

SUPER AND FERRIC: THE FIRST HL-LHC COMPONENT IS READY

Although the actual installation phase in the tunnel will only start in 2024, the first magnet – a sextupole – of the High-Luminosity LHC (HL-LHC) is ready and working according to specifications. This first component is also rather unique as, unlike the superconducting magnets currently used in the LHC, it relies on a “superferric” heart.



An expert in the LASA Laboratory (INFN Milan, Italy) works on assembling the first sextupole corrector of the HL-LHC. (Image: INFN Milan)

Although the name might sound completely unfamiliar, superferric magnets were first proposed in the 1980s as a possible solution for high-energy colliders. However, many technical problems needed to be overcome before the use of superferric magnets could become a reality. In its final configuration, the HL-LHC will have 36 superferric corrector magnets, of which 4 will be quadrupoles, 8 sextupoles and 24 higher order magnets.

In superferric (or “iron-dominated”) magnets, iron is used in the poles that shape the field, in addition to in the yoke as in a standard superconducting magnet, while the coils are made of superconducting material that is kept at cryogenic temperatures to reduce power losses to a minimum. Superferric magnets have been shown to be highly reliable and this is no trivial requirement for machines like the HL-LHC

in which, during normal operations, high-intensity beams will have to complete hundreds of millions of turns in stable conditions before being safely dumped by the operators.

A superferric corrector magnet was developed by CIEMAT for the SLHC-PP study, and that design was used as a starting point for the HL-LHC correctors. Subsequently, in the framework of a CERN-INFN Collaboration Agreement for the HL-LHC project signed in 2013, the LASA laboratory of the Milan section of the Italian National Institute for Nuclear Physics (INFN) has taken over as a partner in the project. “At LASA, we dealt with the design, assembly and testing of the magnet,” explains Giovanni Volpini from INFN Milan. “This was possible thanks to the expertise the laboratory has acquired working on many of the most important superconducting magnets for high-



A WORD FROM FRÉDÉRIC BORDRY

POWER TO THE LHC

It's March already, and time for the LHC to wake up from its short winter break. The first of 7000 powering tests began on 4 March: the first step on the way to the first beams of 2016. It's a tight schedule, with the powering tests scheduled for just 12 days before moving on to machine checkout and then commissioning with beam around Easter.

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A WORD FROM FRÉDÉRIC BORDRY

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POWER TO THE LHC

Last year marked a great start to Run 2. The objective for the year was to establish proton-proton collisions at 13 TeV with 25 ns bunch spacing, and in that we were successful, delivering four inverse femtobarns (4 fb^{-1}) of data to the experiments. This was a great result but, to put it into context, the goal for the whole of Run 2 is to deliver 100 fb^{-1} by the end of 2018, so we still have a long way to go. 2015 was a learning year, and by the time we switched off for the end-of-year break, we had learned a great deal about how to operate this superb machine at the new higher energy, with shorter bunch spacing

allowing us to get many more bunches of particles into the beam and thereby deliver more data to the experiments.

This year is the first full production year of Run 2 and our goal is to deliver 25 fb^{-1} during the proton-proton run, before switching to heavy ions as usual towards the end of the year. As always, safety will be our first concern, so we've scheduled around four weeks of beam commissioning before we declare stable beams. Then we'll start with low intensity, before increasing steadily in intensity towards the target of 2748 bunches per beam in early summer.

It would be easy to think that LHC running is becoming routine, and in many ways it is. Nevertheless, the year-end technical stop is a vital part of the running cycle and much has been accomplished over this short winter break. I'd therefore like to thank everyone, from both the machine and experiment teams, for the great work accomplished and the fantastic team spirit that has reigned throughout.

Frédéric Bordry, Director for Accelerators and Technology

SUPER AND FERRIC: THE FIRST HL-LHC COMPONENT IS READY

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energy physics. However, this is the first time in many years that a full-size superconducting magnet has been developed entirely in-house. We are very happy with the results of the recent tests: the magnet has shown high stability, as it could reach and surpass the ultimate field value required by the design specifications before quenching. The ultimate field we measured was almost 10% above the nominal operating field. Magnet stability will be a key feature to guarantee the overall reliability of the whole beam corrector system once all the hardware components have been installed in the tunnel."

"The partnership between INFN and CERN has been key in achieving this result and it will be as fundamental as the other collaborations in the HL-LHC project in meeting the project's goals," confirms Paolo Fessia from the Technology Department, who is in charge of the project on the CERN side.

Now that the first piece of hardware has proven that superferric technology works as expected, HL-LHC and INFN experts will go on to finalise the design of the other corrector magnets. In parallel, other groups in various institutes

around the world are developing, building and testing other HL-LHC components, including the highly challenging high-field magnets. The new ring is starting to take shape.

