

BEAMLINE FOR SCHOOLS 2016: HOW TO BE A CERN SCIENTIST

Two teams of high-school students from the UK and Poland had the opportunity to conduct their own experiments at a fully equipped CERN beamline.



Students from the 2016 Beamline for Schools competition working on their experiment. (Image: Noemí Carabán Gonzalez/CERN)

Two teams of high-school students from the UK and Poland had the opportunity to conduct their own experiments at a fully equipped CERN beamline, after winning the Beamline for Schools competition.

The teams, "Pyramid Hunters" from Poland and "Relatively Special" from the United Kingdom, spent 10 days at CERN conducting the experiments they had dreamt up in their winning proposals.

The Beamline for Schools competition gives high-school students the chance to run an experiment on a fully equipped CERN beamline, in the same way researchers do at the Large Hadron Collider and other CERN facilities every day.

To know more about their stay at CERN and the experiments they've conducted, read the full article here: <http://cern.ch/go/PfJ6>.

Stefania Pandolfi

(Continued on page 2)



A WORD FROM CHARLOTTE WARAKAULLE

CERN & SOCIETY – SPREADING OUR SPIRIT OF SCIENTIFIC CURIOSITY

With the third group of winners of the CERN Beamline for Schools (BL4S) competition on their way home after successfully conducting their experiments at CERN, now is a good time to take a look at the CERN & Society programme.

(Continued on page 2)

In this issue

NEWS

Beamline for Schools 2016:	
How to be a CERN scientist	1
CERN & Society – Spreading our spirit of scientific curiosity	1
LHC Report: LHC smashes collision records	3
Looking for charming asymmetries	3
Netherlands in the spotlight at the ENLIGHT meeting on particle therapy	4
A new building for testing magnets	5
New arrivals	5
Computer Security	6
Nicolas Delruelle (1965 - 2016)	6
Take note	7
Seminars	12



A WORD FROM CHARLOTTE WARAKAULLE

(Continued from page 1)

CERN & SOCIETY – SPREADING OUR SPIRIT OF SCIENTIFIC CURIOSITY

Established in 2014, the CERN & Society Foundation raises funds for a range of projects designed to maximise CERN's impact by deploying our facilities and expertise beyond our core mission.

BL4S is among the most successful projects in the CERN & Society portfolio. Now entering its fourth annual cycle, BL4S has allowed hundreds of schools around the world to experience particle physics research first hand by preparing their proposals for experiments, frequently with guidance from members of the International Particle Physics Outreach Group, IPPOG, and other physicists around the world. Each year, two lucky winning teams come to CERN to carry out their experiments: a fabulous prize by any standard.

BL4S, however, is far from the only project in the CERN & Society portfolio. Within the domain of Education and Outreach, CERN

& Society also supports non-Member State summer students, national teacher programmes, CERN-UNESCO schools for digital libraries in Africa, and PhD students at ATLAS. CERN & Society supports the Arts at CERN programme, as well as initiatives in innovation and knowledge exchange, including KiCad, an open-source software suite for electronics design, and the CERN-developed Zenodo data repository, which is much in demand. All of these initiatives ensure that CERN knowledge and expertise have a greater impact than CERN could achieve without the support of the Foundation. Just as important, they allow CERN to forge partnerships with the private sector, conveying the value of fundamental science to audiences that would not otherwise be open to us as multipliers.

Research is our core business, and for more than 60 years CERN research has enriched the pool of human knowledge immensely. It is our main mission and will remain so. But

we also have a role – and a responsibility – to advance education, innovation and collaboration between nations, all of which supports our fundamental science as part of a virtuous cycle. We can all be proud of the successes of the CERN & Society programme and how it helps to multiply our work. It is in this spirit that the CERN & Society Foundation was established: spreading the CERN spirit of scientific curiosity, for the inspiration and benefit of society.

