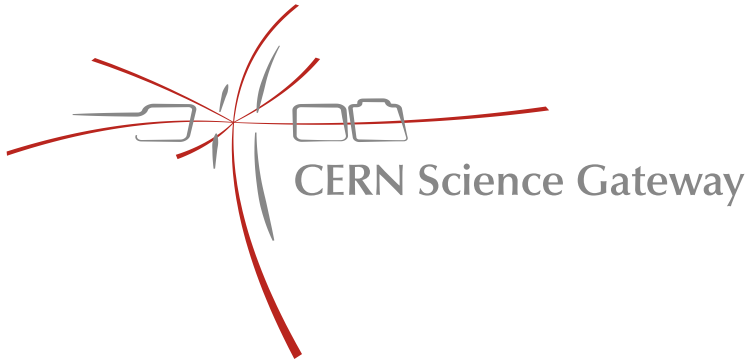
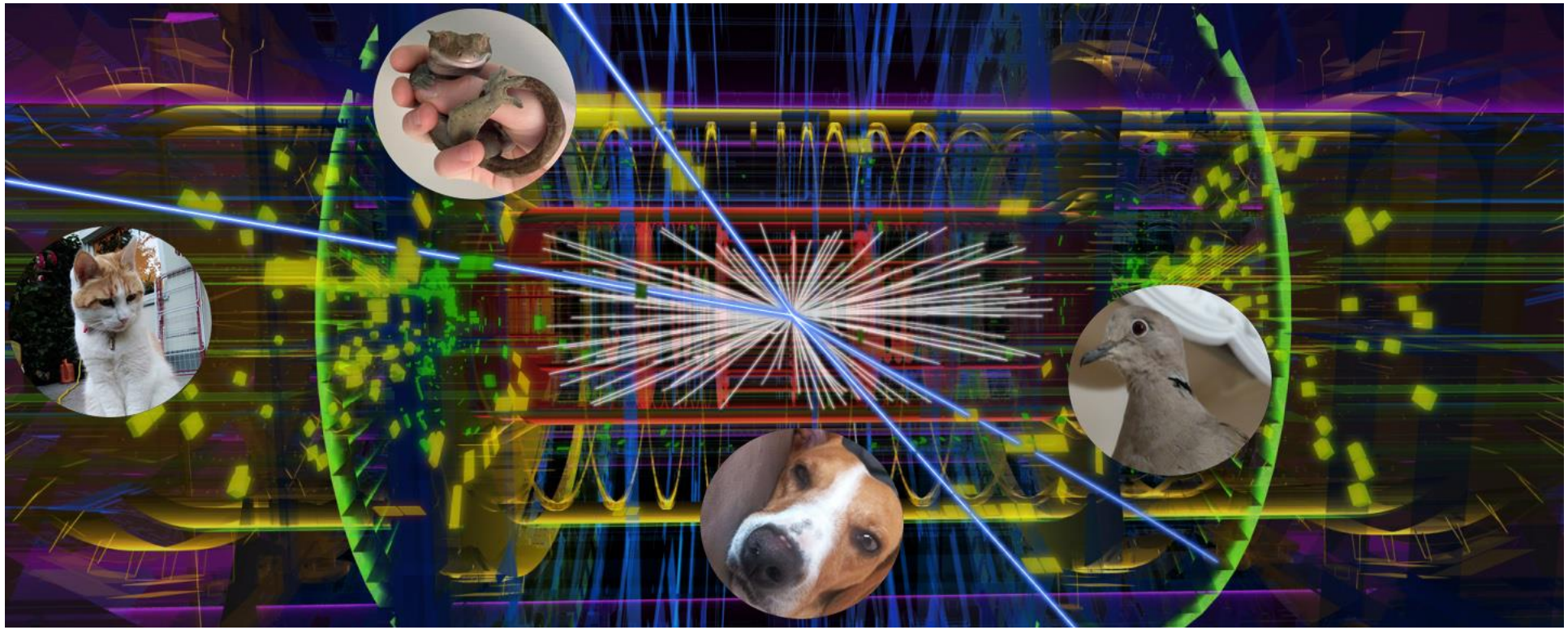
Welcome!