Antonella Del Rosso

HL-LHC in brief

HL-LHC is the project that aims at increasing the current LHC luminosity by a factor of 10, thus extending the discovery potential of the machine significantly. In order to achieve this, 1.2 km of the existing accelerator will be replaced by new components, namely: innovative niobium-tin superconducting

magnets; new radiofrequency cavities known as "crab cavities"; a new generation of collimators; and powerful magnesium-diboride-based superconducting cables capable of transporting huge electrical currents.

HL-LHC is a collaborative and international effort that involves a number of specialised institutes around the world. For more details, please see here: <http://cern.ch/go/sd9K>.

LHC REPORT: BACK IN OPERATION

With the machine back in their hands since Friday, 4 March, the LHC operators are now performing the powering tests on the magnets. This is a crucial step before receiving the first beams and restarting Run 2 for physics.



A Distribution Feed-Box (DFB) brings power to the LHC magnets and maintains the stability of the current in the superconducting circuits.

The LHC was the last machine to be handed back to operators after the completion of maintenance work carried out during the Year-End Technical Stop (YETS) that had started on 14 December 2015.

During the eleven weeks of scheduled maintenance activities, several operations took place in all the accelerators and beam lines. They included the maintenance in several points of the cryogenic system, the replacement of 18 magnets in the Super Proton Synchrotron; an extensive campaign to identify and remove thousands of obsolete cables; the replacement of the LHC beam absorbers for injection (TDIs) that are used to absorb the SPS beam if a problem occurs, providing vital protection for the LHC; the dismantling and reinstallation of twelve LHC collimators in order to modify the vacuum chambers, which restricted their movement;

upgrades to the beam instrumentation, including various beam monitors, with further upgrades scheduled for the next Extended Year-End Technical Stop (EYETS) starting in December; and several electrical maintenance operations to ensure a stable operation of the machines.

The YETS also gave the experiments the opportunity to carry out repairs and maintenance work on their detectors. In particular, for ATLAS, this meant fixing the vacuum chamber bellow and installing new cables for triggering and controlling, as well as new water-cooling cables; at CMS, the cold box, which had caused problems for the experiment's magnet during 2015, was cleaned and various water leaks on the site were fixed.

Bringing back beams to the machine after

a technical stop of a few weeks is no trivial thing. The Electrical Quality Assurance (ELQA) team needed to test the electrical circuits of the superconducting magnets, certifying their readiness for operation – that is, their capability to withstand the high voltages that might occur during powering. All specified circuits were successfully validated after fixing some very minor non-conformities. The teams also checked the correct functioning of the redundant powering that is used in the event of an electrical power cut to protect critical systems in the machine. During the checks, some critical problems appeared; they will be fixed before the machine receives beam.

On 4 March, after completing all the preparatory activities, the powering tests of the superconducting circuits were able to start. These are joint effort of many groups across three different departments – including experts on magnets and power converters, protection and interlock, planning and operation – and this requires good collaboration, preparation and coordination of the various activities. In less than two weeks, over 7000 tests are being performed on the 1600 circuits. Even though the tests are executed automatically, the experts in charge of running and analysing them need to pay careful attention to the thousands of multi-coloured signals on their screens.

At present, more than three quarters of the tests have been performed, proving the capability of the circuits to reach the values needed for operation during Run 2. The target is close, but attention has to remain high to be able to start the final checks in just a few days before accepting beams in the machine. Soon, yet another commissioning period will be over with the beams expected back in the LHC in a couple of weeks.

The LHC team

GOSH! A ROADMAP FOR OPEN-SOURCE SCIENCE HARDWARE

The goal of the Gathering for Open Science Hardware (GOSH! 2016), held from 2 to 5 March 2016 at IdeaSquare, was to lay the foundations of the open-source hardware for science movement.



The participants in the GOSH! 2016 meeting gathered in IdeaSquare. (Image: GOSH Community)

"Despite advances in technology, many scientific innovations are held back because of a lack of affordable and customisable hardware," says François Grey, a professor at the University of Geneva and coordinator of Citizen Cyberlab – a partnership between CERN, the UN Institute for Training and Research and the University of Geneva – who co-organised the GOSH! 2016 workshop. "This scarcity of accessible science hardware is particularly obstructive for citizen science groups or humanitarian organisations that don't have the same economic means as a well-funded institution." Instead, open sourcing science hardware could lower instrumentation costs, thereby increasing access for an ever-wider range of people, while also allowing reuse and customisation.

GOSH! is a meeting specifically about open-source hardware for science, the first of its kind, even though the debate on general open-source hardware has been active worldwide for over 5 years through initiatives such as the Open Source Hardware Association and CERN's pioneering Open Hardware Repository and Open Hardware Licence. About 50 people, including open hardware users and developers from many different science domains as well as experts in relevant legal and economic matters, gathered at IdeaSquare to turn an ensemble of dispersed groups of early adopters into a cohesive and self-organised community, paving the way for the future.

