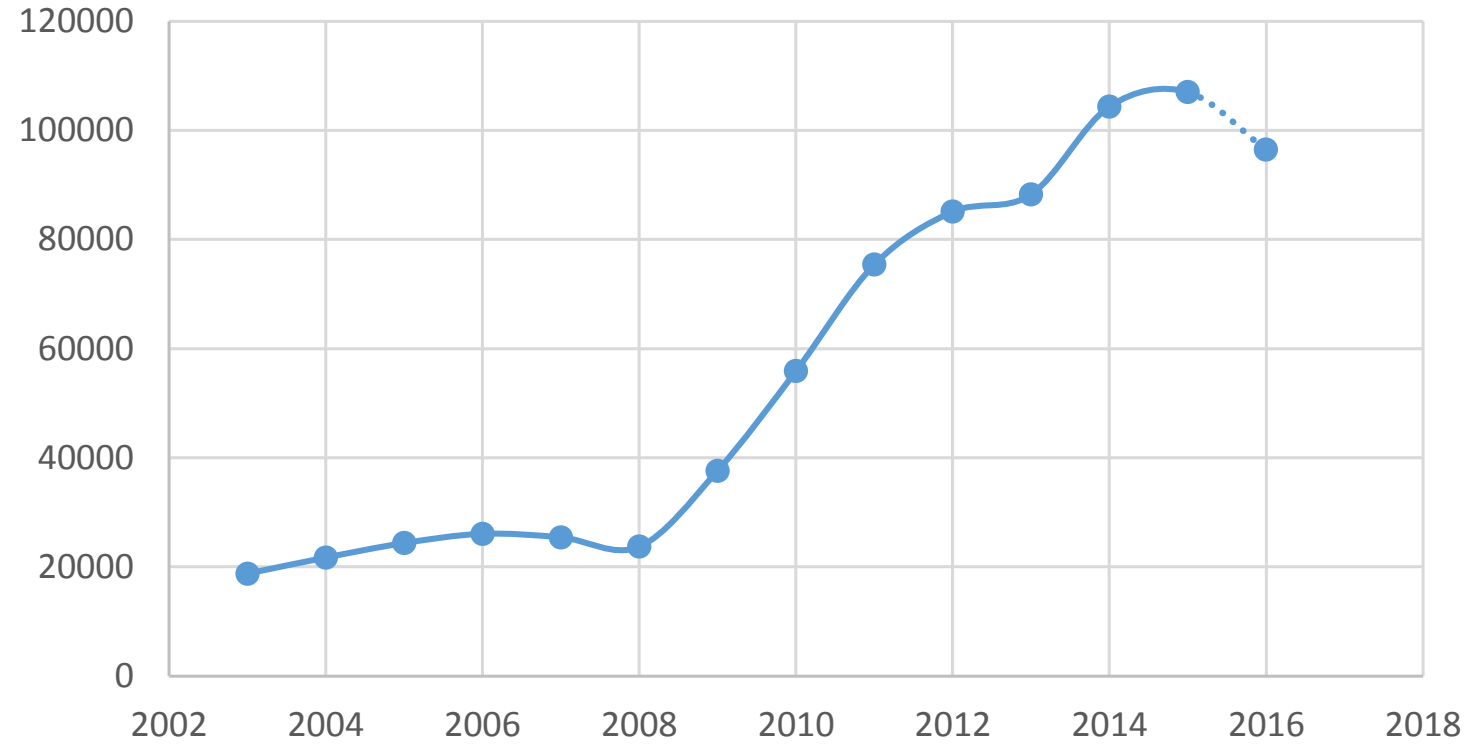
- up to 12 artists are invited on self-funded tours
- programme fully booked until 2017



**Arts@CERN – Science & Art meet in three Ways**



CERN Visits



Various activities for locals, regionals, and internationals at the CERN site.  
Thanks for your support!



Visiting CERN • Local Engagement

# CERN Teacher Programmes

[National Teacher Programmes](#)

[International Teacher Programmes](#)

[Contact](#)

“There is nothing more enriching and gratifying than learning.”

[Fabiola Gianotti, CERN Director-General]

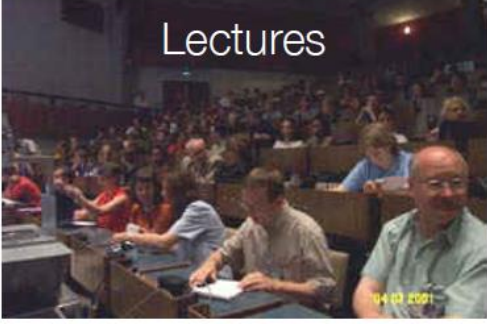
Every year, CERN offers various professional development programmes for teachers to keep up-to-date with the latest developments in particle physics and related areas, and experience a dynamic, international research environment. All programmes are facilitated by experts in the field of high energy physics and include an extensive lecture and visit itinerary.

