CERN Bulletin

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SUPERCONDUCTORS TAKE CENTRE STAGE

Superconductors are the primary focus of next week's major EUCAS 2017 conference, which will also include events aimed at the general public

To celebrate the fact that EUCAS 2017 is being held in Geneva, one LHC superconducting magnet has been installed in the Place des Nations (photo) and another near the Vernets ice rink. (Image: Michael Struik/CERN)

Next week, the brightest and best in the field of superconductivity will flock to Geneva. More than 1000 experts will attend the 2017 edition of the biennial European Conference on Applied Superconductivity (EUCAS), which CERN is organising in collaboration with the University of Geneva and EPFL-SPC under the auspices of the European Society for Applied Superconductivity. EUCAS 2017 will bring together researchers and engineers from industry and public research to share the latest advances in superconducting technology: from materials and cables to applications on the gigantic scale of the LHC or the miniature scale of electronic devices.

Of course, it's no coincidence that CERN is co-organising such a conference. The LHC is the biggest superconducting system in the world, and CERN's experts are working on new superconductors for the accelerators of the future. Magnetic resonance imaging machines, a common sight in hospitals, might be the primary industrial use of superconductors, but high-energy physics, with its ever-increasing performance needs, is at the forefront of innovation.

In fact, particle physics has been using superconducting magnets since the late 1960s in order to explore higher energy ranges than previously possible. Such magnets are capable of generating stronger magnetic fields to curve particle trajectories, thereby allowing the energy to be increased.

(Continued on page 2)

A WORD FROM THE DIRECTOR GENERAL

CERN'S ALUMNI PROGRAMME – STAY CONNECTED!

In June, the CERN community grew as we launched a new network to give our alumni an institutional connection to the Organization. The network targets those who have left CERN, but also welcomes all members and associated members of personnel. It has been designed to make the global CERN community more inclusive, and has been set up to provide those who have left with a means of keeping in touch with CERN and with each other. It will also foster ambassadorship for the mission of CERN, and will help colleagues, in particular the young, with their future career development, inside or outside the field of particle physics.

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A WORD FROM THE DIRECTOR GENERAL

CERN'S ALUMNI PROGRAMME – STAY CONNECTED!

A lot of thought and work went into preparing the ground. The Alumni Relations office, which manages the network, reached out to several well-established and successful alumni programmes to learn from their experience and to understand what would work best for our Organization, while a CERN-wide working group took part in designing the network for an inclusive approach. A survey of recent alumni revealed a strong appetite for such a network, as well as giving us a clearer idea of what colleagues would expect from it, and what they'd be prepared to give. As a result, the Alumni Relations office has put a strong focus on increasing CERN's effectiveness in helping alumni develop professionally, at whatever stage they find themselves in their careers.

At the heart of the network is an online alumni platform designed for interaction. Much effort has gone into providing substance in the form of career opportunities, learning opportunities and other benefits for our members. Since its launch, some 1800 colleagues have already signed up. They represent all categories of personnel including students, users, fellows, associates and staff members. They're based all around the world, and just over half of them have left CERN or retired. It's great that they want to stay in touch. There's already a lively ongoing exchange between members, and the initial feedback has been enthusiastic. "Thanks for sharing," "Please let me know if I can contribute," and "I really like the purpose and the reach of the project" are typical of the comments that new members share.

An important date in the CERN alumni calendar is coming up on 2 to 3 February next year, when we'll be holding our first alumni event at CERN – a two day festival of talks, visits, meetings, reminiscences and networking. You can find out more about this event, and request to join the alumni network, here (*https://alumni.cern*).

Over the years, I've seen how keen many of my colleagues leaving CERN or the field have been to stay connected, so our new alumni network is very close to my heart. It's a community for all of us, and I hope that many of you will join and play an active part. Thanks to the network, leaving CERN no longer means goodbye: it's an invitation to keep in touch.

Fabiola Gianotti
Director-General

SUPERCONDUCTORS TAKE CENTRE STAGE

Physicists first fitted their detectors with superconducting magnets, and then, from the 1980s onwards, they started using them in accelerators. The world's first superconducting collider, Fermilab's Tevatron in the US, was equipped with magnets generating a field of 4.3 Tesla. The LHC magnets can generate fields of 8 Tesla, and those in the High-Luminosity LHC (HL-LHC), currently in development, will be able to reach almost 12 Tesla.