To this end, the GOSH! meeting had dual objectives. "We united scientists and developers of open-source instruments for science from very different disciplines, such

as synthetic biology, cosmic-ray detectors, neuroscience education, etc.," says Jenny Molloy, a co-organiser of GOSH! from the University of Cambridge. "In this way, they can learn how each one is tackling the challenge of getting more openness into hardware."

The second aim of the GOSH! meeting was to discuss the big future challenges that members of the open science hardware community must address in order to create a common roadmap, to promote the movement and ultimately to drive social change towards openness within their groups or institutions. Among the many questions that need to be



Infographics illustrating how to assemble a "RoachScope" for studying neuroscience in schools, using cockroaches. This is an open science hardware project from the Backyard Brains team.

addressed were legal aspects – i.e. how to protect an open source hardware creation – and economic issues.

Indeed, exploring many possible business solutions to make open science hardware a sustainable endeavor is particularly important. Discussions on the economic viability of open-source business focused on two aspects: firstly, as openness in hardware can greatly lower the barrier to entry for manufacturers, new markets can materialise, especially in low-resource environments. Secondly, the commercialisation of an open science hardware product is not in contradiction with it being open source. It also brings substantial benefits to consumers: "Open" doesn't mean that one has to design and build everything from scratch in the lab," says Javier Serrano, a CERN engineer and the founder of the Open Hardware Repository, who gave the keynote speech at the meeting. "Instead, the fact that you can find precise details about an open hardware design should mean greater assurance about its reliability and reproducibility as more people work on it, thus improving the quality. The commercialisation of open designs gives researchers more options to buy hardware ready-made or in kit form and then modify it as needed, thus reducing the duplication of effort," explains Javier.

Beyond economic savings and alternative revenue streams, there is at least one additional invaluable benefit tied to open-source hardware: trust in science. "Being fully open about instruments, methods and the resulting data provides a stronger basis for trusting scientific results. For example, the Safecast project, an open-source radiation monitor, has become a trusted reference for tracking radiation after Fukushima, and it has even been acknowledged by the Japanese government," concludes François.

Stefania Pandolfi

NEW CMS SPOKESPERSON: "AN HONOUR TO BE CHOSEN TO LEAD A SPECTACULAR COLLECTION OF PEOPLE"

Fermilab's Joel Butler will take the reins of the CMS collaboration in September, after having been elected its new spokesperson during the last CMS Week.



Joel Butler, new CMS spokesperson. (Image: Reidar Hahn/Fermilab)

On 10 February, members of the CMS Collaboration Board, the "parliament" of the collaboration, held a ballot to appoint their next leader. The Board chose Joel Butler, who brings a wealth of experience – more than thirty years at Fermilab and more than ten of those with CMS – to this important management role, leading a collaboration of 3000 people from across the globe.

High on Joel's priority list is making sure that all collaborators are able to participate in the collaboration's research easily and to the best of their abilities: "We need everybody to be involved in CMS, whether they're big or small institutions," he says in his office in CERN's Building 42. "We need to have the maximum engagement that we can get to handle all the tasks that we have because the task list is longer now than it's ever been before."

Prior to joining Fermilab, Joel earned a degree in Physics from Harvard University before pursuing a PhD in Experimental Particle Physics from MIT. Since joining the CMS collaboration in 2005, he has contributed to several endeavours, including the US efforts

on the Forward Pixel Tracker and the upgrade project. He led the overall US participation in the collaboration from 2007 until the end of 2013.

When he takes over at the helm later this year, CMS will have moved its Run 2 data collection into a higher gear: "These will be years of tremendous opportunities and tremendous challenges. I think the opportunities are obvious: by the end of this period we'll have close to 100 fb⁻¹ of data. We should get the first 30 by the end of this year. It will be enormously exciting to see what nature has in store for us."

While Joel has spent much of his career studying flavour physics, he prefers not to narrow his personal expectations of what CMS might discover over the coming years. "I'm a particle physicist, I want to go find out what's there. I don't have too many profound prejudices over what it should be. I think – I hope – we will see new physics soon. But even if we don't find anything quickly, we still will have a long, long way to go. We have to continue to upgrade CMS and to cast a broad net out wide to try to catch what's out there,

because we really don't know what the new physics might be or how much data we need to capture it," he affirms.

"I think we've constructed a fantastic detector that's very well suited to the physics that we're trying to explore. That's an extreme compliment to our founding fathers, who designed a great detector." To ensure that CMS can continue this fruitful exploration, Joel points out that the collaboration has crucial technical tasks in the coming months, such as installing a new pixel tracker as well as new sensors for the Hadron Calorimeter over the next Year-End Technical Stop.