CERN-Solvay student camp



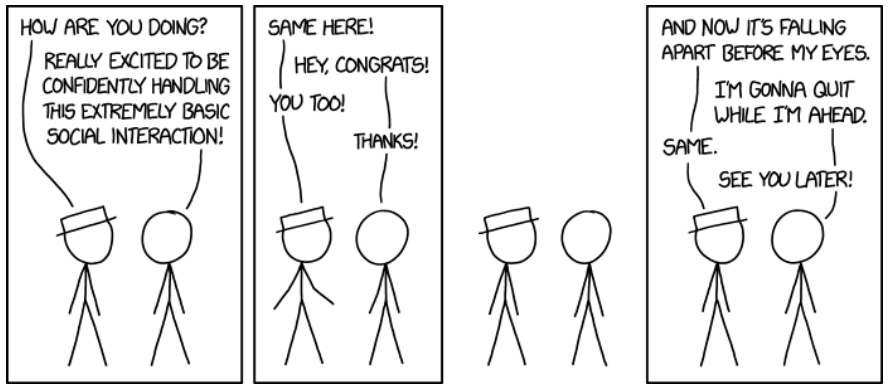
Welcome to…

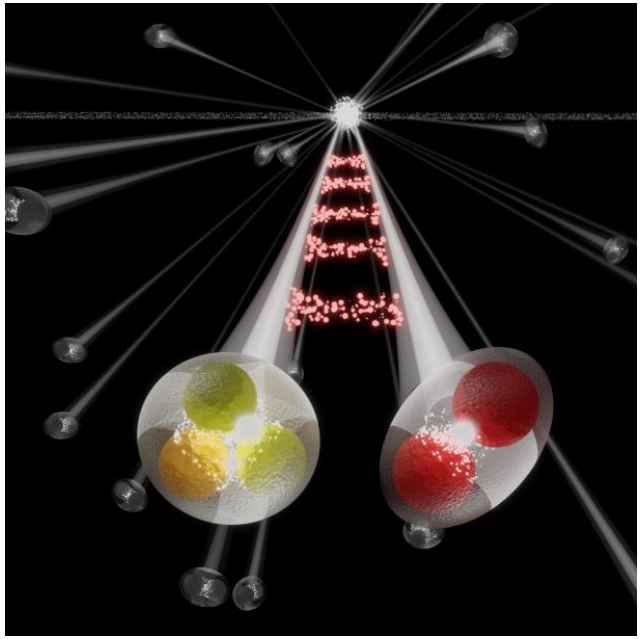
Welcome to…

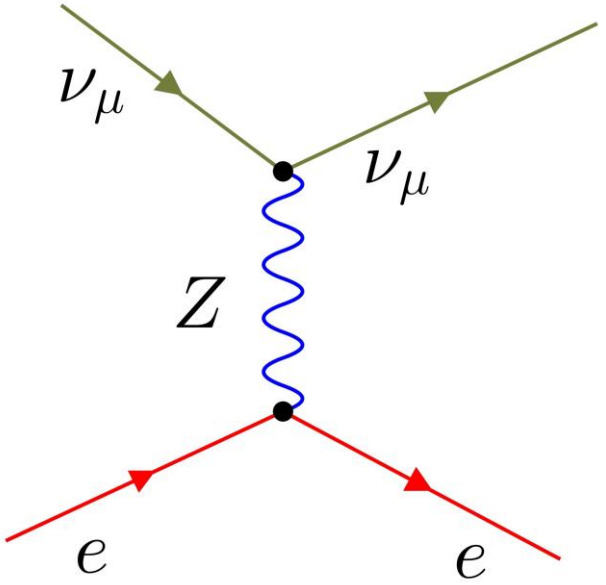


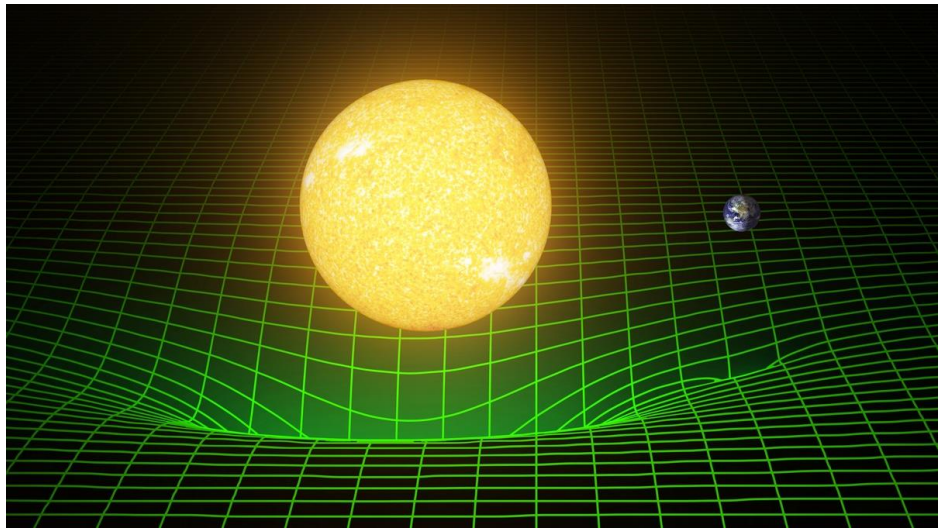
The physics menagerie

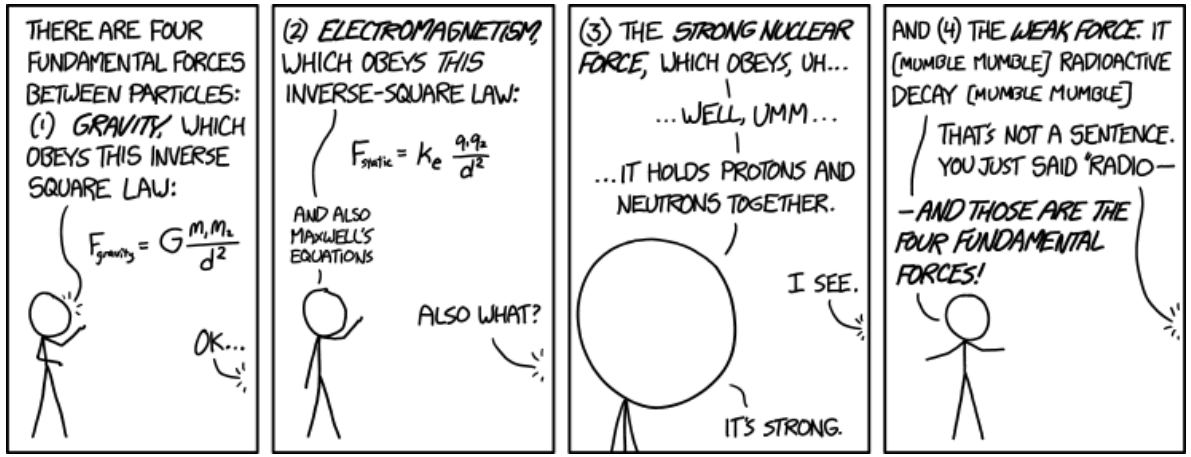
Interactions!

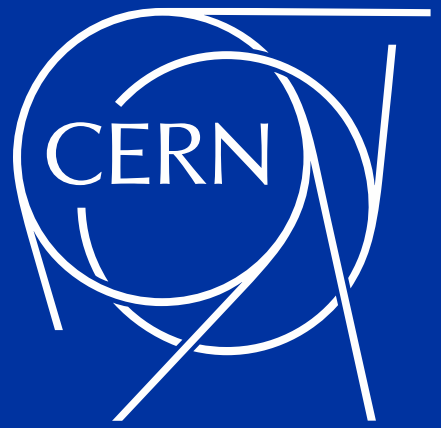




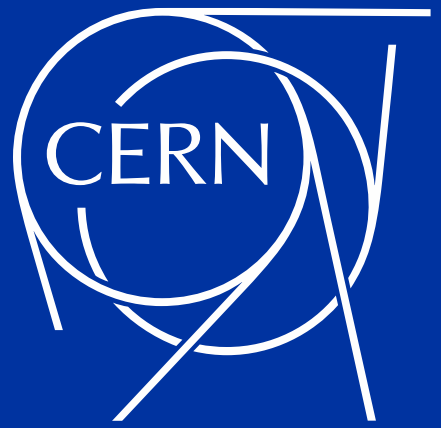








1. General information
2. Project day selection
3. Questionnaire



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Important Numbers

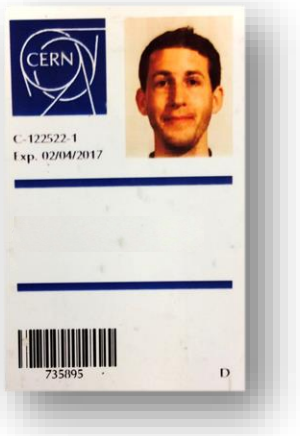
EMERGENCY: Fire brigade
+41 22 76 74444 (internal: 74444)

NON-EMERGENCY: CERN medical service
+41 22 76 73802

FIRST POINT OF CONTACT: Accompanying teachers
+41 75411 2063 Anna Wallner
+41 75411 2048 Jean-Pierre Grootaerd