Work on high-temperature superconducting magnets continues in parallel. Physicists have high hopes for these magnets, which were first devised 30 years ago, as they can function at higher temperatures than low-temperature superconductors (over 30 kelvin compared with just a few degrees kelvin). They can therefore be less complicated and less expensive to use, which opens up new horizons for superconductor applications. On the other hand, the materials needed to build them are very costly and highly complex to use, but research on the subject is advancing, stimulated by laboratories like CERN.

"*The virtuous circle between high-energy physics and superconductivity goes on, in particular with the pioneering research on high-temperature superconductors being carried out at CERN,*" explains Lucio Rossi, Project Leader for the High-Luminosity LHC and co-chair of the EUCAS 2017 conference along with Luca Bottura, leader of CERN's Magnets, Superconductors and Cryostats group. *"This work allows us to envisage dipole magnets generating fields of 20 to 25 Tesla - a massive challenge that would not only enable us to explore new physics regions but would also open the door to new applications of superconductors in medicine, energy and other fields impacting our daily lives."*

The *CERN Courier* has devoted its September issue to superconductors, their history and their close links with fundamental physics (read it here (*http://cerncourier.com/cws/latest/cern*)).

EUCAS 2017 will feature a number of events and activities aimed at the general public alongside the conference:

- 8.30 p.m. on Tuesday, 12 September in the Globe of Science and Innovation:
"*Show Devant ! La conférence électrique*" - a fun, interactive science workshop hosted by Physiscope and designed to explain electricity and superconductivity to participants of all ages. Sign up here (*https://indico.cern.ch/event/654733/*).

- 6.30 p.m. on Tuesday, 19 September at Uni Dufour, U600 auditorium:
"The Higgs boson and our life" by Fabiola Gianotti. The Director-General of CERN will recount the discovery of the Higgs boson and its impact on sci-

ence and society. Free entry. Lecture in English with simultaneous interpreting into French. More information on the website of the University of Geneva (*http://www.unige.ch/public/evenements/une/le-boson-de-higgs-et-notre-vie/*).

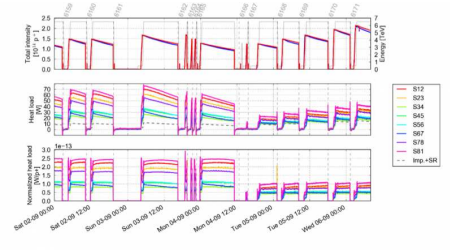
- From Friday, 22 to Sunday, 24 September: A "hackathon" focusing on future applications of superconductors

will take place at CERN's IdeaSquare as part of EUCAS 2017. This workshop will bring together experts in superconductivity and technology transfer with students of science and technology and management. Its goal is to identify new avenues for the application and commercialisation of superconductors.
Hosted by CERN and the EASITrain network, this event will be led by members of the FCC study and is supported by the HL-LHC project, the University of Vienna, the Knowledge Transfer group and IdeaSquare.
The final presentation, which is open to the public, will take place at 11.30 a.m. on Sunday, 24 September at IdeaSquare. See the website (*http://www.cern-hackathon.org/*) for more information.

Corinne Pralavorio

LHC REPORT: OPERATION WITH HOLES

Frozen particles of gas falling from the LHC's vacuum chambers into the beam could possibly be the explanation for the recent beam losses



*Evolution of the beam intensities (top), head load to the cryogenic system (middle) and heat load normalised to the total intensity for the eight LHC arcs (bottom). ** (Image: G. Iadarola/CERN)*

The "16L2" saga continues: as the last two LHC Reports explained, the LHC arc cell "16L2" has dominated recent discussions about the operation of the LHC. Since the beginning of the summer the majority of beam dumps have been initiated by local beam losses and beam instabilities associated with this part of the machine.

The mechanism that leads to the beam dumps is yet to be clarified. The current understanding is that air became trapped in that cell's vacuum chambers during the Extended Year-End Technical Stop (EYETS), and an attempt to condense the gas on the 1.9K magnet cold bore by warming up the beam screen did not improve the situation.

The time structure of the beam losses suggests that a frozen particle of gas becomes detached from the chamber surface by the beam. The ice particle then falls into the beam where its interaction with the protons transforms it into gas. The subsequent interaction of the gas with the beam leads to beam losses and instabilities. Attempts to simulate such a configuration involving the protons of the beam, electrons and ionised gas are under way. Electron clouds produced by the densely packed LHC bunches are one of the mechanisms that may trigger such events, since the electrons in the cloud deposit energy on the chamber surface. Observations at injection were that such events were rare despite a very strong electron cloud, suggesting that another factor is needed to trigger a 16L2 event.