Joel takes the reins from a distinguished line of previous spokespersons. He has worked closely with many of them in the past and says he expects to apply what he has learnt from each of them when he starts his term. "I've been on the Management Board and the Executive Board as an advisor to all of them since I joined. The experience that our former spokespersons and many other people in CMS have had over the years is invaluable and had to be a guidepost to our future. We have to take advantage of that experience." However, he is aware of the value of change: "Every successful organisation has to continually try to make successive improvements or it will essentially get stagnant. While CMS is enormously successful, there are things we can do better."

Understandably, Joel is excited to take over his new role in a collaboration in which he has worked for a long time: "I think CMS is an absolutely spectacular collection of people that are really passionate and committed to doing physics. They have tremendous technical and analytical skills and are a pleasure to work with," he says. "It's a tremendous honour to be chosen to do this and I'm going to try to do my best for everybody."

Achintya Rao

BETTER CODE, FEWER PROBLEMS

The origin of many security incidents is negligence or unintentional mistakes made by web developers or programmers. In the rush to complete the work, due to skewed priorities, or just to ignorance, basic security principles can be omitted or forgotten.

The resulting vulnerabilities lie dormant until the evil side spots them and decides to hit hard. Computer security incidents in the past have put CERN's reputation at risk due to websites being defaced with negative messages about the Organization, hash files of passwords being extracted, restricted data exposed... And it all started with a little bit of negligence!

If you check out the Top 10 web development blunders, you will see that the most prevalent mistakes in web development are:

1. Not filtering input, e.g. accepting "<" or ">" in input fields even if only a number is expected.
2. Not validating that input: you expect a birth date? So why accept letters?
3. Mistakes in session management,

authentication and authorisation, e.g. when dealing with "cookies", "tokens" or custom encryption.

There are plenty of possibilities to screw up, but there is no need to. Following a small number of quick and easy steps can make your web application watertight and secure. Learn how to prevent security incidents from happening by following a dedicated hands-on course on "Developing Secure Software". The next course is scheduled for 14 March and there are still a few places left, so register quickly...

Once you have followed that course and are longing for more, the CERN Computer Security team together with a world renowned "white hat" from the IT/CS Network Team are providing in-depth training courses

on penetration testing and vulnerability scanning. So far, more than 100 people have joined our hands-on training. Do you want to become a hacker too? Sign up here: <http://cern.ch/go/xrL6>.

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/>

Stefan Lueders, Computer Security Team

THAT'S NOT WHAT I MEANT...

Have you ever been surprised by a negative reaction to an e-mail communication that you believed to have been efficient, helpful and to-the-point? This happens more often than you may realise, as communication is about what they hear, not what you say.

So you dashed off a reply to that query with a short and factually informative e-mail, stressing the key points and keeping the niceties to a minimum, convinced that your interlocutor would appreciate the efficiency and speed with which you reacted... and you were genuinely surprised when you realised from their response that something had clearly gone awry.

These misunderstandings do happen because there can be a gap between what is said by one and what is understood by others. This gap widens in written communication, where the words are not attenuated by non-verbal aspects such as tone or gesture. If your well-intentioned and factual message or response to a query has been perceived as excessively curt or even disrespectful, you can still do something to fix the problem.

Start by following up on the exchange and acknowledging the gap between your intentions and the way it was received, as this will demonstrate your willingness to repair any inadvertently negative impact. The next step is to seek feedback in order to understand the other person's objections and share your own point of view in order to clear the misunderstanding and move forward together.

Taking this kind of action to follow up on reactions usually has a positive impact

on others, and, by making it a learning conversation where you take the time to listen and acknowledge their perspectives, you may gain an insight into your own communication style, which will help you not only to remedy the situation at hand but also more generally in your everyday interactions. The key lies in keeping an open mind and overcoming any natural feelings of defensiveness by focusing on your genuine wish to be respectful and to maintain a good working relationship.

Communication, however, is a two-way process and responsibility for such a misunderstanding does not lie only with the sender of the message – but also with those on the receiving end whose negative reactions may have been influenced by their own personal history or circumstances.

So if you are on the other end of this exchange and you find yourself tempted to challenge the tone or wording of an e-mail you have just received, you should stop to reconsider the sender's intentions before shooting off an aggressive e-mail in response. Perhaps they have always been encouraged to keep e-mails as brief and specific as possible? Do they operate in a culture where this communication style is the norm? Are they even aware of the risk that they may be perceived negatively? At the same time, it may be useful to reflect on your own intentions – by responding abrasively would

you not be stooping to a counter-attack, which simply sets off an e-mail exchange that will ultimately be disrespectful and counter-productive?

Regardless of on which side of such an e-mail exchange you may find yourself, it is always going to be in your interest to build the relationship, rather than to damage it! A well-intentioned conversation to share perspectives and address the situation is the best way forward... and, if possible, as you will undoubtedly agree, a face-to-face discussion to clear the air is always going to be more effective than e-mail!