CAMP MANAGER:
+41 75411 0675 Guillaume Durey

Access card & registration



Group A
8:00 tomorrow

Group B
8:30 tomorrow

Bring your passport
Building 55

Getting around

MapCERN

Restaurants

Restaurant 1, bldg 501, open 6-22

Breakfast	Lunch	Dinner
6:30-10:30	11:30-14:15	18:00-20:30

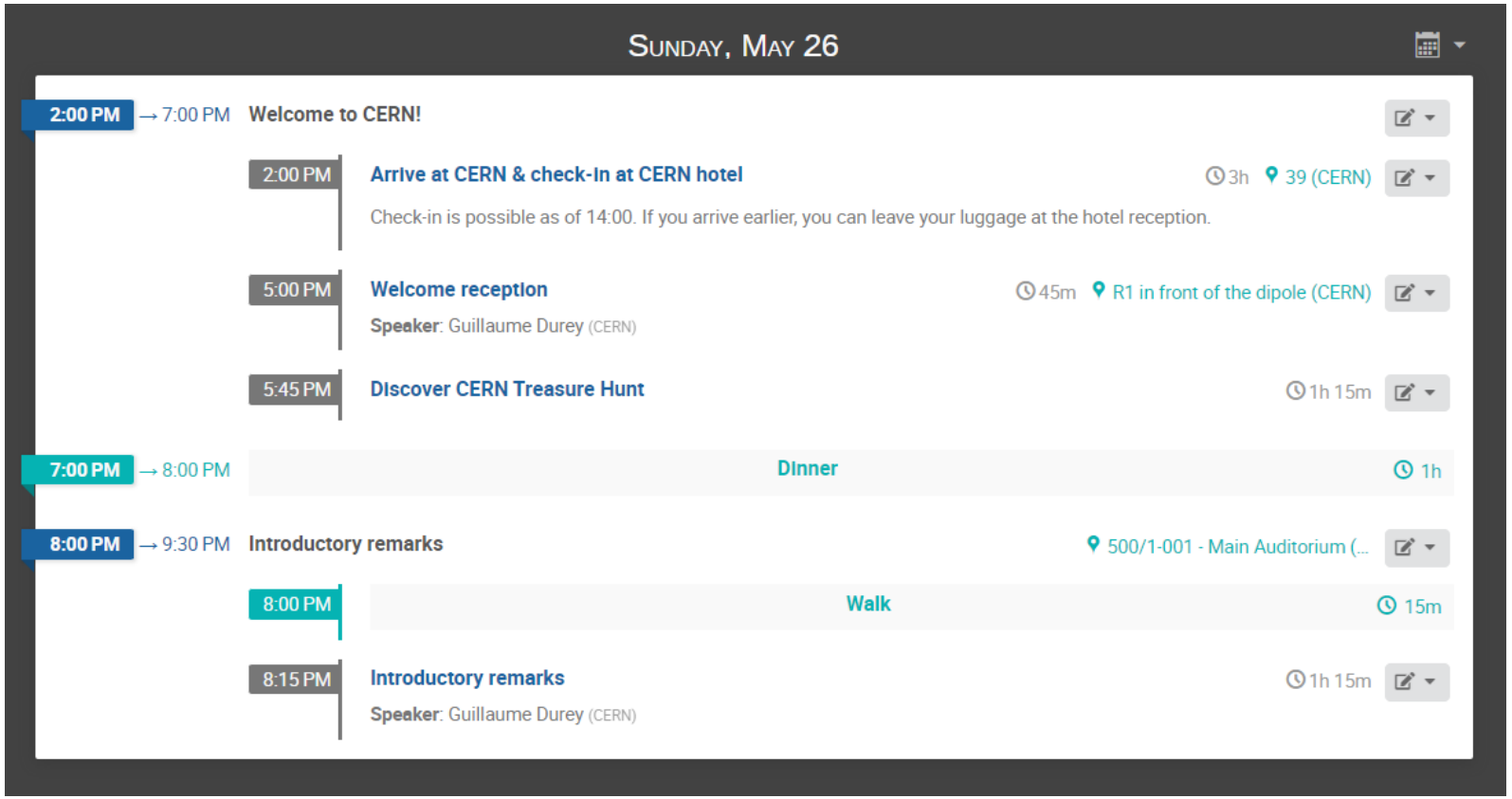
Restaurant 2, building 504, open 7-17

- Ask for allergens
- Stay away from tomatoes
- Return the salad bowl
- You have 40 CHF per day
- Scan your QR code

With great powers…

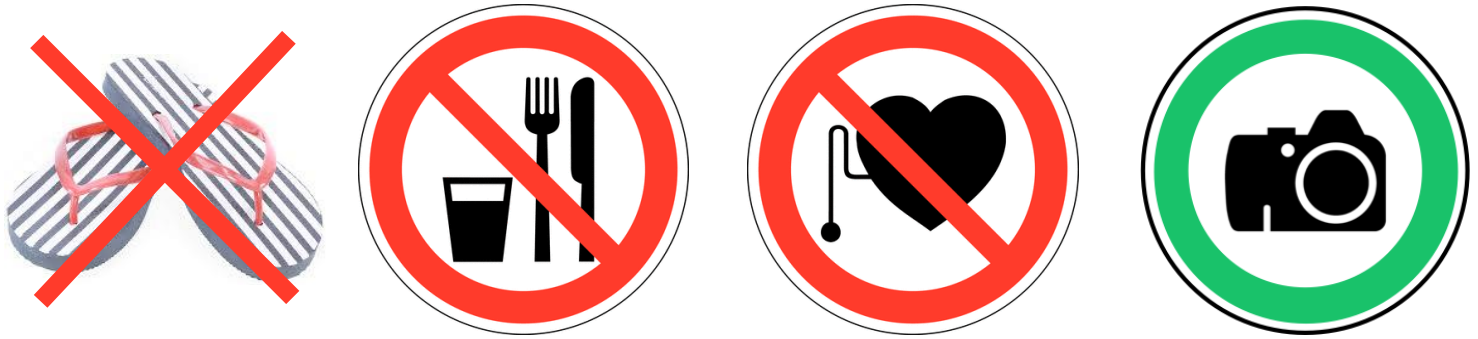
… comes great responsibility

Timetable



cern.ch/solvay-camp-timetable

CERN Visits



Photos, videos & social media

- To share your photos
  to be archived
  and used by CERN and Solvay,
  upload them here →