Last week, the standard LHC beam with a bunch spacing of 25 nanoseconds was replaced by a so-called "8b4e" beam. This acronym stands for "8 bunches" and "4 empty (slots)": instead of a continuous train of bunches spaced by 25 nanoseconds, this beam consists of mini-trains of eight bunches spaced by 25 nanoseconds and four empty bunch slots. This irregular beam pattern suppresses the formation of electron clouds compared to the standard beam. The price to pay is a lower number of bunches in the LHC due to the empty bunch slots. While the LHC operated with up to 2556 bunches in July, operation with "8b4e" limits the number of bunches to around 1920. As far as one can judge after a few days of operation with 8b4e, operation has become smoother with almost no dumps associated with 16L2 as long as the bunch population is not pushed beyond around 1.1×10^{11} protons. In this configuration, the performance is reduced but acceptable, which could see us through to the end of the year, towards the ambitious 45 fb^{-1} target for integrated luminosity for 2017.

***The reduction of the heat load with 8b4e (from Tuesday, 5 September) is clearly visible as a result of the much reduced electron cloud activity induced by the 8b4e beam.*

Jorg Wenninger for the Operations group

COMPUTER SECURITY: TRIPS AND TRAVEL: SOME RECOMMENDATIONS

Autumn conference season is fast approaching. Have you ever thought about how best to secure your laptop and smartphone while travelling?

Autumn conference season is fast approaching. Have you ever thought about how best to secure your laptop and smartphone — and with it your data and documents or your (private?) photos and videos — while travelling? See below for some recommendations...

Of course, the best option is just to leave your laptop at home. Take a break from Facebook, WhatsApp, e-mail, etc. for a few days, relax and enjoy your conference. Remember that Internet kiosks or terminals in the hotel lobby are not an option as these computers might already be compromised and able to sniff your password. If you can't be without your laptop — and there are plenty of reasons why — the second best option is to bring along a "disposable" laptop which does not hold any important data and which you can completely reinstall once you are back. Any work-related data can be kept at CERN and remotely accessed through CERN DFS or CERNBox. This might be particularly useful if you travel frequently and run a higher risk of theft. Using a disposable laptop might not be an option either, but there is a third option: encrypt your laptop so that all data is properly protected. CERN provides centrally managed full disk encryption solutions for Windows laptops ("Bitlocker") as well as for Macbooks ("Filevault") and Linux CentOS ("LUKS"). Taking a backup from just before your trip is beneficial too. Just in case...

Similarly for your smartphone, the best option is to leave it at home and get a dumb brick-type mobile phone. That way you will remain available for emergency phone calls but cannot lose any data. And once again, if this doesn't work for you, leave your phone completely switched off when not in use and make sure that it requires you to type a strong passcode (more than 4 digits!) every time you switch it on! Never connect your phone to a docking station that is not yours. An adversary might just suck up all your data via this means. Better to use your own charger and USB adapter. Alternatively, buy a so-called "Umbrella" stick which allows you to charge your phone from any USB port but physically blocks data exchange.

Finally, if you are on duty travel and carry a CERN device (laptop, iPad, smartphone), do not forget to put the "PROPRIÉTÉ CERN" sticker, which is a means to show that your device is a CERN property enjoying, as such, the inviolability (solely available for CERN devices at the CERN Stores Urgency Window). The latter applies on the territory of the CERN Member and Associate Member States only. This does not imply that the customs or police officials are aware of CERN's international status. As a precaution, we recommend to completely shutdown your CERN device before passing through customs. If you are requested to switch it on, we recommend that you state calmly that it is protected by the inviolability granted to CERN property and that you disagree with any search. If you are obliged to disclose your password or PIN code, please inform the Computer.Security@cern.ch of this unauthorized access ASAP. Please also note that we need to be informed if your device has been taken away, even for a few minutes, or connected to another device. We will take the necessary measures to prevent any potential remote access and, if necessary, replace your CERN device.

Do you want to learn more about computer security incidents and issues at CERN? Follow our Monthly Report (http://cern.ch/security/reports/en/monthly_reports.shtml). For further information, questions or help, visit our website (http://cern.ch/Computer.Security) or contact us at Computer.Security@cern.ch.

The Computer Security Team

HOW CAN MACHINE LEARNING IMPROVE VACCINE PRODUCTION?

Experts from CERN have shared their expertise on machine learning with Sanofi Pasteur, the vaccines business unit of Sanofi

A team of experts from CERN shared their expertise on machine learning with Sanofi Pasteur, the vaccines business unit of Sanofi, a global life sciences company.