Furthermore, CERN's teacher programmes enable you to meet with teaching colleagues from your country or from all around the World. We offer teacher programmes in English or in one of the national languages of CERN Member States, lasting between 3 days and 3 weeks. Take part!

[National Teacher Programmes](#) & [International Teacher Programmes](#)



# Teacher Programmes



National Teacher Programmes in the language of the country | 4-6 days

*focus on visits and lectures*

*International Teacher Weeks in English | 2 weeks*

*focus on visits and lectures*

*new  
starting in 2017*

International Teacher Programme “HST” in English | 3 weeks

*focus on collaboration*



# Teacher Programmes

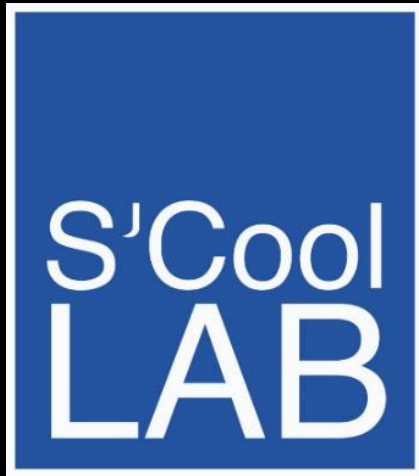
# S'Cool LAB

There is always a way to do it better... find it!

If you can't explain it simply, you don't understand it well enough.



# What is S'Cool LAB?



## HANDS-ON PARTICLE PHYSICS LEARNING LABORATORY

For high-school students and teachers  
International audience from more than 20 countries  
Independent experimentation in small groups



## 200 m<sup>2</sup> MODULAR LABORATORY SPACE AT CERN

State-of-the-art IT equipment incl. videoconferencing  
Showcase for experiments for schools linked to CERN's  
scientific programme and technologies





## TEST BED FOR PHYSICS EDUCATION RESEARCH

Development and evaluation of student activities  
accompanied by research in physics education



# Aims of S'Cool LAB



Make CERN's physics and technologies understandable to students through hands-on experimentation

Give insights into the working methods, technologies, and research of the world's largest particle physics laboratory

# Experiments

## Particle Acceleration



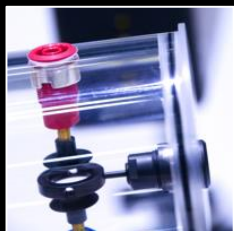
electrons & electric fields



superconductivity



electrons & magnetic fields

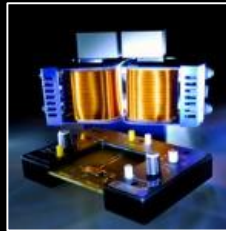


particle traps

## Basics & Applications



HALL effect



FRANCK-HERTZ experiment



PET



X-ray machines



RUTHERFORD experiment



PLANCK's constant

## Particle Detection



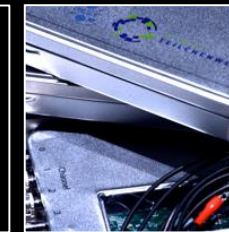
cloud chambers



pixel detectors (MEDIPIX)



scintillation detectors



ionisation chambers



... and many more to come

Education, Communication, and Outreach

# Services







**Contacts**

**Audiovisual Productions Service**  
audiovisual-requests@cern.ch ✉  
Location: 510/R-035  
Postbox: J19200

- Catalog navigation**
- SA Knowledge, Scientific Information, Text and Media
  - CS CERN Official Communication
  - SE **Audiovisual Production Service**
  - SE CERN Core Website and Social Media Services
  - SE CERN Graphic Design Guidelines Service
  - SE CERN Writing Guidelines Service
  - SE Special Event Coordination

**SE Audiovisual Production Service**

The Audio Visual Production Service is part of the Education, Communications and Outreach Group (ECO) within the International Relations Sector (IR).

Its main mission is to produce engaging visual products (photos, videos, Video News Releases VNR, film, slideshows, photo-stories, live broadcasts....) in line with CERN's education, communication and outreach priorities for a variety of target audiences (general and specialized).

Another important mission of the Service is to document milestones of CERN's life, people and history with photography and video, for archival purposes.

The Service also supports other Sectors with professional expertise in video/photo production.