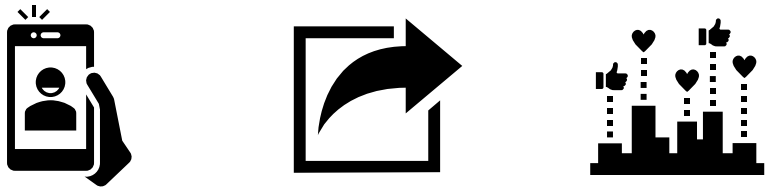
- To share your adventures
  on your own social media accounts,
  please tag @CERN and @SolvayGroup
  and use #CERNSolvayEducation

- Official group photo tomorrow afternoon

- We will be your paparazzi during the week ;-)

cern.ch/solvay-camp-photos

pwd: `Charm_Quark`

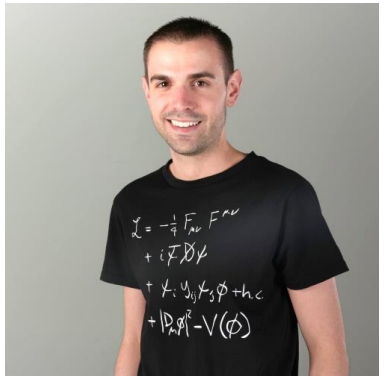


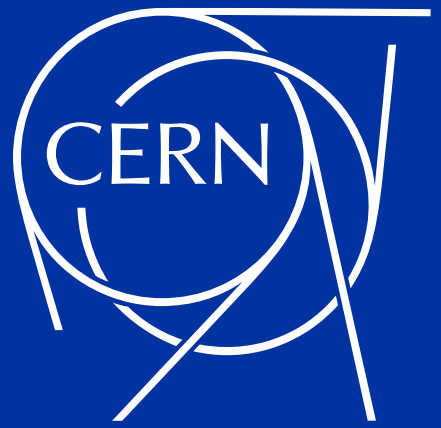
#CERNSolvayEducation

Shops!

SG Gift Shop	SG Reception	Tue-Sun 8:00-18:00
CERN Kiosk	Main Building	M-F 7:30-11:00 11:30-16:00
ATLAS Shop	40/5-B01	M-F 8:30-12:30 13:30-17:30
CMS Shop	40/4-D01	M-F 9:00-12:00 14:00-17:00
LHCb Shop	2/1-024	M-F 8:30-12:30 13:30-17:30
ALICE Shop	301/R-029	M-F 8:30-12:30 13:30-17:30
CERN Library	52/1-054	M-F 9:00-18:00

→ Special package





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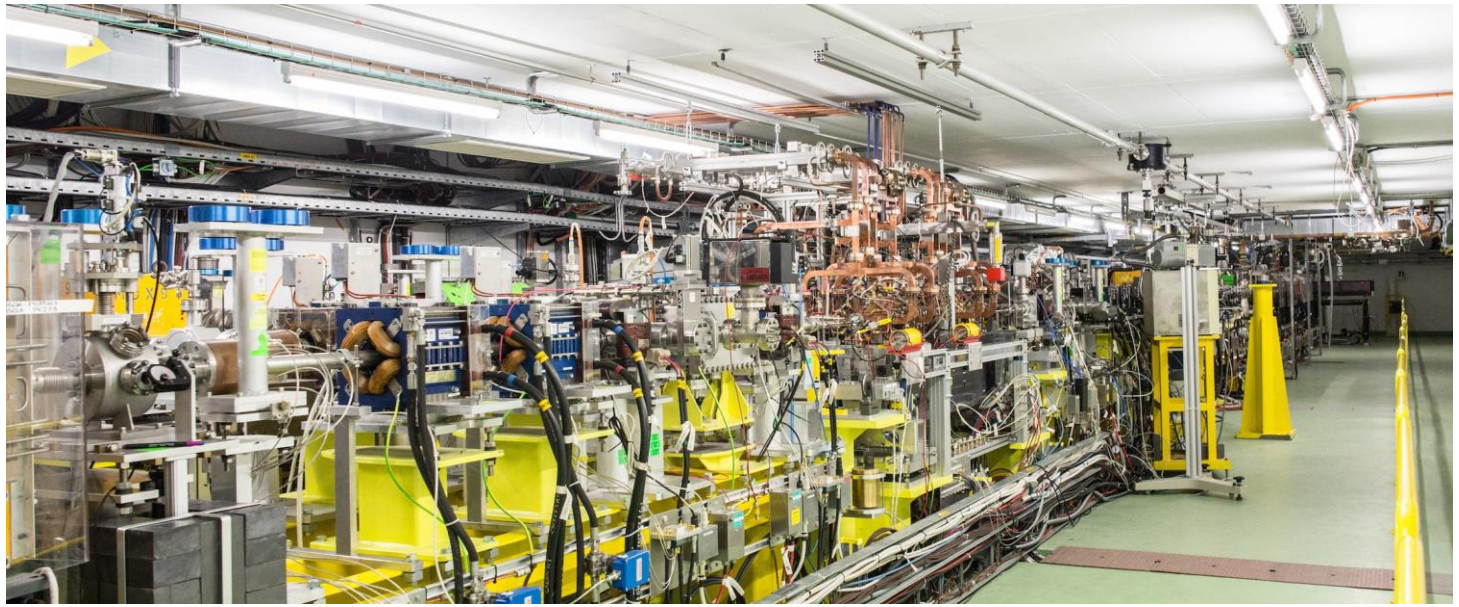
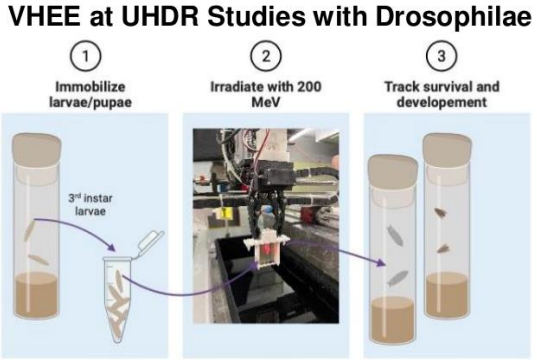
CLEAR – CERN Linear Electron Accelerator for Research