All previous Ombud's Corners can be accessed in the Ombud's blog: <http://cern.ch/go/p9Z5>

Sudeshna Datta-Cockerill

JEAN-CLAUDE BRUNET (1941 – 2016)

Jean-Claude Brunet passed away on 27 February 2016.



He joined CERN in 1966 and was one of the key players in the design of the colliders, from the ISR, the first Intersecting Storage Rings, to the LHC, not forgetting the AA, the first Antiproton Accumulator, and LEP. An engineer in the design office, he participated as a precursor to the development and implementation of many elements of the ultra-high vacuum (UHV) systems of these machines. He also took an important role in the design and construction of the LHC cryostats. As a leader, he was always open-minded and much appreciated by the younger generations.

His strong energy led him to be a staff representative and one of the pillars of the touring section of the Ski Club.

We have lost a creator, a traveller, a sailor, a mountaineer and a great friend.

Our thoughts go to his wife, Marie-Claude, and family.

His friends and former colleagues

TAXATION IN FRANCE

Information regarding income tax in France. Request for additional information: social security number and personal details.

Some members of the personnel living in France have received a letter from the French tax authorities accompanied by a form, to be returned by 31 March 2016 at the latest, asking them to indicate their social security number and to confirm their personal details.

As employed members of the CERN personnel are members of the Organization's own health insurance scheme and do not participate in the French social security system, we recommend that you tick the box indicating that you do not have a social security number.

We also advise you to specify in writing that, as an employed member of the CERN personnel, you do not participate in the French social security system especially by virtue of the 1970 agreement on social security between France and CERN: "*Je ne suis pas soumis(e), en tant que fonctionnaire du CERN, à la sécurité sociale française en vertu de l'accord de sécurité sociale de 1970 entre la France et le CERN (cf. JO du 04-08-1971).*"

N.B.: If your spouse participates in the French social security system, he or she should communicate his or her social security number as requested.

If you have any specific questions, please contact HR at 73903 or your local tax office (Service des impôts des particuliers - SIP) directly.

HR Department

CERN HEALTH INSURANCE SCHEME (CHIS) – REIMBURSEMENT OF CONTRACEPTION AND STERILISATION

In line with the practice in many Member States and in other international organisations based in Geneva, the CHIS will, as of 1 March 2016, reimburse upon presentation of a medical prescription:

1. contraceptive medicine (e.g. oral medicine or implant);
2. intrauterine contraceptive devices; and
3. medical sterilisation operations (vasectomy, tubal ligations).

These methods of contraception will be considered as pharmaceutical costs or medical treatments, to which the reimbursement rate according to the general rule and the reimbursement bonus applies. Treatment undertaken, or paid, before March 2016 will not be reimbursed.

For more information, do not hesitate to contact the third-party administrator of the CHIS: UNIQA (Tel.: 72730 / uniqa-assurance@cern.ch).

HR Department

TAXATION IN SWITZERLAND

Memorandum concerning the 2015 internal taxation certificate and the 2015 income tax declaration forms issued by the Swiss cantonal tax administrations.

You are reminded that the Organization levies an internal tax on the financial and family benefits it pays to the members of the personnel (see Chapter V, Section 2 of the Staff Rules and Regulations) and that the members of the personnel are exempt from federal, cantonal and communal taxation on salaries and emoluments paid by CERN.

I - Annual internal taxation certificate for 2015

The annual certificate of internal taxation for 2015, issued by the Finance and Administrative processes Department, will be available on 19 February 2016. It is intended exclusively for the tax authorities.

If you are currently a member of the CERN personnel you will receive an e-mail containing a link to your annual certificate, which you can print out if necessary.

If you are no longer a member of the CERN personnel or are unable to access your annual certificate as indicated above, you will find information explaining how to obtain one at this link <http://cern.ch/go/Psp8>.

In case of difficulty in obtaining your annual certificate, send an e-mail explaining the problem to service-desk@cern.ch.

II - 2015 income tax declaration forms issued by the Swiss cantonal tax administrations

The 2015 income tax declaration form must be completed in accordance with the general indications available at the following address: <http://admin-eguide.web.cern.ch/en/procedure/income-tax-declaration-switzerland>.

If you have any specific questions, please contact HR at 73903 or your tax office directly.

This information does not concern CERN pensioners, as they are no longer members of the CERN personnel and are therefore subject to the standard national legal provisions relating to taxation.

HR Department

COLLIDE@CERN: HORIZONS IRRÉSOLUS

Sound Installation by Collide@CERN Geneva artists Rudy Decelière and Vincent Hänni in collaboration with physicists Diego Blas and Robert Kieffer, for the Electron Festival 25-27th March, 2016 (<http://cern.ch/go/L9RS>).



Registration is absolutely required. Each guest will have to have registered using their own name. Guests without having registered will not be able to come into CERN.

