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IN GRANADA, THE EUROPEAN PARTICLE PHYSICS COMMUNITY PREPARES DECISIONS FOR THE FUTURE OF THE FIELD

The European particle physics community is meeting this week in Granada, Spain, to discuss the roadmap for the future of the discipline.

(Image: CERN)

Geneva and Granada. The European particle physics community is meeting this week in Granada, Spain, to discuss the roadmap for the future of the discipline. The aim of the symposium is to define scientific priorities and technological approaches for the coming years and to consider plans for the medium- and long-term future. An important focus of the discussions will be assessing the various options for the period beyond the lifespan of the Large Hadron Collider.

"The Granada symposium is an important step in the process of updating the European Strategy for Particle Physics [1] and aims to prioritise our scientific goals and prepare for the upcoming generation of facilities and experiments," said the President of the CERN Council, Ursula Bassler. "The discussions will focus on the scientific reach of potential new projects, the associated technological challenges and the resources required."

The European Strategy Group, which was established to coordinate the update process, has received 160 contributions from the scientific community setting out their views on possible future projects and experiments. The symposium in Granada will provide an opportunity to assess and discuss them.

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A WORD FROM MARTIN STEINACHER

ACCESSIBILITY: A NECESSITY

Diversity is a catalyst for creativity at CERN. Including everyone and ensuring equal opportunities for all is one of the Organization's main principles. However, inclusivity requires accessibility. If a site, building, form of communication or knowledge-sharing medium excludes even a tiny minority of people, we cannot claim to be truly diverse.

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A WORD FROM MARTIN STEINACHER

ACCESSIBILITY: A NECESSITY

Global Accessibility Awareness Day, which will take place on 16 May, offers a reminder that, if we don't want to leave anyone out in the cold, accessibility for all – and particularly for those with disabilities – is an absolute necessity. CERN is committed to promoting inclusivity and accessibility and has many teams working on this. The Diversity Office (*https://diversity.web.cern.ch/*) supports and keeps track of initiatives in this area.

The Human Resources department, along with its Social Affairs service and the Occupational Health Service, has long been implementing measures to help people with disabilities to integrate at CERN. When necessary, a working group comprising all the relevant parties meets to adapt the working environment to the person in question. An informal network (*http://diversity.web.cern.ch/informal_network/Disability*) is also in place to help our colleagues with disabilities with practical questions.

But ensuring equal opportunities sometimes requires a helping hand. Statistics show, for example, that the unemployment rate among people of working age is higher for people with disabilities. Since 2018, the Human Resources department has offered an internship reserved specifically for science and technology students with disabilities. The initiative, which is open only to students from CERN's two Host States for now, has been recognised by the European Physical Society (EPS), which has awarded it a grant.

Accessibility is also a question of mobility and building design. The GIS portal shows all the areas that are accessible to wheelchair users, and new building and development projects take accessibility into account.

The International Relations sector is also working on improving access to guided tours, exhibitions and the website. A diversity working group within the IR sector supports initiatives in this area. The reception area and conference room in Building 33 and the first few rows of seating in the Globe have recently been equipped with an audio induction loop for people with a hearing impairment. At a public lecture this week, the local communication team offered an on-request sign language interpretation service for the first time; this will also be available at future events. In December, the exhibitions team held a joint workshop for people with visual impairments and tour guides, with a view to making CERN's exhibitions more accessible. Tactile and audio content was developed as a result. Web accessibility has also been improved: the new public website has better colour contrast and descriptive texts for images.

A collaboration between the World Intellectual Property Organization (WIPO) and three CERN teams (IT, the Translation service and the Diversity Office) has been launched to develop a speech-to-text transcription system. If the project is successful, subtitles will be added to lecture recordings, making them accessible to people with a hearing impairment.

Initiatives abound and the sharing of experience and information is bearing fruit. Sometimes, a simple action or minor adjustment is all that's needed to improve the daily lives of our colleagues and visitors with disabilities.