*Charlotte Warakaulle,
Director for International Relations*

(Continued from page 1)

BEAMLINE FOR SCHOOLS 2016: HOW TO BE A CERN SCIENTIST

A safe(ty) day



As part of the trainings organised during the safety-dedicated day, the students learned, among other things, how to properly use a fire extinguisher. (Photo: Julien Ordan)

For their first day at CERN, 16 youngsters spent the day learning about safety. The students were so driven to start performing their experiments that they couldn't wait to jump straight into the East Area. But they learned that, besides the exciting experience of doing

an experiment here, one must never forget to be safe. "Safety first" is our motto, indeed.

In the morning, they listened to presentations on safety hazards and computer security and also followed e-learning courses at the Technical Training Centre. They spent the afternoon at the Safety Training Centre in Prévessin. There, they visited the mock-up LHC tunnel and participated in classroom-based courses about cryogenic safety and fire extinguishers. Can you guess what they enjoyed the most?

Ewa, from the Polish team, says she learnt a lot about fires and how they spread. She feels safer now. "We were told about safety procedures and how nothing happens to you if you follow them," she explains.

James, a member of the UK team, says: "For our project, we had to study the instructions

for the fire extinguisher attentively before coming, but we never got the chance to actually use one. I couldn't believe it when I had to do it as part of the fire extinguisher training!"

Being able to use a fire extinguisher properly is something that could come in handy in our daily life too, unlike handling cryogenic fluids. "The topic of cryogenic safety was covered in such a way that it wasn't complex for me to understand," explains Timothy, another member of the UK team. He was extremely impressed by the course and by seeing the liquid air droplets bursting into sparks, so as to explain the hazard related to oxygen enriched air. "It was very interesting and made me understand the danger and the importance of being properly trained".

Rosaria Marraffino

LHC REPORT: LHC SMASHES COLLISION RECORDS

The Large Hadron Collider is now producing more than a billion proton-proton collisions per second.

The LHC is colliding protons at a faster rate than ever before: approximately 1 billion times per second.

Since April 2016, the LHC has delivered more than 30 inverse femtobarns (fb^{-1}) to both ATLAS and CMS. This means that around 2.4 quadrillion (2.4 million billion) collisions have been seen by each of the experiments this year. The inverse femtobarn is the unit of measurement for integrated luminosity, indicating the cumulative number of potential collisions. This compares with the total of 33.2 fb^{-1} produced between 2010 and 2015.

The unprecedented performance this year is the result of both the incremental increases in collision rate and the sheer amount of time the LHC has been up and running.

This comes after a slow start-up in 2015, when scientists and engineers still needed to learn how to operate the machine at a much higher energy.

“With more energy, the machine is much more sensitive,” says Jorg Wenninger, head of the LHC operations team. “We decided not to push it too much so that we could learn about the machine and how to operate at 13 TeV.

Last year we had good performance and no real show-stoppers, so now we are focusing on pushing up the luminosity.”

Astonishingly, 2.4 quadrillion collisions represent only 1 percent of the total amount of collisions planned during the lifetime of the LHC research programme. The LHC is scheduled to run through 2037 and will undergo several rounds of upgrades to further increase the collision rate.

Sarah Charley

LOOKING FOR CHARMING ASYMMETRIES

New results presented by the LHCb collaboration on the decay of particles containing a “charm” quark delve deeper into the mystery of matter-antimatter asymmetry.



A view of the LHCb experimental cavern. (Photo: Maximilien Brice/CERN)

One of the biggest challenges in physics is to understand why everything we see in our universe seems to be formed only of matter, whereas the Big Bang should have created equal amounts of matter and antimatter.

CERN's LHCb experiment is one of the best hopes for physicists looking to solve this longstanding mystery.

At the VIII International Workshop on Charm Physics, which took place in Bologna earlier this month, the LHCb Collaboration presented the most precise measurement to date of a phenomenon called Charge-Parity

(CP) violation among particles that contain a charm quark.