Supervisor: Pierre Korysko

CLEAR is an electron LINAC and an experimental beamline, operated at CERN as a multi-purpose test facility. Scientists book time with CLEAR to perform R&D on accelerator components or novel accelerating techniques, or to study the effects of electron irradiation on electronic components in space or medical contexts. This week, scientists are using CLEAR to investigate e-beam cancer treatment techniques, in particular to study the FLASH effect on fruit fly larvae. You will prepare the samples and work from the control room to power up the beam and irradiate the samples.

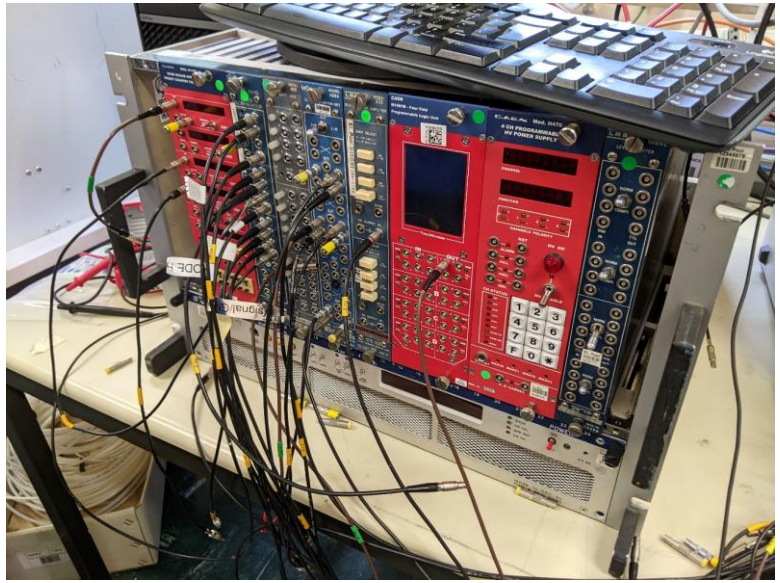




Data acquisition workshop

Supervisors: Markus Joos & Martin Schwinzerl

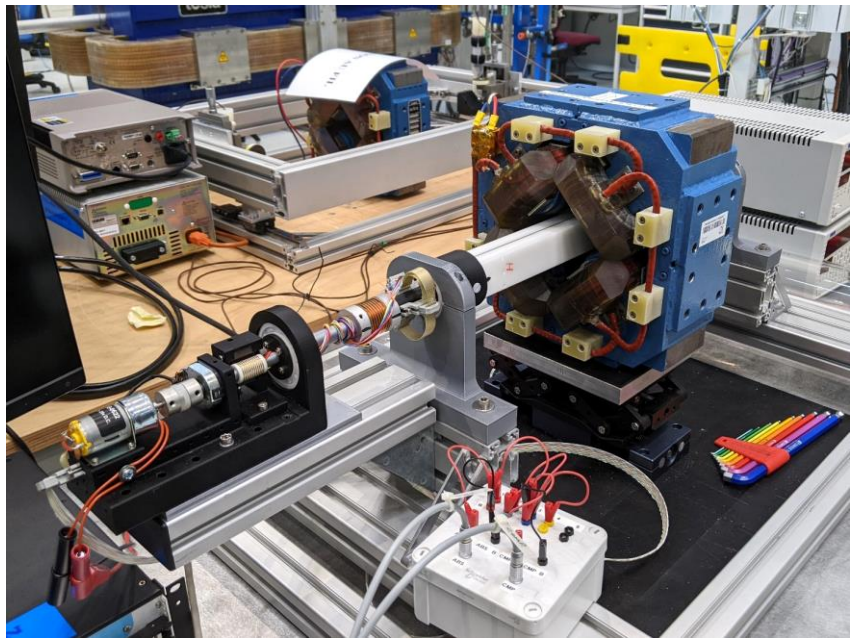
You probably know cloud chambers – the first particle detectors, which are analogue. You also probably know ATLAS or CMS, our giant state-of-the-art particle detectors, which are digital. While the former are a bit outdated, the latter are a bit too complex. This workshop is your chance to spend one day with the perfect particle detector: a pair of scintillators and photomultiplier tubes coupled to a standard electronic system. You will get