Martin Steinacher
Director for Finance and Human Resources

IN GRANADA, THE EUROPEAN PARTICLE PHYSICS COMMUNITY PREPARES DECISIONS FOR THE FUTURE OF THE FIELD

“The intent is to make sure that we have a good understanding of the science priorities of the community and of all the options for realising them,” said the Chair of the European Strategy Group, Professor Halina Abramowicz. “This will ensure that the European Strategy Group is well informed when deciding about the strategy update.”

The previous update of the European Strategy, approved in May 2013, recommended that design and feasibility studies be conducted in order for Europe “to be in a position to propose an ambitious post-LHC accelerator project”. Over the last few years, in collaboration with partners from around the world, Europe has therefore been engaging in Research and Development and design projects for a range of ambitious post-LHC facilities under the CLIC and FCC umbrellas. A study to investigate the potential to build projects that are complementary to high-energy colliders, exploiting the opportunities offered by CERN's unique accelerator complex, was also launched by CERN in 2016. These contributions will feed into the discussion, which will also take into account the worldwide particle physics landscape and developments in related fields.

“At least two decades will be needed to design and build a new collider to succeed the LHC. Such a machine should maximise the potential for new discoveries and enable major steps forward in our understanding of fundamental physics,” said CERN Director-General, Fabiola Gianotti. “It is not too early to start planning for it as it will take time to develop the new technologies needed for its implementation.”

The Granada symposium will be followed up with the compilation of a “briefing book” and with a Strategy Drafting Session, which will take place in Bad Honnef, Germany, from 20 to 24 January 2020. The update of the European Strategy for Particle Physics is due to be completed and approved by the CERN Council in May 2020.

An online Question-and-Answer session will be held on Thursday, 16 May at 4 p.m. CEST

Reporters interested in participating are invited to register by sending an e-mail to press@cern.ch

More information: https://europeanstrategy.cern

[1] The European Strategy for Particle Physics is the cornerstone of Europe's decision-making process for the long-term future of the field. In accordance with the mandate set by the CERN Council, it is formed through broad consultation of the grass-roots particle physics community, actively solicits the opinions of physicists from around the world and is developed in close coordination with similar processes in the US and Japan in order to ensure coordination between regions and optimal use of global resources.

LS2 REPORT: CONSOLIDATING THE ENERGY EXTRACTION SYSTEMS OF LHC SUPERCONDUCTING MAGNET CIRCUITS

The energy extraction systems absorb the energy of the LHC magnets in case of a quench. Their consolidation is conducted in collaboration with two Russian institutes

The LS2 team from the NRC Kurchatov-IHEP Institute, Protvino, Russia, with a 13 kA energy extraction system (Image: NRC Kurchatov-IHEP Institute)

In the LHC, 1232 superconducting dipole magnets and 392 quadrupole magnets guide and focus the beams around the accelerator's 27-kilometre ring, which is divided into eight sectors. These magnets operate at very low temperatures – 1.9 K or -271.3 ℃ – where even a tiny amount of energy released inside a magnet can warm its windings to above the critical temperature, causing the loss of superconductivity: this is called a quench. When this happens, the energy stored in the affected magnet has to be safely extracted in a short time to avoid damage to the magnet coil.

To do so, two protection elements are activated: at the level of the quenching magnet, a diode diverts the current into a parallel by-pass circuit in less than a second; at the level of the circuit, 13 kA energy extraction systems absorb the energy of the whole magnet circuit in a few minutes. There are equivalent extraction systems installed for about 200 corrector circuits with currents up to 600 A.

“In the framework of a long-lasting and fruitful collaboration between CERN and the Russian Federation, energy extraction systems for quench protection of the LHC superconducting magnets were designed in close partnership with two Russian institutes, the NRC Kurchatov-IHEP Institute in Protvino for the 13 kA systems and the Budker Institute in Novosibirsk for the 600 A systems. Russian industry was involved in the manufacturing of the parts of these systems,” explains Félix Rodríguez Mateos, leader of the Electrical Engineering (EE) section in the Machine Protection and Electrical Integrity (MPE) group of CERN's Technology department.

With a wealth of expertise and know-how, the Russian teams have continuously provided invaluable support to the MPE group. “Our Russian colleagues come to CERN for every year-end technical stop (YETS) and long shutdown to help us perform preventive maintenance and upgrade activities on the energy extraction systems,” says Rodríguez Mateos.