CP symmetry states that laws of physics are the same if a particle is interchanged with its anti-particle (the “C” part) and if its spatial coordinates are inverted (P). The violation of this symmetry in the first few moments of the universe is one of the fundamental ingredients to explain the apparent cosmic imbalance in favour of matter.

Until now, the amount of CP violation detected among elementary particles can only explain a tiny fraction of the observed matter-antimatter asymmetry. Physicists are therefore extending their search in the quest to identify the source of the missing antimatter.

The LHCb collaboration made a precise comparison between the decay lifetime of a particle called a D^0 meson (formed by a charm quark and an up antiquark) and its anti-matter counterpart $D\text{bar}^0$ (formed by a charm antiquark and an up quark), when decaying either to a pair of pions or a pair of kaons. Any difference in these lifetimes would provide strong evidence that an additional source of CP violation is at work. Although CP violation has been observed in processes

involving numerous particles that contain b and s quarks, the effect is still unobserved in the charm-quark sector and its magnitude is predicted to be very small in the Standard Model.

Thanks to the excellent performance of CERN's Large Hadron Collider, for the first time the LHCb collaboration is accumulating a dataset large enough to access the required level of precision on CP-violating effects in charm-meson decays. The latest results indicate that the lifetimes of the D^0 and $D\text{bar}^0$ particles, measured using their decays to pions or kaons, are still consistent, thereby demonstrating that any CP violation effect that is present must indeed be at a tiny level.

However, with many more analyses and data to come, LHCb is looking forward to delving even deeper into the possibility of CP violation in the charm sector and thus closing in on the universe's missing antimatter. “The unique capabilities of our experiment, and the huge production rate of charm mesons at the LHC, allow us to perform measurements that are far beyond the sensitivity of any previous facility,” says Guy Wilkinson, spokesperson for the LHCb collaboration. “However, nature demands that we dig even deeper in order to uncover an effect. With the data still to come, we are confident of responding to this challenge,” he adds.

Stefania Pandolfi

NETHERLANDS IN THE SPOTLIGHT AT THE ENLIGHT MEETING ON PARTICLE THERAPY

The annual meeting of ENLIGHT, which focuses on particle therapy for cancer treatment, was held in the Netherlands.



Participants of the annual meeting of ENLIGHT, held in the Netherlands from 15-17 September 2016.

The annual meeting of ENLIGHT (European Network for Light Hadron Therapy), which gathers experts working worldwide in centres and research institutions for particle therapy for cancer treatment, was hosted this year by the Dutch National Institute for Subatomic Physics (Nikhef) and the University of Utrecht, in the Netherlands, from 15-17 September. Chaired by the co-coordinator of ENLIGHT, Manjit Dosanjh, and the local organisers, Els Koffeman and Jan Visser from Nikhef, the meeting was attended by almost 100 participants from 15 countries.

The Netherlands took centre stage at the ENLIGHT meeting: four brand new centres for proton therapy in the Netherlands are currently at various phases of completion as a consequence of the recent approval by the Dutch government of a plan for making proton therapy available nationwide. The establishment of these centres and their mode of collaboration for making this cancer treatment available throughout the country was indeed one of the key points of discussion of the meeting.

Many other hot topics were discussed, including recent progress and technological breakthroughs in medical imaging, the

importance of using a standard “normal tissue control probability” (NTCP) model for selecting patients for treatment with particles (protons, carbon and so on), and the need for access to and sharing of clinical data for selecting patients and monitoring outcomes.



The authors of the three winning posters with Manjit Dosanjh, ENLIGHT co-coordinator.