This was achieved by means of a four-day training course tailored to address topics specifically of interest to Sanofi-Pasteur, with the aim of improving vaccine production. The course was built around ROOT, the data analysis framework used to analyse HEP data, and the Toolkit for Multivariate Data Analysis (TMVA), a library of associated machine learning algorithms. ROOT was developed by CERN and various collaborating institutes and is used by physicists around the globe to analyse data.

The main objective of the course was to apply novel machine learning techniques

to various vaccine production challenges that had proven hard to solve using conventional methods. Machine learning is all about finding patterns in data and the techniques can be exploited across completely different sets of information. Despite the fact that CERN has nothing to do with vaccine production, both organisations have plenty of data and many variables, making machine learning valuable.

"This training course gave us the opportunity to use and test new methods and understand in which cases they could be useful for us," said a participant from Sanofi Pasteur. New opportunities came to light and several of the teams involved will test and explore machine learning tools further. The aim is that the techniques discussed during the training course could be deployed to improve vaccine production and consequently help even more people to access vital vaccines.

The course was prepared and delivered by Sergei Gleyzer and Lorenzo Moneta from the ROOT-TMVA development team in EP-SFT. It was emphasised that the relationship with CERN and the machine learning experts was just as valuable as the training course itself, which leaves the possibility for further knowledge exchange in the future, allowing CERN to continue to aid the creation of vaccines.

The training course was organised following a face-to-face conversation between representatives of Sanofi Pasteur and Nick Ziogas from CERN's Knowledge Transfer group, about tools used at CERN for data analysis. As this illustrates, there are many opportunities to learn from CERN's knowledge and expertise, but sometimes it takes more than an internet search to identify them.

Ranveig Strom for the KT group

Official communications

ANNOUNCEMENT FOR "FRONTALIERS" REGARDING THE CHOICE OF HEALTH INSURANCE SYSTEM

Further to the Official Communication of 16 May 2017 (*http://home.cern/cern-people/official-communications/2017/05/announcement-frontaliers-regarding-choice-health*), **members of the personnel are reminded that their spouses and partners who are "frontaliers" should formally choose between the Swiss and the French health insurance systems before 30 September 2017**. Those who will not express their choice run the risk, according to the Geneva authorities (*https://www.ge.ch/deas/doc/conferences/2017-05-02/2017-05-02--CP-droit-d-option.pdf*), of having to "*pay penalties to their insurers that may amount to several years' worth of contributions*".

The procedure to be followed to formally express this choice appears on page 3 of the relevant form (*https://www.ge.ch/sam/doc/choix-systeme-assurance-maladie.pdf*). Specific information for spouses and partners of members of the CERN personnel appear in a note by the Swiss authorities (*https://cds.cern.ch/record/1999147/files/nvch.pdf*).

Hence, for instance, spouses and partners who are "*frontaliers*" and wish to be solely covered by the Organization's scheme (the CHIS) should:

1. select the first option in Section 5 of the form (*https://www.ge.ch/sam/doc/choix-systeme-assurance-maladie.pdf*) "*Affiliation auprès de l'assurance-maladie suisse (LAMal)*",
2. make reference to the second bullet of the above note (*https://cds.cern.ch/record/1999147/files/nvch.pdf*), and
3. provide an attestation of coverage issued by UNIQA on behalf of the CHIS.

Since the deadline of 30 Septembre 2017 is now very close, it is recommended that the completed form be brought *in person* to the relevant French CPAM (e.g. in Bourg-en-Bresse) for approval, before being sent on to the Swiss authorities via registered mail.

HR Department

117TH ACCU MEETING

Agenda for the meeting to be held on Tuesday, 19 September 2017 at 9:15 a.m. in Room Georges Charpak (Room F, 60/6-015)

1. Chairperson's remarks
2. Adoption of the agenda
3. Minutes of the previous meeting
4. News from the CERN Management
5. Report on services from SMB Department
6. Report on services from IT Department: a. Experience with the new Blg. 40 WiFi system; b. Migration of analogue phones
7. Reports from ACCU representatives on other Committees: a. Academic Training Committe (ACT)
8. Users' Office News
9. Matters arising
10. Any Other Business
11. ACCU meetings 2018
12. Agenda for the next meeting

The **Advisory Committee of CERN Users (ACCU)** is the forum for discussion between the CERN Management and the representatives of CERN Users to review the practical means taken by CERN for the work of Users of the Laboratory. The mandate of ACCU is available on: http://accu.web.cern.ch/content/mandate.