During LS2, an extensive maintenance campaign is being performed on the 13 kA systems, which already count 10 years of successful operation in the LHC. “We are currently replacing an element, the arcing contact, in each one of the 256 electromechanical switches of the energy extraction systems to ensure their continuous reliable operation throughout the next runs,” adds Rodríguez Mateos. “In February, we fully replaced 32 switches at Point 8 of the accelerator in anticipation of consolidation for the future HL-LHC.”

During LS2, the Electrical Engineering section is involved in many other activities that will be the subject of future articles.

Anaïs Schaeffer

CERN'S FLAGSHIP TRAVELLING EXHIBITION GOES TO INDIA

'Accelerating Science' exhibition will visit Mumbai, Bengaluru and Kolkota

Visitors attending the 'Accelerating Science' exhibition when it travelled to Austria's Hartberg Ökopark science museum in 2011 (Image: CERN)

With India having become an Associate Member State in 2017 following the long-standing collaboration between Indian scientists and CERN, it is high time for CERN's flagship travelling exhibition 'Accelerating Science' to tour India. The exhibition will be inaugurated today at a science museum in Mumbai and will later head to museums in Bengaluru and Kolkata.

The 300-square-metre exhibition uses animations, videos and interactive media to inspire the general public, particularly high-school and college students, with the wonders of fundamental science and technology. Its main themes are cosmology, particle physics and CERN's research activities. The exhibition also shows how fundamental research often leads to technological advances that we take for granted in our daily life.

The exhibition is hosted and funded by India's Department of Atomic Energy (DAE), and is being shown at three museums that are members of the country's National Council of Science Museums: the Nehru Science Centre in Mumbai between May and July, the Visvesvaraya Industrial and Technological Museum in Bengaluru from July to September, and the Science City in Kolkata from November to December.

Other mega-science projects in which India participates will be showcased alongside the CERN exhibition, such as the Facility for Antiproton and Ion Research (FAIR), the International Thermonuclear Experimental Reactor (ITER), the India-based Neutrino Observatory (INO), the Laser Interferometer Gravitational-Wave Observatory (LIGO), the Square Kilometre Array telescope (SKA), and the Thirty Meter Telescope (TMT). In addition to the main exhibition, there will also be seminars, interactions with scientists and industry events.

The ongoing production of a clone of 'Accelerating Science' will allow the exhibition to take place simultaneously at a second location. Since Estonia applied for CERN membership in September 2018, the second travelling exhibition will visit the AHHAA Science Centre, the Baltic's biggest science centre in Tartu, Estonia, for several months from November 2019 to March 2020. Several countries are eager to host the exhibition afterwards, but the exact itinerary is still being discussed.

An attractive but smaller alternative in CERN's exhibition portfolio is the 'LHC interactive tunnel' (LIT). This exhibition features the popular 'Proton Football' game, which invites visitors to play football with protons, and an interactive game showing how proton therapy works. The LIT has already been shown at the Liverpool Arena and Convention Centre (also featuring the Future Circular Collider (*http:///science/accelerators/future-circular-collider*) project) in March and April, and will travel to Lefkosia, Cyprus, in late May, and Rust, Germany, in October.

Rolf Landua

DONATION OF CERN COMPUTING EQUIPMENT TO PALESTINE

Donation of servers to An-Najah National University in Palestine marks the fifteenth donation of CERN computing equipment

CERN's Director for Research and Computing, Eckhard Elsen (Left) and Acting President of the An-Najah National University, Palestine, Maher Natsheh (right) met in an official ceremony in Building 133, where the computer hardware was prepared for shipment (Image: CERN)

On 25 April 2019, a ceremony at CERN marked the donation of computing equipment to An-Najah National University in Palestine.

On this occasion, 56 servers from the CERN computing centre were donated to An-Najah National University. The donation included more than a thousand processor cores and eight disk servers providing about 400 terabytes of storage. This equipment will be instrumental in supporting the creation of the High Energy Physics (HEP) laboratory at the Centre for Excellence which will be hosted at An-Najah National University, solidifying the role of An-Najah as the hub for HEP development in Palestine.