Two full sessions were dedicated to medical imaging, given its key role in delivering an effective dose to the target tumour site while minimising the side effects on healthy tissues: the volume and position of the tumour has to be assessed before, after and during treatment whenever possible by using a whole range of imaging tools, such as Positron Emission

Tomography (PET), Magnetic Resonance Imaging (MRI) and Computed Tomography (CT) scans, – alone or in combination. Moving organs such as lungs presents a challenging task for medical imaging, since the position of the tumour has to be monitored while it is being treated. The integration of MRI with a linear accelerator, for example, can provide image-guidance that is simultaneous with treatment, thus reducing the patient’s exposure to the additional ionising radiation of CT scans.

Time was also given to young researchers: on the second day of meeting the authors of three winning posters were given the chance to present their work to the ENLIGHT participants.

For the first time since the establishment of the network in 2002, this year the annual ENLIGHT meeting concluded with a one-day training session on key aspects of particle therapy, including radiobiology, medical imaging and data sharing. In fact, particle therapy centres require highly trained staff, and yet few experts exist in this rapidly expanding field. The training session was highly appreciated by the members of the community, so a similar course will be offered at the next annual meeting, to be held in June 2017.

The location selected for next year is Aarhus, which will be the home of the first particle therapy centre in Denmark, and the meeting will coincide with the installation of the cyclotron in the facility.

*Virginia Greco (CERN) and
Manjit Dosanjh (ENLIGHT co-coordinator)*

A NEW BUILDING FOR TESTING MAGNETS

A ceremony to mark the laying of the foundation stone of Building 311, which will house a magnetic measurement laboratory, took place on 22 September.



Olaf Dunkel, head of the Building 311 project, José Miguel Jiménez, head of the Technology Department, and Lluís Miralles, head of the Site Management and Buildings Department, during the ceremony for the laying of the foundation stone of Building 311.

Lluís Miralles, head of the Site Management and Buildings Department, José Miguel Jiménez, head of the Technology Department, Roberto Losito, head of the Engineering Department, and Simon Baird, head of the Occupational Health and Safety and Environmental Protection Unit, officially laid the foundation stone of Building 311 during a ceremony on Thursday, 22 September.

Situated beside the water tower, the building will house a magnetic measurement laboratory for the Technology Department. With a floor space of around 1400 square metres, it will comprise a main hall for testing magnets on the ground floor and a mezzanine with offices on the first floor. Work began in April and the main construction (walls and roof) should be finished in May 2017, with the completed building ready at the end of the year. Just to make things more interesting, because of the building's proximity to the tunnel of the old Intersecting Storage Rings (ISR) accelerator, the designers had to anchor it in the ground using tilted piles.

Corinne Pralavorio

NEW ARRIVALS

On Tuesday 20 September 2016, recently-recruited staff members and fellows participated in a session in the framework of the Induction Programme.



HR Department

ANDROID'S ARMAGEDDON... RELOADED

About 1 billion Android smartphones are facing their Armageddon. Again.

Android could be facing another Armageddon, just as we saw with the "Stagefright" vulnerability last summer (see the article "Android's Armageddon"). But while that "Mother of all Android Vulnerabilities" targeted Android's Multimedia Messaging Service, this time the driver for Qualcomm's LTE chipset is in the firing line... And as before, while a fix for this vulnerability has been quickly made available, the big problem has been getting this fix to your Android device: mobile phone manufacturers and providers are incredibly slow at passing it along...

What can you do to get this fix? Basically, there's nothing you can do but wait. For certain smartphone models (e.g. HTC One M9 and HTC 10; LG G4, G5, and V10; Samsung Galaxy S7 and S7 Edge; and others), you are completely exposed. This four-fold vulnerability, dubbed "QuadRooter", in the driver for the LTE mobile communication chipset of Android smartphones can be exploited by just one malicious app... Once

installed, it becomes "root", the master and commander-in-chief of that smartphone. Luckily, so far, no public exploitation of that vulnerability has been reported! Potential defences? Usually we would recommend applying the corresponding fix made by Google. However, this requires your preferred smartphone manufacturer to adapt that patch to your hardware. And, as experience has shown, this can take a while or might never happen. Alternatively, you can try to re-compile your Android device's operating system yourself – but this is an approach recommended only for experts.