Free entrance: Book here: <http://cern.ch/go/vQ8x>.

A shuttle will be available every 15 minutes from **6 p.m. until 9 p.m.** from **CERN Reception (in front of CERN Globe)** to the sound art installation. Access from Geneva to CERN Reception by tram 18, end of the line.

With the support from The Republic and Canton of Geneva and The City of Geneva.

Find out more on the artists and their Geneva 2014 Residency here: <http://arts.cern>.

NEW VERSION OF THE "WORKING ON THE CERN SITE" DOCUMENT

CERN engages numerous contractors to carry out work on the CERN site. These outside companies must acquaint themselves with CERN's complex and specific statutory context, which governs various aspects of their work from the bid until the end of the work on site and at every stage of the execution of the contract in between. A new version of the document that outlines the rules and conditions is now available.

In order to help contractors and the technical managers of contracts at CERN, a general document entitled "Working on the CERN site" ("*Prestations sur le site du CERN*" in French) was produced in the early 2010s. The goal was to make bidders and contractors aware of all the rules to which they are subject. A new version of this document is at: https://edms.cern.ch/ui/file/1155899/LAST_RELEASED/#.pdf.

The revision of the document essentially involved updating and clarifying many of its provisions, in particular those relating to safety, while keeping it concise and efficient. The new version also references more CERN rules and policies. It also notably contains new information about providing the authorities with data and about the role of the radiation protection expert.

Since this document brings together the statutory provisions applicable on the CERN site, it is subject to change over time. Contractors and technical managers of contracts at CERN must therefore consult it regularly and apply the most recent version (see link above).

ProLiQS (Procurement Lifecycle Quality Subcommittee)

CLOSING OF THE ROUTE BLOCH

Due to works at Building 107, the route Bloch will be closed between Building 24 and the intersection with the route Salam, starting from 1 February for a period of at least 13 months.

SMB Department

WARNING: SAFETY RISK WITH SOME APPLE AC WALL PLUG ADAPTERS

Dear Mac and iOS Users, Apple has determined that some of its two prong Apple AC wall plug adapters may break and create a risk of electrical shock.

CERN users can now exchange their affected Apple wall plug adapters at the Service Desk. To know if your adapter is affected and for any further information concerning the process to follow to exchange it, please check the following URL: <https://cern.service-now.com/service-portal/view-outage.do?n=OTG0028639>.

CERN IT Department

THE CERN ACCELERATOR SCHOOL

Introduction to accelerator physics

This course will take place in Istanbul, Turkey, from 18 to 30 September 2016. It is now open for registration and further information can be found here: <http://cas.web.cern.ch/cas/Turkey-2016/Turkey-advert.html>.

2016 ASIA-EUROPE-PACIFIC SCHOOL OF HIGH-ENERGY PHYSICS

Dear colleagues,

I would like to draw your attention to the **2016 Asia-Europe-Pacific School of High-Energy Physics**. Details can be found here: <http://2016.aepshep.org/>.

The third Asia-Europe-Pacific School of High-Energy Physics, AEPSHEP2016, to be held near Beijing, China, 12-25 October 2016, **is open for applications (deadline 25 March 2016)**. AEPSHEP is held every second year, hosted in countries in the Asia-Pacific region. The first two schools in the series were held in Fukuoka, Japan, in 2012 and Puri, India, in 2014.

Applications to attend the school are invited particularly from students from countries in the Asia-Pacific region and from Europe, although applications from other regions will also be considered. The programme of the school will be at a level appropriate for PhD students in experimental particle physics. It is anticipated that students working on phenomenology (if not too far from particle-physics experiment) will also be accepted. The school is open to junior post-docs (typically less than two years after completing their PhD), and also advanced MSc students provided their prior knowledge is comparable with that of the principal target audience so that they can benefit from the courses offered at the School.

Wherever possible participants are expected to obtain funding for the fee as well as their travel from their home countries. However, some sponsorship will be available for a limited number of students from countries with developing programmes in particle physics. Eligible students are therefore encouraged to apply even if they do not expect to obtain funding from their home institute to attend the School.

*Nick Ellis
(On behalf of the International
Organising Committee)*

CERN INTERNAL COMMUNICATION IS EVOLVING

CERN news will now be regularly updated on the CERN People page (see here: <http://home.cern/cern-people>).

