Conference Tours

The conference tour provides the opportunity to visit CERN linear accelerators and LHC experiments on Friday afternoon at the end of the conference. Upon registration, participants will be able to choose between one of two linear accelerators (Linac4 and CTF3) and one of two LHC experiments (LHCb and CMS).

For further information about CERN please visit the CERN site.

Linear accelerator 4 (Linac 4) ↗

Linear accelerator 4 (Linac 4) is is a new 160 MeV H- ion accelerator presently under commissioning.

It will replace the present 50 MeV Linac2 (1978) as injector of the CERN proton accelerator complex after the LHC long shut down 2 in 2017-2018. Housed in a 100 m long tunnel 12 m underground, it consists in a 45 keV ion source, a Low Energy beam transport with two solenoids (LEBT), a 3 m RFQ at 3 MeV resonating at 352 MHz, a Medium Energy Beam Transport housing a chopper, a 50 MeV Drift Tube Linac (DTL), a 100 MeV Coupled Cell Drift Tube Linac (CCDTL) and a 160 MeV Pi Mode Structure (PIMS).

CLIC Test Facility (CTF3) ↗

The new **CLIC Test Facility (CTF3)**, built at CERN by an international collaboration, aims at demonstrating the feasibility of the CLIC scheme of multi-TeV electron-positron linear collider. CTF3 is primarily a scaled version of the CLIC drive beam complex. It produces the high-current drive beam that generates the 12 GHz RF power for the CLIC accelerating structures.

CTF3 first accelerates a 4 A beam up to 120 MeV, in a fully loaded linac with more than 95% efficiency. A delay loop and one combiner ring subsequently compress the beam current up 28 A. The high-current beam can then be sent in the CLIC experimental area (CLEX) where it can be decelerated to extract 12 GHz RF power to be used for high gradient acceleration. In the same area a 200 MeV injector (CALIFES) generates a Probe Beam for two-beam experiments.

CTF3 has successfully demonstrated drive beam generation, the production of the CLIC RF power, and two-beam acceleration up to a gradient of 145 MeV/m, well above the 100 MeV/m nominal for CLIC. It will continue to operate up to the end of 2016 to address further system tests and perform more detailed studies.

The Large Hadron Collider beauty (LHCb) ↗

The Large Hadron Collider beauty (LHCb) experiment specializes in investigating the slight differences between matter and antimatter by studying a type of particle called the "beauty quark", or "b quark".

Instead of surrounding the entire collision point with an enclosed detector as do ATLAS and CMS, the LHCb experiment uses a series of subdetectors to detect mainly forward particles - those thrown forwards by the collision in one direction. The first subdetector is mounted close to the collision point, with the others following one behind the other over a length of 20 metres.

An abundance of different types of quark are created by the LHC before they decay quickly into other forms. To catch the b quarks, LHCb has developed sophisticated movable tracking detectors close to the path of the beams circling in the LHC.

The 5600-tonne LHCb detector is made up of a forward spectrometer and planar detectors. It is 21 metres long, 10 metres high and 13 metres wide, and sits 100 metres below ground near village of Ferney-Voltaire, France. About 700 scientists from 66 different institutes and universities make up the LHCb collaboration.

The Compact Muon Solenoid (CMS) ↗

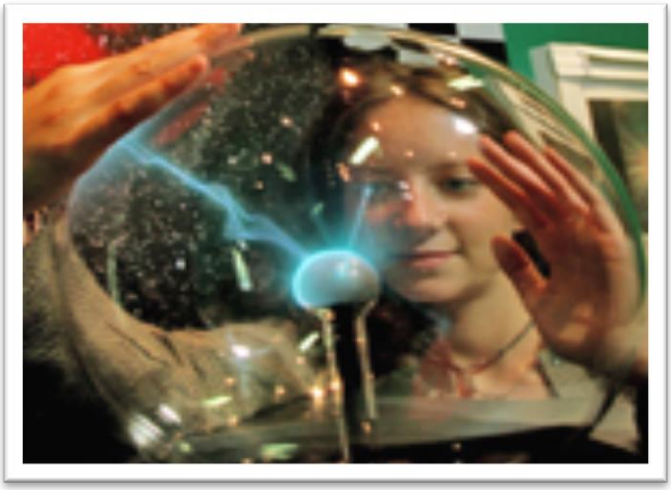
The Compact Muon Solenoid (CMS) is a general-purpose detector at the Large Hadron Collider (LHC). It is designed to investigate a wide range of physics, including the search for the Higgs boson, extra dimensions, and particles that could make up dark matter. Although it has the same scientific goals as the ATLAS experiment, it uses different technical solutions and a different magnet-system design.

The CMS detector is built around a huge solenoid magnet. This takes the form of a cylindrical coil of superconducting cable that generates a field of 4 tesla, about 100,000 times the magnetic field of the Earth. The field is confined by a steel “yoke” that forms the bulk of the detector’s 12,500-tonne weight.

An unusual feature of the CMS detector is that instead of being built in-situ like the other giant detectors of the LHC experiments, it was constructed in 15 sections at ground level before being lowered into an underground cavern near Cessy in France and reassembled. The complete detector is 21 metres long, 15 metres wide and 15 metres high.

The CMS experiment is one of the largest international scientific collaborations in history, involving 4300 particle physicists, engineers, technicians, students and support staff from 179 universities and institutes in 41 countries (February 2012).

Microcosm



The "Microcosm" is close to CERN reception. This exhibition offers a discovery of CERN adventure. From the infinitely large to the infinitesimally small, Microcosm will give you the key to understanding the secrets of matter. In this exhibition you will explore the mysteries of the universe and discover the massive apparatus used by physicists, the accelerators and detectors, and see how each part works!

Cosmic rays, antiprotons, quarks and gluons are just some of the phenomena awaiting you at Microcosm.

Through multimedia exhibits, actual machines, games and experiments, you will discover the amazing "CERN adventure":

How do the accelerators recreate the conditions at the beginning of the universe? Why do we need immense particle detectors to study the tiniest constituents of matter? And how do thousands of scientists work together all over the world to uncover the secrets of new particles?

Registration information

If you are interested in the conference tour, please register online.

Registration Fees:

Conference Delegate or Companion: **CHF 30**
Includes:

- Bus transportation from the conference centre (CICG) to CERN and back to Geneva train station via Geneva airport. It will be possible to take your luggage with you on the tour.
- Lunch box

Cancellation Policy:

All cancellations must be provided in writing to **linac14.info@cern.ch**
No refunds will be provided for cancellations after **August 15th 2014.**

Tour schedules:

13:00 Departure from the conference centre (CICG)

Tour options: (schedule to be confirmed)

- CTF3 / CMS from 14:00 to 17:00
- Linac4 /LHCb from 14:00 to 17:00
- CMS / Linac4 from 14:00 to 17:00
- LHCb / CTF3 from 14:00 to 17:00
- CTF3 / Linac4 / CERN Microcosm from 14:00 to 16:00

Groups will be made up of 48 persons. Places are limited and will be granted on a first come first served basis.

Estimated time at Geneva airport 30 minutes after the end of the tour (depending on traffic conditions this timing cannot be guaranteed).
Estimated time at Geneva train station is 1 hour after the end of the tour (depending on traffic conditions this timing cannot be guaranteed).