Since 2012, CERN has regularly donated computing equipment that no longer meets its highly specific requirements on efficiency but is still more than adequate for less exacting environments. To date, a total of 2135 servers and 123 network switches have been donated by CERN to countries and international organisations, namely Algeria, Bulgaria, Ecuador, Egypt, Ghana, Mexico, Morocco, Pakistan, the Philippines, Senegal, Serbia, the SESAME

laboratory in Jordan, Nepal and now An-Najah National University, in Palestine.

Esra Ozcesmeci

PHYSICS CHAMPIONS AT CERN

CERN welcomes participants from the International Physicists Tournament

Fabiola Gianotti welcomed participants of the IPT at CERN (Image: Julien Ordan/CERN)

The competitors of the 2019 International Tournament of Physicists visited CERN between two rounds.

The International Physicists Tournament is an international physics competition addressed to physicists undergraduates from all over the world. The 2019 edition took place in Switzerland, at *École Polytechnique Fédérale de Lausanne*. The tournament consists of Physics problems that have to be solved by the teams.

You can view the results here (*http://2019.iptnet.info/2019/04/30/and-so-concludes-the-ipt-2019/*) and try to solve the physics problems listed on this page (*http://2019.iptnet.info/problems/*).

COMPUTER SECURITY: BROWSING SECURELY AND PRIVATELY

Browsing to the wrong webpage is the second major way of getting your laptop, your account and your data compromised

Besides clicking on links in malicious e-mails or opening dubious attachments, browsing to the wrong webpage is the second major way of getting your laptop, your account and your data compromised. One click on the wrong link, just one malicious URL, and your laptop gets infected, your password exposed, your data encrypted or stolen. . . Remembering to *STOP – THINK – DON'T CLICK* prior to opening a link is the conscious, responsible way to protect yourself. And a good choice of well-secured web browser can provide you with a second way of keeping your digital life in your own hands!

Indeed, think of your laptop – leaving aside your smartphone for a moment – as one of the digital centres of your life. If an attacker takes over your laptop (or smartphone), he or she owns your data; can use your embedded webcam to watch you (even at night!); can use the embedded microphone to listen to your conversations; can access all locally stored documents, photos and films; can spy on your keyboard and extract the passwords you type on it – and hence, write your Tweets, make your Facebook posts, buy stuff on Amazon and access your Internet banking. Frightening? Indeed it is (see our *Bulletin* article entitled "Protect your Family (*https://home.cern/news/news/computing/computer-security-protect-your-family*)" for more on this).

The best way to protect your web access – your browsing of the World Wide Web – is to use a well-supported and up-to-date web browser like Chrome, Edge or Firefox. From the security perspective, Google's implementation of Chrome (*https://www.google.com/chrome/*) clearly separates every individual website you access and thus follows best security practice. Mozilla's Firefox Quantum (*https://www.mozilla.org/en-US/firefox/*) has also started to employ a similar functionality, while Microsoft's Edge browser does not (and never will). Especially if you have the default auto-update mechanism enabled, both Chrome and Firefox can be considered to be the most secure browsers currently on the market (as well as some variations of them like Brave (*https://brave.com*)). Firefox might well have a slight advantage thanks to a feature being added in the upcoming version 67: it will actively block the misuse of your laptop for unauthorised crypto-currency mining as well as stopping services that track your online activity (*https://github.com/mozilla-services/shavar-prod-lists/blob/master/disconnect-blacklist.json#L9537*).

So what about the privacy side? Both Chrome and Firefox come with a plethora of plugins making your browsing experience more secure ("HTTPS everywhere") and more private ("Ghostery", "uBlock Origin", "DuckDuckGo Privacy", "Privacy Badger", "Privacy Possum"). You just need to install them via "chrome://extensions" or "about:addons" respectively. And, of course, permanently engaging the "Incognito" or "Privacy" mode makes your browsing more stealthy (but beware, not 100% stealthy; you would need to use, for example, TOR 's "Onion" browser for much better anonymity). However, the major difference between Chrome and Firefox is that the former is a closed-source product of one of the world's biggest data aggregators and the latter is an open-source browser maintained centrally by a community foundation. Out of the box, Mozilla's Firefox is a much more privacy-preserving alternative to Google's Chrome browser. Google operates an extensive data-collection ecosystem in which its

search engine and a vast array of other products and services are used to build a profile of a person's interests by tracking users' online activities. Red pill or blue pill. Take your pick. But choose wisely.