There are one or two Delegates from each Member State (two Delegates from the large Member States), one Delegate from each of the Associate Members, four Delegates from non-Member States (NMS), and two from CERN. The list of ACCU members is available on: http://accu.web.cern.ch/content/accu-members.

ACCU meetings are attended by the Director General and members of the Directorate, other members of the CERN management and departmental representatives, the Head of the Users' Office and a representative of the CERN Staff Association. Other members of the CERN Staff attend as necessary for specific agenda items.

Chairperson: *Dragoslav-Laza Lazic (Dragoslav.Lazic@cern.ch)*

Secretary: *Michael Hauschild (ACCU.Secretary@cern.ch)*

Anyone wishing to raise any points under "Any Other Business" at the upcoming ACCU meeting is invited to contact the appropriate User representative, or the Chairperson or the Secretary.

ADMINISTRATIVE CIRCULAR NO. 12B (REV. 3) – EDUCATION AND LANGUAGE COURSE FEES

Administrative Circular No. 12B (Rev. 3) entitled *"Education and language course fees"*, approved by the Director-General following recommendation by the Standing Concertation Committee after its meeting on 1 June, thereafter completed by written procedure on 16 June and finalised on 24 August 2017, will be available on 1 September 2017 via the following link: AC No. 12B (*https://cds.cern.ch/record/2279093*).

This revision cancels and replaces Administrative Circular No. 12B (Rev. 2) entitled *"Education and language courses"*, of August 2013. It will enter into force on 1 September 2017.

Modifications to this circular are limited to changes of a cosmetic nature, which have been made in the revised version of AC No. 12A, and, where applicable, the terminology has been aligned with the terms used in Administrative Circular No. 5 (Dependent child).

Please also note that, henceforth, reimbursement claims should be made via EDH by the beneficiary and the supporting documents may be scanned and attached to the EDH claim. It will no longer be necessary to submit the original invoices to HR Department, however proof of payment may be requested by FAP Department in their processing of the claim.

Members of personnel concerned by this circular are invited to consult the CERN Admin e-Guide (*https://admin-eguide.web.cern.ch/node/711*) for further details concerning the new procedure and the EDH document. HR Department also remains available to answer any questions via the following address: schoolfees.service@cern.ch.

HR Department / FAP Department

ADMINISTRATIVE CIRCULAR NO. 12A (REV. 3) – EDUCATION FEES

Administrative Circular No. 12A (Rev. 3) entitled *"Education fees"*, approved by the Director-General following recommendation by the Standing Concertation Committee after its meeting on 1 June, thereafter completed by written procedure on 16 June and finalised on 24 August 2017, will be available on 1 September 2017 via the following link: AC No. 12A (*https://cds.cern.ch/record/2279092*).

This revision cancels and replaces Administrative Circular No. 12A (Rev. 2) also entitled *"Education fees"*, of August 2013. It will enter into force on 1 September 2017.

Modifications have been introduced to this circular to streamline, and render more transparent, the administration of education-related fees. The main changes provide for reimbursement in the form of a lump sum for meals and school transport expenses during the school year.

Please also note that, henceforth, reimbursement claims should be made via EDH by the beneficiary and the supporting documents may be scanned and attached to the EDH claim. It will no longer be necessary to submit the original invoices to HR Department, however proof of payment may be requested by FAP Department in their processing of the claim.

Staff members concerned by this circular are invited to consult the CERN Admin e-Guide (*https://admin-eguide.web.cern.ch/node/711*) for further details concerning the new procedure and the EDH document. HR Department also remains available to answer any questions via the following address: schoolfees.service@cern.ch.

HR Department / FAP Department

ADMINISTRATIVE CIRCULAR NO. 11 (REV. 5) – CATEGORIES OF MEMBERS OF THE PERSONNEL

Administrative Circular No. 11 (Rev. 5) entitled "*Categories of members of the personnel*", approved by the Director-General following recommendation by the Standing Concertation Committee after its meeting on 1 June 2017, will be available on 1 September 2017 via the following link: AC No. 11 (*http://cds.cern.ch/record/2279090*).

This revised circular cancels and replaces Administrative Circular No. 11 (Rev. 4) also entitled "*Categories of members of the personnel*", of August 2016.

This circular was revised to reflect the modifications of the CHIS Rules on 1 September 2017, notably concerning the affiliation of associated members of the personnel. The text has also been improved to clarify the status of apprentices hired before 1 August 2016.

This circular will enter into force on 1 September 2017.