So, interesting times lie ahead. Not only for Androids but also for many other devices. Vulnerability disclosure cycles are getting faster and faster, and patching, i.e. fixing those vulnerabilities, must be done more promptly. With a world full of smartphones, the Internet-of-Things, inter-connected fridges and cars (see the article "Our life in symbiosis"), and SmartMeters, a new patching paradigm is

needed... Today, our patching methods are too slow and inflexible (see the article "Agility for computers"). Android's Armageddon is just another example.

P.S.: If you believe that Apple's iOS is better... Er, no, as the recent "Pegasus" exploit showed. However, at least Apple controls the update chain, so security fixes are always rolled out quickly (for iOS versions 9 and above).

For further information, questions or help, check: <https://security.web.cern.ch> or contact us at Computer.Security@cern.ch.

Do you want to learn more about computer security incidents and issues at CERN? Follow our Monthly Report:

https://security.web.cern.ch/security/reports/en/monthly_reports.shtml

Stefan Lueders, Computer Security Team

NICOLAS DELRUELLE (1965 - 2016)

Nicolas Delruelle passed his degree in aerospace engineering with flying colours at the University of Liège, Belgium, in 1987. He was soon recruited by the FN Moteur company, a subsidiary of Snecma, and was seconded to the Société Européenne de Propulsion (SEP) in Vernon, France, where he worked on testing the cryogenic engines for the third stages of the Ariane rockets. Subsequently he developed and carried out simulations for the new Vulcain cryogenic engine, for use on the Ariane 5 rockets.



At the end of 1991, Nicolas was recruited by CERN to join the Cryogenics group, where he worked on the SPS superconducting cavities, for the injection of electrons and positrons into LEP. He proved his mastery of cryogenic processes by taking delivery of two helium

coolers allowing the superconducting cavities to be cooled to 4.5 K. In the early 1990s, CERN was deploying real-time process monitoring using microprocessors for the first time. Nicolas played a pioneering role in this new activity and the SPS cooling system had the highest level of automation of any cooling system at CERN.

Later, he defined the functional logic of the cryogenic infrastructure for the new cryogenic test stations to be installed at SM18 and in the superconducting cable laboratory (Building 163) for the future superconducting magnets of the LHC – a vital contribution to the project.

Building on this experience, in 2001 Nicolas became the project leader for the helium cryogenics system of the ATLAS experiment, a role which considerably broadened his professional horizons and responsibilities. He was involved in the installation of the cryogenic test station that was used for the qualification of ATLAS's toroid magnets in Building 180 and then in

the definition and procurement of helium coolers and distribution systems for the exterior cryogenics of ATLAS at Point 1 of the LHC. After having implemented the associated functional logic, he supervised the testing of the cryogenic system with the detectors' superconducting magnets. He also supported the operation of ATLAS's cryogenics throughout the first run that led to the discovery of the Higgs boson, all the while working on the optimisation of the system.

More recently, in 2010, Nicolas took up the responsibility for defining and implementing the cryogenics system for the HIE-ISOLDE project. He devoted himself to ensuring that this system would be operational on time so that the new physics at this accelerator could begin. The system is now in its second year of operation, much to the satisfaction of the HIE-ISOLDE collaboration.

Nicolas was a man of conviction who fully invested himself in all of his projects with the utmost professionalism. He demonstrated his

commitment to CERN throughout the years he spent working in the technical field and also through his work supporting relations between CERN and its personnel. Nicolas was hard-working and brave, but also jovial; he knew how to communicate his sense of fun and joy to those around him. We have lost a colleague, a true professional and, most of all, a friend.

His colleagues and friends

We deeply regret to announce the death of Nicolas Delruelle on 14 September 2016. Nicolas Delruelle, who was born on 20 July 1965, worked in the TE Department and had been at CERN since 1st February 1992.