Dear readers,

All over the world, communication is becoming increasingly instantaneous, with news published in real time on websites and social networks. In order to keep

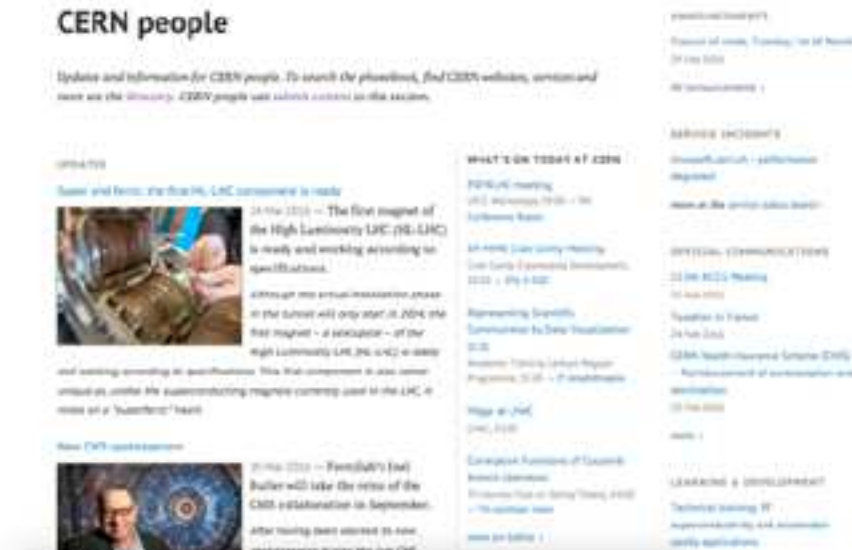
pace with these changes, CERN's internal communication is evolving too. From now on, you will be informed of what's happening at CERN more often via the "CERN people" page, which will frequently be updated with news. The *Bulletin* is following this trend too: twice a month, we will compile the most important articles published on the CERN site, with a brand-new layout. You will receive an e-mail every two weeks as soon as this new form of the *Bulletin* is available.

If you have interesting news or stories to share, tell us about them through the form at:

<http://communications.web.cern.ch/got-story-cern-website>.

You can also hear news from CERN in real time on social networks. Follow CERN's accounts on Twitter, Facebook, Google+, YouTube and Instagram.

The Editorial Content Development team



Seminars

THURSDAY, 17 MARCH 2016

14:15 **A&T Seminar** The Magnetic Model of the LHC at 6.5 TeV **Kjell Johnsen Auditorium**

MONDAY, 21 MARCH 2016

11:00 **EP Seminar** Observation of a new $B_s \pi$ state **Main Auditorium**
14:00 **Workshop** Experimental Particle and Astroparticle Seminar Zurich **42-R-407**

TUESDAY, 22 MARCH 2016

08:30 **Quarterly induction** HR INDUCTION PROGRAMME - 2nd Part **Council Chamber**
11:00 **LHC Seminar** LHCb seminar **Main Auditorium**

TUESDAY, 29 MARCH 2016

11:00 **LHC Seminar** CMS seminar **Main Auditorium**

NEWS

FROM THE CERN WEB: IN THEORY, SUPERKEKB, INTERNATIONAL WOMEN'S DAY AND MORE

This section highlights articles, blog posts and press releases published in the CERN web environment over the past weeks. This way, you won't miss a thing...

ATLAS and CERN celebrate International Women's Day
8 March – ATLAS Collaboration and Paola Catapano



(Images: Silvia Biondi/ATLAS © CERN)

In honour of International Women's Day, the ATLAS experiment shared the stories of seven women from the collaboration. "There are many misconceptions about our work as physicists," says ATLAS physicist Reina Coromoto Camacho Toro. "Physics relates to everyday events but it still remains foreign to most people and this needs to change."

CERN showcases some of the great women who have broken down barriers in the fields of science, technology, engineering, and mathematics (STEM) through the six decades of CERN's history.

Continue to read on:
<http://cern.ch/go/7TGK>

Watch the video on:
<http://cern.ch/go/9FHX>

In Theory: why bother with theoretical physics?
8 March – by Harriet Kim Jarlett



What makes a theoretical physicist pursue their career? Camille Bonvin is one of the fellows at CERN looking at theories of cosmology. (Image: Sophia Bennett/CERN)

Supplemental

In the second feature in our *In Theory* series we explore what it takes to make someone a theoretical physicist. Boring and complicated are words often associated with people's impression of physics in general. For some theoreticians working at CERN, physics wasn't the career they saw for themselves – their own lessons in the subject were dull and off-putting. Instead they imagined themselves as mathematicians, doctors and engineers.

It took teachers with a true passion for the subject – who saw beyond the mathematics to the fundamental questions it answers about nature – to show these future physicists their true calling. For others, while it would take them time to discover theoretical physics, their love of the subject was ignited by childhood pleasures long before anyone could make it seem boring.

Continue to read on:
<http://cern.ch/go/DV7X>

Historic moment as SESAME begins storage ring installation
8 March – by Harriet Kim Jarlett

The first of the 16 cells of SESAME's storage ring was installed recently in the shielding tunnel in the Centre's experimental hall in Allan, Jordan. SESAME will be the Middle East's first synchrotron light source.

After many years in the making, commissioning of SESAME is scheduled to begin in 2016, serving a growing community of some 300 scientists from the region.