HR Department

STARTING IN SEPTEMBER: CHANGE IN THE DISPLAY OF THE PERCENTAGE OF MIDPOINT OF YOUR GRADE ON YOUR SALARY SLIP

As of September, you will observe a minor change in the 2nd and/or 3rd decimal place of the percentage of midpoint of your grade on your salary slip. Please note this is simply a change in the way it is displayed. Your salary and all other amounts remain unchanged.

Therefore, the percentage of midpoint of your grade displayed on your salary slip will now represent your precise salary divided by the midpoint of your grade (whereas until now it represented your rounded salary divided by the midpoint of your grade).

FAP & HR Departments

Announcements

CALL FOR ABSTRACTS FOR THE 4TH DEVELOPERS@CERN FORUM

Hundreds of developers work on many different projects at CERN – from data analysis to beam operations and administrative applications. As of this October, they will have an opportunity to meet each other a the 4th Developers@CERN Forum.

The 4th Developers @ CERN Forum will be held on 23 and 24 October in IdeaSquare. The event is being organised by developers from different CERN departments.

The topic for this fourth event will be 'Application Deployment', with a focus on continuous integration techniques. This is a topic of interest for all the developers, regardless of their specific fields of activity. The whole idea is to exchange best practices and solutions to ensure that our applications are highly reliable.

Anyone interested in submitting a presentation or a topic for a workshop should follow this link: https://indico.cern.ch/event/655194/abstracts/.

With this initiative, the organisers hope to involve a large proportion of CERN's developers. If you are interested in contributing or just participating as a member of the audience, please visit the dedicated website (*http://cern.ch/dev-forum*) or e-mail the organisers. (*http://developers-forum-organizers@cern.ch*)

The Developers@CERN Forum organisers

CERN DG TO DELIVER THE OPENING LECTURE AT UNIGE

Tuesday, 19 September 2017 – 6.30 p.m.
Admission free
Uni Dufour, lecture theatre U600

As part of the EUCAS 2017 conference, the University of Geneva is hosting a lecture by Fabiola Gianotti entitled "*The Higgs boson and our life*".

The CERN Director-General will tell the story of a key moment in science: the discovery of the Higgs boson.
Since 2012, this discovery, which proved the Brout-Englert-Higgs mechanism, has revolutionised particle physics and attracted the attention of the general public to the research carried out at CERN.

Come and discover or rediscover CERN's mission, which combines scientific research, innovation, education and training, and international collaboration – a peaceful and necessary mission for our times.

Lecture in English with simultaneous interpretation into French.

For more information about the EUCAS 2017 conference, visit: www.eucas2017.org.

2-6 OCTOBER: RADECS 2017 CONFERENCE

CERN is organising the RADECS 2017 conference, which stands for RADiation Effects on Components and Systems. It will be held 2 October to 6 in Geneva, Switzerland at the *Centre International des Congrès de Genève* (CICG).

Early-bird registration will be open until 19 September, though late registration will be possible on-site during the conference.

This year's CERN edition of RADECS will take advantage of the synergies across domains as diverse as Space, Avionics, ground applications and particle accelerators to offer a conference featuring a superb variety of topics around the qualification of electronic components and systems used in radiation environments. Mondays' short course entitled "From Space to Ground and Below" perfectly reflects the spirit and theme of this conference. RADECS 2017 will provide a unique opportunity to combine the understanding and techniques from different fields in order to pave the way to tomorrow's applications and challenges.

The conference will also host complementary events, such as the Women in Engineering event on the evening of the 2 October, as well as several events related to RADSAGA, an innovative EC funded Marie Skłodowska-Curie Innovative Training Network (ITN), which stands for RADiation and Reliability Challenges for Electronics used in Space, Aviation, Ground and Accelerators.

The latest update shows not only a strong scientific and technical program with more than 200 contributions, but let us expect more than 600 participants and almost 50 international exhibiting companies, promising already today a dynamic and dense RADECS week in Geneva.

More details and news are available at www.radecs2017.com!

HELP PROMOTE CERN AND ITS SCIENCE AT THE AUTOMNALES FAIR!

From 10 to 19 November, CERN will be going somewhere you might not expect: to the *Automnales* fair!

The Organization will be the guest of honour, with its very own magnificent 1000 m^2stand, which will feature games, film screenings, an auditorium, workshops, lectures, virtual reality headsets... and much more! And the subjects covered will run the gamut from accelerators to IT, technology transfer, detectors, international collaboration and physics in general.

So what's the link between the Organization and all the other commercial exhibitors at this event?