Do you want to learn more about computer security incidents and issues at CERN? Follow our Monthly Report. For further information, questions or help, check our website or contact us at Computer.Security@cern.ch.

The Computer Security Team

Official communications

CERN HEALTH INSURANCE SCHEME (CHIS) – OBLIGATION TO FURNISH INFORMATION

Staff members and fellows are reminded that, pursuant to Article IV 2.02 of the CHIS Rules, they are obliged to declare the following information concerning their spouse in writing to the Organization:

- any other primary health insurance scheme of which the spouse is a member; and
- in the event that the spouse does not have adequate primary health insurance, the amount of any income received by the spouse deriving from a professional activity and/or a retirement pension.

This declaration must be made within the 30 calendar days following any change in the spouse's:

- professional activity (e.g. start or end of employment contract, change of employer);
- health insurance;
- gross income, if this results in a change of income bracket (see the table here (*https://hr-dep.web.cern.ch/chis/DCSF*)).

Declarations must be made using the **"SHIPID"** (**S** pouse **H** ealth **I** nsurance & **P** rofessional **I** ncome **D** eclaration) form.

The Human Resources department therefore advises staff members and fellows to check with their spouse that the details submitted in their latest declaration are still up-to-date and, if this is not the case, to make a new declaration using the **"SHIPID"** form without delay. We remain at your disposal to answer any questions about the SHIPID form via the following e-mail address: chis.shipid@cern.ch

Finally, members of the personnel are also reminded that a false declaration or the failure to make a declaration may constitute fraud and may therefore lead to disciplinary action in accordance with the provisions of Article V 5.03 of the CHIS Rules and Article S VI 2.01 of the Staff Rules.

HR department

FAMILY BENEFITS – OBLIGATION TO PROVIDE INFORMATION

Members of the personnel are reminded that, pursuant to Articles R V 1.38 and R V 1.39 of the Staff Regulations, they are obliged to declare the following in writing to the Organization within 30 calendar days:

- any change in family situation (marriage, civil partnership, birth or adoption of a child, divorce or dissolution of a partnership, death of a spouse or dependent child)
- any change in the situation of a dependent child (end of studies, start of paid employment, military service, marriage or civil partnership, change of residence or dependence status of a spouse's child)
- the amount of any financial benefit of a similar nature to those stipulated in the Staff Regulations (e.g. family allowance, child allowance, infant allowance, non-resident allowance or international indemnity) to which the member of the personnel or a family member may be entitled from a source other than CERN.

The procedures to be followed are available in the *Admin e-guide (https://admin-eguide.web.cern.ch/en/procedure/change-family-situation).*

The Human Resources department also remains at your disposal to answer any questions: HR-Family.Allowance@cern.ch.

Members of the personnel are also reminded that any false declaration or failure to make a declaration with a view to deceiving others or achieving a gain resulting in a financial loss or loss of reputation for the Organization constitutes fraud and may lead to disciplinary action in accordance with Article S VI 2.01 of the Staff Rules.

Human Resources department - HR-Family.Allowance@cern.ch

Announcements

23 MAY: 2019 CERN RELAY RACE

The registration will open on 2 May on the CERN Running Club website

The 2019 CERN Relay Race will take place on Thursday 23 May. As is the case every year, the race will consist of a round trip of CERN's Meyrin site in teams of six. The registration will be open starting 2 May on the Running Club website (*https://runningclub.web.cern.ch*), where you can also find full details about the event.

CERN RELAY RACE 2019 – TRAFFIC RESTRICTIONS

The annual CERN Relay Race will start at 12:15 on Thursday 23 May from building 40 on the Meyrin Site

Please note the following restrictions on the CERN site during lunchtime:

- Circulation between Building 40 and Entrance A will be blocked from 12:00 until ~12:45.
- Circulation between Building 40 and the hostel (Building 38) will be blocked from 12:00 until ~12:45.
- Entrance B will be blocked for 5 minutes, between 12:15 and 12:20.
- Circulation on the Meyrin site will be difficult for 20 minutes, from 12:15 until 12:35

Users of the parking around building 40 can exit the car park at the end closest to Entrance A.