The Director-General has sent a message of condolence to his family on behalf of the CERN personnel.

*Social Affairs
Human Resources Department*

CERN's flags were flown at half-mast on Tuesday, 20 September 2016, the day of the funeral, in accordance with the procedure for the death of an employed member of the personnel.

Take note

WORKING SAFELY WITH ELECTRONICS RACKS

Think of CERN and you'll probably think of particle accelerators and detectors. These are the tools of the trade in particle physics, but behind them are the racks of electronics that include power supplies, control systems and data acquisition networks.

In routine operation, these are no more harmful than the home entertainment system in your living room. But unscrew the cover and it's a different matter. Even after following appropriate training, and with formal authorisation from your group leader or equivalent to carry out electrical work or any work in the vicinity of electrical hazards, and even with extensive experience of carrying out such operations, it's important to incorporate safe working practices into your routine.

At CERN, before the racks of electronics reach their operational configurations for the accelerators and detectors, they play a vital role in test set-ups – looking to the accelerators and detectors of the future. In these set-ups, the covers are often off as a matter of necessity – adjustments need to be made, electronic pathways need to be rerouted – and that's a source of risk.

This year, accidents have been recorded involving electric shocks sustained due to contact with low voltage power supplying the racks. To avoid such risks, there are simple measures that you should take:

1. Make sure you have followed the relevant safety training courses and that you are authorised to carry out the work.
2. Switch off the power to your rack and check it is not energised before any intervention.
3. If you are unsure about how to carry out the electrical operation in question or you don't know the equipment or the

entire rack environment well, don't touch it – ask your supervisor for advice.

4. Wear the appropriate personal protective equipment for the job in hand.
5. Work carefully and take the time needed to complete the work safely.
6. Never work alone.

Over the years, the built-in safety of rack electronics has improved dramatically, but improvements can still be made. And however well prepared you are, accidents can always happen. That's why it's important to report accidents and near misses: it not only helps you, it helps to ensure that others are protected in the future, and that built-in safety can continue to improve.

Simon Baird, HSE Unit Head

IT USER COMMUNITY SURVEY

IT-CDA is gathering information to more accurately form a snapshot of the CERN IT user community and we would appreciate you taking time to complete the following survey.

We want to use this survey to better understand how the user community uses their devices and our services, and how the delivery of those services could be improved.

You will need to authenticate to complete the survey. However please note that your responses are confidential and will be compiled together and analysed as a group. You can also volunteer to offer additional information if you so wish.

This survey (available on: <http://knowing-it-users-better.web.cern.ch>) should take no longer than 5 minutes.

Thanks in advance for your collaboration.

Peter Jones (IT-CDA-WF)

EXCEPTIONAL CLOSURE OF THE MEDICAL SERVICE ON 11 OCTOBER

Please note that the Medical Service (infirmary, doctors, psychologist and secretariat) will be closed all day on Tuesday, 11 October 2016.

In the event of a **medical emergency**, please **call 74444** (Fire Brigade).

Thank you for your understanding.

CERN Medical Service

HEATING BEING PUT INTO SERVICE

The SMB-SE group would like to inform you that, the central heating will start this year, on Monday 3 October 2016, and will be progressively and depending on the weather forecast put into service throughout. All buildings will have heating within the following few days.

Thank you for your understanding.

The CERN heating team SMB-SE

CERN ACCELERATOR SCHOOL - BEAM INJECTION, EXTRACTION AND TRANSFER

Registration is now open for the CERN Accelerator School's specialised course to be held in Erice, Italy, from 10 to 19 March, 2017.

The course will be of interest to staff and students in accelerator laboratories, university departments and companies manufacturing accelerator who wish to learn about accelerator science and technology.