There isn't one: that's the interesting thing! The attendees at this event are exactly the type of people with whom we want to engage. Let's meet our neighbours – your neighbours – who have probably never thought of visiting CERN, thinking that it's beyond their reach. Let's surprise them with our unexpected presence and explain to them that CERN is more than just "that globe thing" and that it's an exciting place.

Are you already a CERN ambassador or would you like to help us out by becoming one? Here's how you can present CERN to your neighbours in three simple steps:

1/ Complete this Doodle (*https://beta.doodle.com/poll/z8qfgy5vc7rmsktp*) opposite with your availability. Deadline for responses: 8 October. Don't worry, you won't have to be there the whole time.

2/ Put on a lovely CERN polo shirt (which we will provide) and your best smile to attract people to our stand.

3/ Wow them with all our activities!

The ideal profile is someone from CERN who has a knack for explaining things (patiently), has at least C1 level French (very few people from Geneva's international community visit the *Automnales*) and is full of enthusiasm. You don't need to be an official guide!

Everyone who helps out on the stand will be rewarded for their time and invited to a dinner at the end of the *Automnales*.

TACKLING TOMORROW'S ICT CHALLENGES TODAY

CERN openlab is organising an open day on 21 September 2017 — everyone is welcome! Come and learn about our work: collaborating with leading ICT companies and research institutes to accelerate the development of cutting-edge solutions for the worldwide LHC community — as well as for wider scientific research.

As CERN openlab's current three-year phase comes to a close, discover the technical highlights from our diverse range of projects. And find out more about future ICT challenges we aim to tackle too! The event will see the launch of the new CERN openlab white paper on future ICT challenges: this is the culmination of a process of deep consultation with representatives of the experiments here at CERN.

The event will take place at CERN in the Council Chamber, as well as in the upstairs mezzanine area ("salle des pas perdus") of the Main Building. It will feature hands-on technology demonstrations from companies working with CERN openlab, so that you too can discover the latest ICT innovations.

If you're interested in finding out more about how research and industry can work together in close partnership to drive innovation in support of the scientific community, then this event is for you.

More information here. (http://indico.cern.ch/e/COOD17/.)

CERN openlab's new white paper on future ICT challenges will be published at the Open Day on 21 September. (Image: CERN)

Andrew Purcell

2017 EDITION OF THE CERN ROAD RACE

The 2017 edition of the annual CERN Road Race will be held on **Wednesday 27 September** at 18:15.

The 5.5 km race takes place over 3 laps of a 1.8 km circuit in the West Area of the Meyrin site, and is open to everyone working at CERN and their families. There are runners of all speeds, with times ranging from under 17 to over 34 minutes, and the race is run on a handicap basis, by staggering the starting times so that (in theory) all runners finish together.

Children (< 15 years) have their own race over 1 lap of 1.8 km. As usual, there will be a "best family" challenge (judged on best parent + best child).

Trophies are awarded in the usual men's, women's and veterans' categories, and there is a challenge for the best age/performance.

Every adult will receive a souvenir prize, financed by a registration fee of 10 CHF. Children enter free (each child will receive a medal).

More information and the online entry form can be found at: http://runningclub.web.cern.ch/content/cern-road-race.

REGISTER NOW FOR ISOTDAQ 2018!

The International School of Trigger and Data Acquisition (ISOTDAQ) 2018 is the ninth in a series of International Schools dedicated to introducing students (MSc and PhD) as well as postdoc and more seasoned professionals to the "arts and crafts" of triggering and acquiring data for physics experiments.

The main aim of the school is to provide an overview of the basic instruments and methodologies used in high energy physics, spanning from small experiments in the lab to the very large LHC experiments, emphasising the main building blocks as well as the different choices and architectures at different levels of complexity. About half of the school time will be dedicated to laboratory exercises where the students are exposed to most of the techniques described in the lectures.

The 9th International School of Trigger and Data Acquisition will be held at the **University of Technology in Vienna, from 14 to 22 February 2018**. Lectures, hands on exercises and coffee breaks will be held at the University.

Accommodation is within walking distance in the hotel Kolpinghaus.

Since places are limited, acceptance to the school is by a selection committee.

Apply here (*https://indico.cern.ch/event/643308/page/10746-application-to-attend-the-school*)

Applications are accepted until November 1st, 2017.

Find out more about the school here (https://indico.cern.ch/event/643308/).

ISOTDAQ CERN Organising Committee

Obituaries

GUIDO PETRUCCI (1926 – 2017)

Guido Petrucci, one of the engineers who contributed to CERN's reputation as a centre of technological excellence, passed away on 9 July after a long illness.