Please come and encourage the runners, enjoy the music and the refreshments bar, on the lawn of restaurant 1.

Presentation of prizes will be made at 13:00.

If you must drive during the race, please respect the safety of the runners.

The race route, and other details, can be found on the Running Club's website (*http://runningclub.web.cern.ch/*).

CERN Running Club

MUSIC AND SHOWS AT CERN

This summer, three music events will take place at CERN: Music on the Lawn, Hardronic Festival and Subatomic Desire

This summer, the CERN MusiClub is organising two rock concerts at CERN. Both will feature many fine CERN bands, and admission to both is free.

The first concert is Music on the Lawn, which will take place on the terrace of Restaurant 1 on the Meyrin site on the afternoon of Saturday, 15 June. Six of the MusiClub's finest bands will be playing live. The music starts at 2 p.m.

The second event is the now legendary Hardronic Festival, which will take place on Saturday, 20 July behind Restaurant 3 on the Prévessin site. This festival will feature all of the MusiClub's best bands, plus the club's DJ section. Two stages will ensure the action will be non-stop through the afternoon and evening. As usual, food and drink will be on sale, with all proceeds going to charity.

The CERN MusiClub would like to thank the CERN Management and the CERN Staff Association for their continued and invaluable support, without which it would not to be possible to organise either of these events for the whole CERN community.

Stay tuned for all the details on the CERN MusiClub website (*https://cern-musiclub.weebly.com*).

In addition to these events, on the occasion of the *Fête de la musique*, the CERN and Society Foundation is organising a musical, multimedia and performing arts show: Subatomic Desire. This show will take place on 21 June between 8 p.m. and 9.30 p.m. on the first floor of the Globe of Science and Innovation.

Find out more about Subatomic Desire here (*https://home.cern/events/spectacle-show-subatomic-desire*).

Ombud’s corner

PREVENTION IS BETTER THAN CURE!

Michael* comes to me with some concerns: *“Carlo* has been working in my team for several years. He's always got on very well with his colleagues and produced excellent work. But recently, I've noticed that he's been interacting less with the rest of the team and he's started not turning up for work. It's not too alarming so far, but should I be worried?”*

Michael has no particular expectations of his visit to the Ombud, but just wants to share his concerns. This is fairly rare and is worth highlighting. People usually wait for a situation to become a problem before they ask for help. Following our conversation, Michael gently broached the subject with Carlo, who was relieved to talk about it. Together, they managed to identify the root of the problem and resolve it.

We're all human and find lots of reasons not to ask for help, such as:

“It's probably a fleeting problem, it'll pass with time.”

In your experience, how often has time alone really fixed a problem in a lasting way? In fact, doesn't time often just make things worse?

“What will people think of me if I ask for help? Won't I look incompetent? Shouldn't supervisors be self-reliant and sort out their problems themselves?”

In your opinion, who comes across as more mature and professional: someone who thinks they can fix everything on their own, or someone who knows when support is needed and doesn't hesitate to ask for it?

“Why discuss a problem that doesn't exist yet?”

Why not? What makes more sense: devoting an hour now to averting or even resolving a problem, or spending a lot longer further down the road sorting out a situation that's become much worse over time?

If in doubt, don't wait for problems to escalate – anticipate them and take action before things get serious.

Nobody's expected to be superhuman and asking for help isn't an admission of weakness. Quite the contrary: it's a sign of good judgement and self-confidence. First of all, consider speaking in confidence to your hierarchy, who have the necessary experience to help you. Otherwise, have a look at the support structures offered by CERN and contact the one that seems the best fit for you. If you choose the Ombud, remember the basic principles of this service: confidentiality, neutrality, independence and informality.

**Names have been changed*

Pierre Gildemyn

If you'd like to comment on any of my articles or suggest a topic that I could write about, please don't hesitate to e-mail me at Ombuds@cern.ch .