Further information can be found at:

- <http://indico.cern.ch/event/451905/>
- <http://cas.web.cern.ch/cas/IET2017/IET-advert.html>

EXHIBITION FOR THE 45 YEARS OF THE LONG-TERM COLLECTIONS | 11-14 OCTOBER | MAIN BUILDING

The Long-Term Collections (LTC) of the CERN staff celebrate 45 years at CERN by organising an exhibition in the Main Building from 11 to 14 October 2016.

Since 1971, under the auspices of the Staff Association, the LTC have supported 74 humanitarian projects to help the least fortunate people on the planet. For more information, please visit this website (<https://sites.google.com/site/cernclt/>) and see the article published in the Echo No. 254.

In the framework of the exhibition, an information session and a call for new contributors will be organised in **Restaurants 1, 2 (Meyrin) and 3 (Prévessin) on Tuesday 11 October from 11:30 to 14:30.**

You can also make donations to the LCT:

- PTT: 12-2831-1
- UBS: 279/C7 7581230
- automatic payment form: <http://cern.ch/go/PfJ6>

CERN Staff Association

HUMANITARIAN HACKATHON @ CERN | 14-16 OCTOBER | ARE YOU READY?

THE Port is ready for the third edition of its hackathon with eight new challenges. Join us to discover how science can make a huge difference in people's life.

Humanitarian hackathons organised by THE Port and hosted by CERN IdeaSquare have already confirmed that fundamental science can provide tech-enabled responses to humanitarian issues affecting the lives of millions of people around the globe. A great example of the success that technology and collaboration can bring is the substantial improvement of the food airdrop bags, requested by the ICRC to deliver assistance in South Sudan and other critical regions. Watch a 360° video or check out the pictures using the QR code.



This year, eight teams will innovate the way humanitarian organisations handle the most critical aspects of field work during a 60-hour event. Groups of experts from all over the world will provide out-of-the-box proposals to tackle challenges set up by the ICRC, Handicap International, the United Nations and other international organisations.

The outcome of the innovation process will be revealed to the public on 16 October (6.00 p.m. – 7.30 p.m.) at the Globe of Science and Innovation; registration for the final presentations is now open. THE Port will also share regular updates on Twitter and Facebook (@THEPortAtCern) using the hashtag #THEPort2016.

For more information, check our website www.theport.ch or write to info@theport.ch

BIKE TO WORK SAFELY (FOLLOW-UP)

Following a recent article about safe cycling (see here: <http://cern.ch/go/HHH8>), the *Bulletin* received a request for more details on the type of accidents that are reported.

An analysis of the 38 accidents involving bicycles reported this year up to the end of August reveals that the most common single cause of accidents is slippery surfaces: ice, snow, water and gravel, so the message here is to take extra care, particularly when cycling in bad weather.

The second item on the list is obstacles of various kinds: collisions with kerbs, potholes and even the transition from roads to cycle paths. The lesson here is to pay close attention to the surface you're cycling over, and if you do spot a pothole, even if it does not lead to an accident, report it so that it can be repaired. It's also worth remembering that you're more likely to avoid coming off your bike if you keep your hands on the handlebars.

The third highest cause is collisions with other vehicles, and here there are lessons for both cyclists and motorists. Cyclists, be visible, and take particular care on the St-Genis roundabout and any busy junction. Motorists, be aware that bikes take up space on the road, so leave them room, do not cut them off, and remember that cycle paths are not for cars or motorbikes.

As a general rule, make sure you're visible by using lights and reflectors, and wearing high-visibility clothing when you are out on your bike. Wear a helmet, and remember that you are subject to the same rules of the road as any other vehicle. Don't forget there's an online course in SIR on 'Road traffic - bike riding'. It's compulsory if you want to use a CERN bike, and freely available for anyone else.