to understand the core concepts behind trigger logic and data acquisition. You will detect cosmic ray muons and convert physical interactions into logical electronic signals. You will measure the muon flux and investigate how to sort out real detection events from fake signals due to random noise.



Magnetic Measurements Lab

Supervisors: Lucio Fiscarelli, Vincenzo Di Capua, Melvin Liebsch, Mariano Pentella, Piotr Rogacki

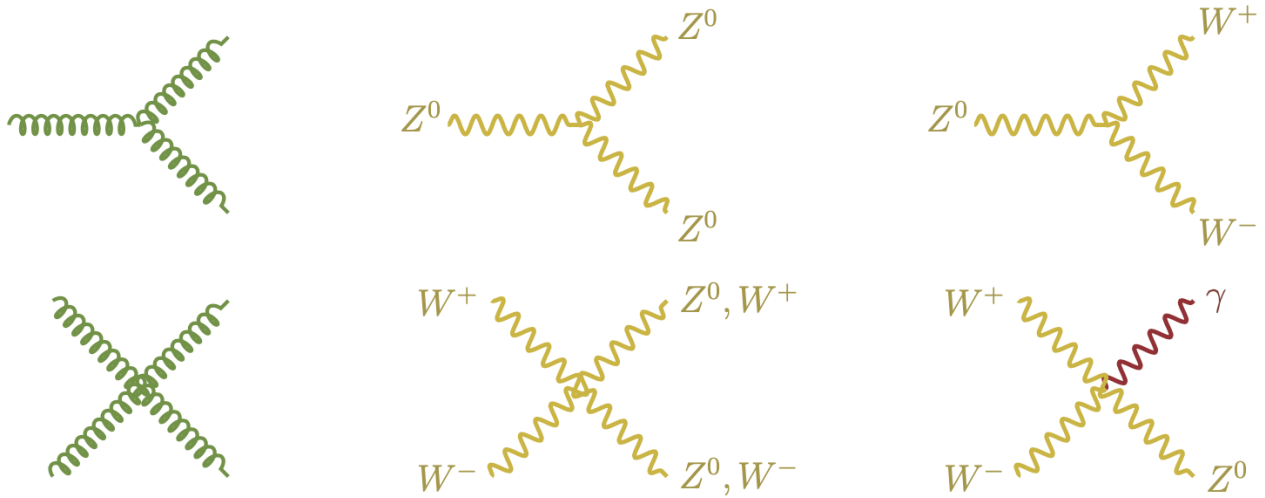
At CERN, we constantly need to design, build, test and repair electromagnets for our circular accelerators. There is a huge diversity of magnet types – dipoles, quadrupoles, sextupoles, solenoids, kickers, etc. – which all perform a different task. There are two main electromagnet technologies: superconducting magnets, which require cryogenic cooling and are only found in the LHC, and “normal conducting” (resistive) magnets, which are everywhere else. In this brand-new lab, engineers measure the magnetic field of various resistive magnets to make sure that they meet their design specifications. You will work on mapping the magnetic field of quadrupole magnets, using two different techniques (rotating coil and stretched wire).