Born in Trieste on 27 September 1926, Guido obtained a degree in electrotechnical engineering from the University of Rome in 1951. In 1954, he was recruited to work at CERN by Edoardo Amaldi. He first joined the PS Magnet group, and then a physics group involved in cosmic ray experiments at the Jungfraujoch (there were no accelerators yet in operation at CERN in those early years). In this environment, he developed a keen interest in physics that shaped his career for the years to come. He became one of the leading engineers in the CERN physics research divisions and always worked in close contact with physicists (for this reason, he liked to define himself as an “atypical engineer”).

After designing the magnet for the two-metre hydrogen bubble chamber, he soon became an expert in beam optics and designed a large number of beam lines for the CERN South and East zones. For some of these, he designed special magnetic elements, such as a magnet with two septa, used to split the proton beam slowly ejected to the East Area into three branches.

In the second half of the 1960s, Guido designed the storage ring for the third muon g – 2 CERN experiment. At the end of the experiment in 1976, under Guido's leadership, this ring was transformed into a strong-focusing synchrotron for the Initial Cooling Experiment (ICE). ICE demonstrated that stochastic cooling, and later electron cooling, work well. This was a crucial step towards the operation of the SPS as a proton–antiproton collider in the 1980s. He then went on to design the magnet for the UA1 experiment and, in the 1980s, the magnetic structures of the ALEPH and DELPHI solenoidal spectrometers at LEP.

Guido retired from CERN in 1991, but continued to work on various projects, such as TERA, the ELETTRA 2.4 GeV electron synchrotron in Trieste, the KLOE experiment at the electron–positron collider DAΦNE in Frascati, and the PVLAS experiment at the Legnaro INFN laboratory.

Guido was an exceptionally bright engineer, always able to find simple and elegant solutions to difficult technical problems, and always willing to provide advice to his colleagues. He was also very cultured, with an interest in all aspects of the arts, such as music (he had a piano diploma from the Rome Conservatory), architecture and painting. A discussion with him was always an enriching experience. Guido will be sorely missed by all those who had the privilege of being among his collaborators and friends.

His colleagues and friends

Ombud's corner

UNEARNED ADVANTAGE

One of the topics that never failed to arouse interest during the recent Diversity workshops organised at CERN was that of "unearned advantage", or the relative ease with which doors open for certain people, simply because they belong to dominant (often majority) groups, as compared to others.

A useful example by which to understand what is meant by "unearned advantage" is that of right-handed people who, simply by virtue of belonging to a majority group, can use a computer, a tin opener, a pair of scissors and so on without thinking twice about it, whilst their left-handed colleagues have to adapt to using tools that are not designed for them. Those in the dominant group, like right-handed people, often do not realise that they have this advantage, but others are forced to be very aware of it and of the obstacles they need to overcome in order to achieve the same goals.

Dominant groups are often, though not always, defined by numbers, but regardless of whether or not they represent the majority, they always have the upper hand in the existing balance of power. These groups benefit from a systematic structure embedded in their daily lives that grants an unearned advantage to them on the basis of their identity alone.

In a complex work environment such as CERN, this notion of "unearned advantage" comes in many forms, extending over the various dimensions defined by our Diversity Programme. In order to grasp what this implies in our context, it is worth reflecting on questions such as the following questions:

- Do native speakers have an edge over their colleagues from other cultures in both written and verbal communication?
- Does the male-majority gender distribution across the Organization create a less equitable working culture and mindset for their female colleagues?
- Does the general assumption of a heterosexual work environment make it difficult for members of the LGBT community to be themselves and give their best?
- Do the invisible disabilities of visually or hearing-impaired colleagues affect their ability to contribute fully?

Unearned advantage, the advantage of belonging to a dominant group, is taken for granted and therefore difficult to recognise from within it. Even when acknowledged, it is not a privilege that is easily or voluntarily abandoned. Regardless of how sensitive to social injustice we may be, it is our natural tendency to resist change in a system of dominance from which we consciously or unconsciously benefit, even while wishing to redress the widespread disadvantage this may cause others to experience throughout their working lives.

If, however, we choose to put ourselves in the others' shoes, and view their different experiences with empathy, we may begin to realise that it is in all our longer-term interests to challenge our own assumptions and engage in the conversation about unearned advantage and inclusivity. Only then will we be able to truly understand what is at stake, both in terms of fairness and basic human dignity.

Sudeshna Datta Cockerill