**Actions**

[Request](#) Audiovisual Production request form



International Relations

# Protocol

*... a very special visits service ...*



# Create an Emotion



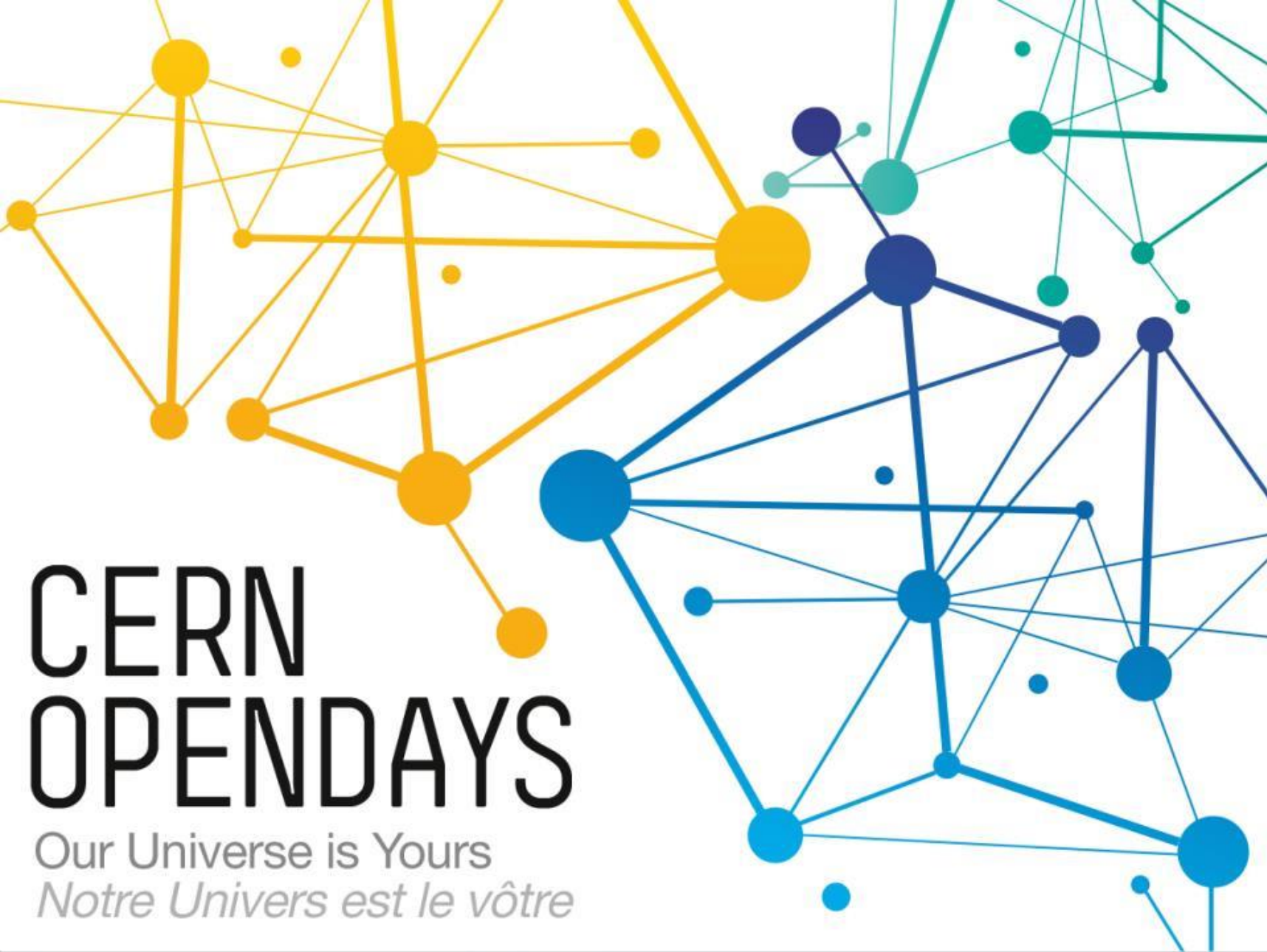
sometimes  
acrobatic



Create a  
**m**emorable  
**m**oment



# Protocol – A very special Challenge



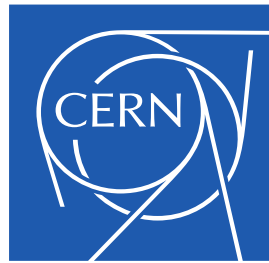
# CERN OPENDAYS

Our Universe is Yours  
*Notre Univers est le vôtre*

- two “big” outreach events coming up these years
- OpenDays in 2019 during LS2 (May or October)
- one new event format in 2017 *stay tuned!*



Big Outreach Events ... on the Horizon



[www.cern.ch](http://www.cern.ch)