Theory workshop

Supervisor: Silke van der Schueren

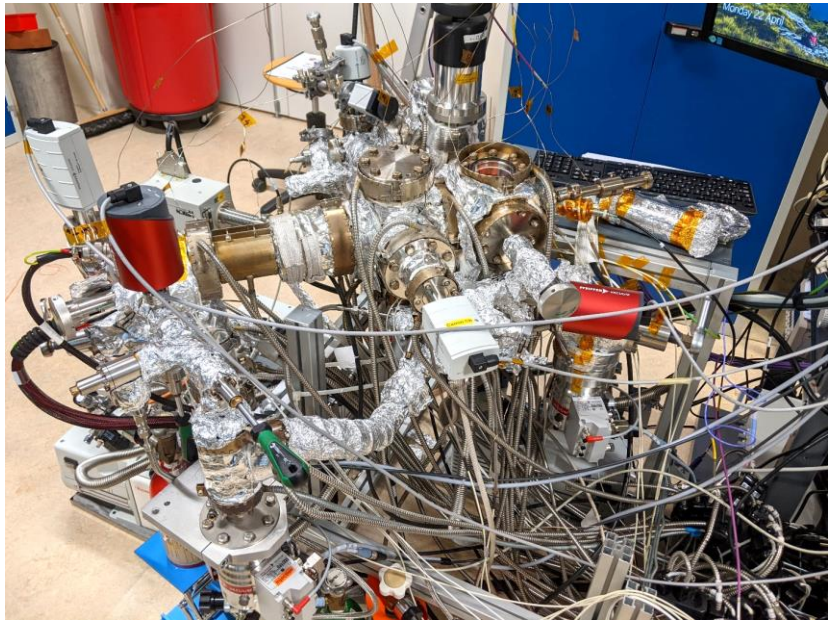
You might have heard of Feynman diagrams before: it's those funny drawings of straight and wavy or curly lines, that are used as a representation of elementary particle interactions (such as those that are created at the LHC at CERN). In this project, we will look at the theory behind them, unravel their mysteries, and learn how to read these types of diagrams. This will help us to better understand what might be happening during particle collisions, which types of interactions can occur, and which are unlikely, and how new particles are found.

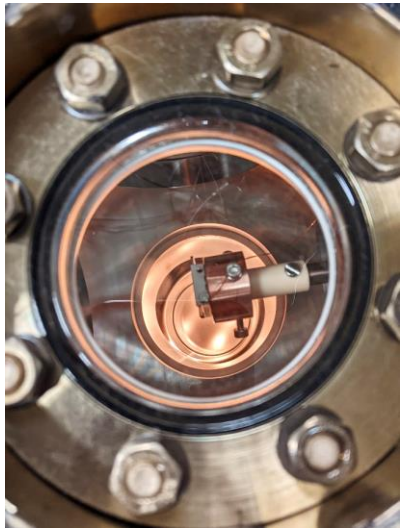


Vacuum Lab

Supervisors: Vincent Baglin, Sophie Meunier, Thomas Daures

Particles in circular accelerators must travel in vacuum pipes, as collisions with gas molecules could lead to beam losses. In the LHC, the protons must travel in a vacuum as empty as interstellar space (10^{-13} atmospheres) to ensure a proper beam lifetime. This is incredibly low, but why can't we go even lower? The walls of the beam pipe keep releasing molecules into the pipe, which become very low-pressure, residual gases. To ensure beams in the LHC are as stable as possible, CERN engineers must know at all times which molecules are released, and what pressure they generate. You will operate an ion gun hitting a metal target and analyse the gasses resulting from the collision, using mass spectrometers and vacuum gauges.





Project day review

5:45 pm on Friday

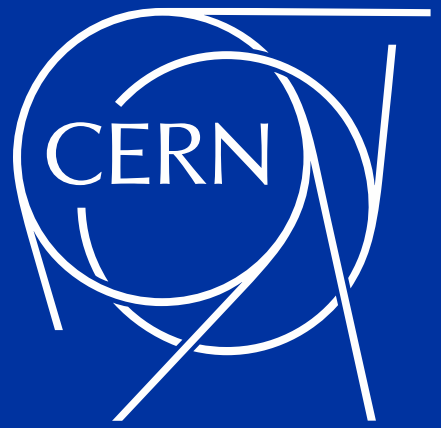
→ **We want a project day review in the form of a social media «story».**

That’s one video per group,
a minute or two in length,
shot and edited on your phone,
vertical video orientation,
everyone gives updates about the day.

You do not need to post it online,
but you can if you want ☺

Time to choose!

cern.ch/solvay-camp-project



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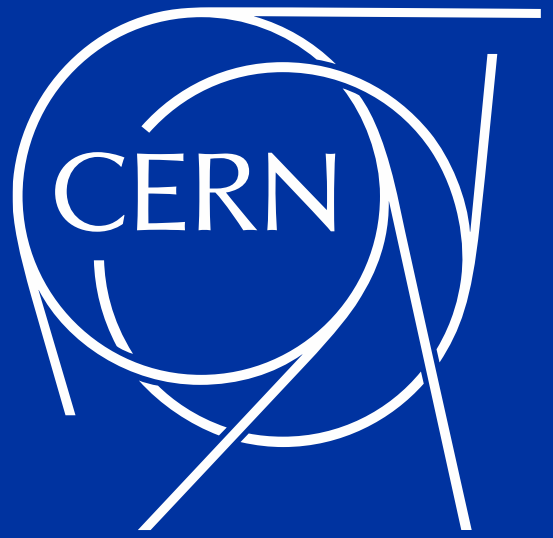
And now… questionnaire time!

cern.ch/solvay-camp-q1


CERN