For more information:

- Safety Training: <https://safety-training.web.cern.ch/>
- Safety Rules: <http://hse.cern/content/sh>
- Procedure for reporting accidents and near misses: <http://cern.ch/go/Z7gR>

Simon Baird, HSE Unit Head

Equipment Required



It is **mandatory** to have/wear the following equipment:

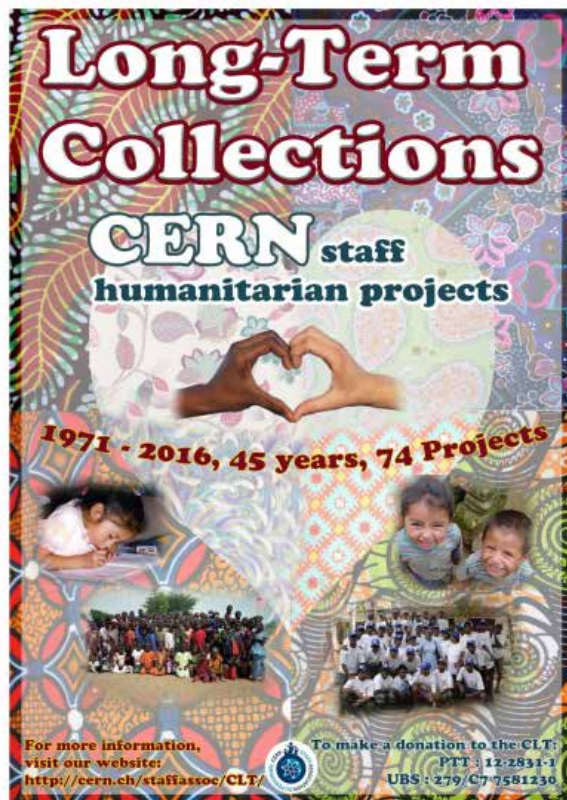


Exhibition

The CERN Long-Term Collections, since 1971:
45 years of CERN staff support for local projects in developing countries.

Long-Term Collections celebrate 45 years at CERN

From 11 to 14 October 2016 | CERN Meyrin, Main Building



Come meet us

on Tuesday 11 October 2016
from 11:30 to 14:30
in CERN restaurants.



For more information: staff.association@cern.ch | Tel: 022 767 28 19

TWO COURSES ON PARTICLE ACCELERATORS

9 January to 17 March 2017

ARCHAMPS - FRANCE

Course 1
➔ SCIENCE
9 January to 10 February

Course 2
➔ TECHNOLOGY & APPLICATIONS
13 February to 17 March

PARTNER UNIVERSITIES:



School of **esi**...
European Scientific Institute

www.esi-archamps.eu

With the support of:



TWO MODULES ON PARTICLE & ASTROPARTICLE DETECTORS

23 January to 17 March 2017

Module 1

➔ PHYSICS OF PARTICLE AND ASTROPARTICLE DETECTORS

23 January to 17 February

Module 2

➔ TECHNOLOGIES AND APPLICATIONS

20 February to 17 March

PARTNER UNIVERSITIES:



School of **esi**
European Scientific Institute

www.esi-archamps.eu

With the support of:



ESIPAP - July 2017
CERN pre-ESIPAP - 2017
Archamps - 2017

Seminars

MONDAY, 10 OCTOBER 2016

09:00 JAI Accelerator Courses Draft Michaelmas Term 2016 **Videoconference Room**

10:00 Workshop Belle II Physics Book / B2Tip: NP Impact Plot Meeting

14:00 Workshop Experimental Particle and Astroparticle Seminar Zurich **42-R-407**

TUESDAY, 11 OCTOBER 2016

11:00 HC Seminar Recent results on Higgs measurements and searches in ATLAS **Main Auditorium**

20:30 GLOBE - Public Events Ça résiste ! ... Éloge de la pensée libre **Globe of Science and Innovation - 1st Floor**

MONDAY, 17 OCTOBER 2016

14:00 Workshop Experimental Particle and Astroparticle Seminar Zurich **42-R-407**

MONDAY, 17 OCTOBER 2016

14:00 Workshop Experimental Particle and Astroparticle Seminar Zurich **42-R-407**