Continue to read on:
<http://cern.ch/go/68VT>



The first cell of SESAME's storage ring was installed in the Centre's experimental hall in Allan, Jordan. (Image: SESAME)

UK launches Institute for Research in Schools
4 March – by James Gillies

On 3 March, the Institute for Research in Schools, IRIS, was launched. Building on the CERN@school initiative, IRIS provides opportunities and support for school students and their teachers to take part in authentic research in school.

Among the Institute's key aims are nurturing the potential and ability of young people to contribute to the scientific community, increasing the uptake of post-16 maths, science and technology courses, increasing applications for STEM subjects at university, especially among girls, enhancing teachers' expertise and job satisfaction in order to retain and recruit more to the profession, and engaging Universities and Industry in sustained interaction with schools.



Becky Parker speaking at the launch of the UK's new Institute for Research in Schools. (Image: Matt McCordle)

Continue to read on:
<http://cern.ch/go/sGK7>

Congratulations to SuperKEKB for "first turns"
2 March



View of the SuperKEKB collision point in autumn 2015. The accelerator beam line is now covered with a concrete shield. The Belle II detector can be seen in the background. (Image: KEK)

Congratulations to the SuperKEKB electron-positron collider in Tsukuba, Japan. On 10 February, the collider succeeded in circulating and storing a positron beam moving close to the speed of light through more than a thousand magnets in a narrow tube around the 3-kilometre circumference of its main ring. Then, on 26 February, it succeeded in circulating and storing an electron beam around its ring of magnets in the opposite direction. The achievement of "first turns", which means storing the beam in the ring through many revolutions, is a major milestone for any particle accelerator.

Continue to read on:
<http://cern.ch/go/k8Qp>



The new run coordinator of ALICE.
(Image: Iva Raynova/CERN)

Siegfried Försch is the new run coordinator for the ALICE experiment. The ALICE Matters team would like to wish Siegfried a successful, exciting and problem-free year of run coordination. We would also like to thank Federico Ronchetti, his predecessor, for the amazing work he did over the past two years.

For Siegfried, this is not just a personal achievement: "I am proud, but I am mainly happy for my institute and for my country. South Africa is a small but growing player, not only in ALICE, but also in ATLAS and ISOLDE, the other experiments in which the country is involved."

Continue to read on:
<http://cern.ch/go/s9pH>

LEARNING

TECHNICAL TRAINING: RF SUPERCONDUCTIVITY AND ACCELERATOR CAVITY APPLICATIONS

We are happy to announce a new training course organised by the TE-VSC group in the field of the physics and applications of superconductors. The course provides an overview and update of the theory of radiofrequency and superconductors:

**RF Superconductivity and
Accelerator Cavity Applications**
<https://cern.ch/course/?164VAC19>

One timetable only:

Tuesday, 8 March 2016: from 2 p.m. to 4 p.m.
Wednesday, 9 March 2016: from 9.30 a.m. to 11.30 a.m.
Thursday, 10 March 2016: from 9.30 a.m. to 11.30 a.m.
Monday, 14 March 2016: from 9.30 a.m. to 11.30 a.m.
Tuesday, 15 March 2016: from 9.30 a.m. to 11.30 a.m.
Wednesday, 16 March 2016: from 9.30 a.m. to 11.30 a.m.
Thursday, 17 March 2016: from 9.30 a.m. to 11.30 a.m.

Target audience: Experts in radiofrequency or solid state physics (PhD level).

Pre-requisites: Basic knowledge of quantum physics and superconductivity.

Duration: 14 hours

Price: 0 CHF

The trainer Professor Ruggero Vaglio (University of Napoli Federico II, Naples, Italy), has 25 years of teaching experience in different universities in Italy, both at undergraduate and graduate level. He has a track record of research experience in the field of the physics and applications of superconductors and oxide electronics.

There are still some places available, but due to the limited number of places it is first come first served. We would be grateful if you could please circulate this information to interested groups/participants in your department. We would like to thank Paolo Chiaggiato for having made this training available to other groups/departments.

Technical Training

TAKE NOTE

CERN LIBRARY | MARIO CAMPANELLI PRESENTS "INSIDE CERN'S LARGE HADRON COLLIDER" | 16 MARCH

"Inside CERN's Large Hadron Collider" by Mario Campanelli.

**Presentation on Wednesday,
16 March at 4 p.m.
in the Library (bldg 52-1-052)**

The book aims to explain the historical development of particle physics, with special emphasis on CERN and collider physics. It describes in detail the LHC accelerator and its detectors, describing the science involved as well as the sociology of big collaborations, culminating with the discovery of the Higgs boson.

"Inside CERN's Large Hadron Collider"
Mario Campanelli
World Scientific Publishing, 2015
ISBN 9789814656641

CERN Library
