

## BRIEFING BOOK FOR 2020 UPDATE OF EUROPEAN STRATEGY FOR PARTICLE PHYSICS

The newly published book distils inputs from Europe's particle physics community



The latest update of the European Strategy of Particle Physics was launched in 2018 and will conclude in 2020  
(Image: CERN)

The particle physics community in Europe is in the midst of updating the European Strategy for Particle Physics. The latest input is a newly published 250-page physics briefing book, the result of an intense year-long effort to capture the status and prospects for experiment, theory, accelerators and computing for high-energy physics.

The CERN Council first initiated the European Strategy process in 2005. It was updated in 2013 and the latest update was launched in 2018. In a truly collaborative initiative, the particle physics commu-

nity submitted 160 contributions, and discussed the potential merits and challenges in an open symposium in Granada, Spain, in May. This briefing book now distills inputs to provide an objective scientific summary, which will form the basis of final discussions early next year.

An important element of the European strategy update, given the long time scales involved, is to consider which major collider should follow the LHC.

(Continued on page 2)

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# BRIEFING BOOK FOR 2020 UPDATE OF EUROPEAN STRATEGY FOR PARTICLE PHYSICS

The Granada symposium revealed there is clear support for an electron-positron collider to study the Higgs boson in greater detail, but four possible options at different stages of maturity exist: an International Linear Collider (ILC) in Japan, a Compact Linear Collider (CLIC) or Future Circular Collider (FCC-ee) at CERN and a Circular Electron Positron Collider (CEPC) in China. Also considered are design studies in Europe for colliders that push the energy frontier, including a 3 TeV upgrade of CLIC and a 100 TeV circular hadron collider (FCC-hh).

The vast bulk of the briefing book details the current physics landscape and prospects for progress, including physics beyond the Standard Model and dark-sector exploration. It stresses the vital roles of detector and accelerator development as well as computing and instrumentation, with an emphasis on energy efficiency. The diversity of the global theoretical and experimental programme is a strong feature to tackle ongoing puzzles in particle physics.

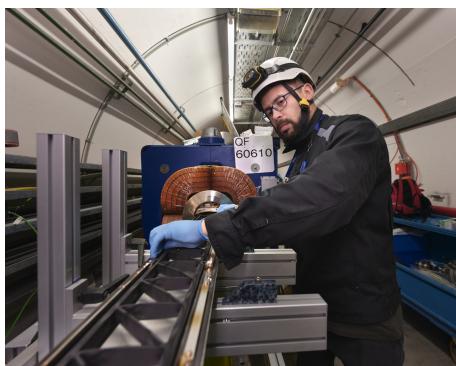
With this latest input to the process, the next steps involve drafting recommendations in Bad Honnef, Germany, in January, with their submission for the approval of the CERN Council foreseen in Budapest, Hungary, in May 2020.

*Read more in the full CERN Courier article (<https://cerncourier.com/a/european-strategy-enters-next-phase/>).*

Matthew Chalmers

## NEWS FROM LS2: DISSIPATING THE ELECTRON CLOUDS

**Two teams are treating the vacuum chambers of selected SPS magnets to limit the electron-cloud phenomenon, which can disrupt the beams**



*A mobile treatment unit has been developed that operates directly in the tunnel to apply the carbon coating on the vacuum chambers of the SPS quadrupoles. The unit includes a cathode in graphite (black structure in the photo), which is inserted into the beam tube (Image: Julien Ordan)*

Ridding the accelerators of clouds is one of the major challenges of the vacuum teams. The clouds in question are electron clouds, which can disrupt the beams. Electrons are produced when the beams ionise the residual molecules in the vacuum chamber. They are then accelerated, hit the surface of the vacuum chamber and scrub off other electrons. An 'avalanche' phenomenon ensues, in which electrons multiply and form the dreaded electron clouds. At high beam intensities, these clouds can start to degrade seriously the proton beam quality. The problem therefore becomes critical when preparing the LHC for operation at high luminosity, which will require beams twice as intense.

Since 2007, the Vacuum, Surfaces and Coatings group has been developing a solution, comprising a fine layer of amorphous carbon applied to the internal walls of the vacuum chambers. When struck by electrons, amorphous carbon emits a lot fewer secondary electrons than the metallic surface of the vacuum chambers. This amorphous carbon coating technique has proved to be effective, having been applied to sixteen SPS magnets during the first long shutdown, and then to more magnets during year-end technical stops.

As part of the LHC Injector Upgrade (LIU) project, this innovative solution is now being implemented on all the focusing quadrupoles and the short straight sections of the SPS, which comprise corrector magnets and beam instrumentation. "The priority magnets have been identified in order to achieve the best compromise between efficiency and the cost of the operation," explains Wil Vollenberg, in charge of the carbon coating project in the SPS. In total, the vacuum chambers of 99 quadrupole magnets and as many short straight sections will receive an amorphous carbon coating.

A mobile treatment unit has been developed to apply the coating directly in the SPS tunnel and to reduce the handling of such heavy items as the magnets. A cathode, a long graphite structure, is introduced into the vacuum chamber. The

air in the chamber is pumped out and very pure argon is injected. A voltage of 900 volts is applied in order to ionise the argon atoms. The argon ions that are thus released bombard the graphite cathode, creating a shower of carbon atoms, which then stick to the walls of the vacuum chamber. The cathode is fitted onto an ingenious motorised system, which moves backwards and forwards to enable a uniform coating 400 nanometres thick to be applied.

This mobile coating system was developed and tested for the first time in 2016, and has since been improved. From the beginning of the long technical shutdown, a team of three has been working its way along the SPS tunnel to treat half of the quadrupole magnets. However, accessing the vacuum chambers of these magnets requires removing the nearby components. This is why the short straight sections, adjacent to the quadrupoles but smaller in size, are removed and treated above ground. Furthermore, parts of the vacuum chambers are replaced by treated sections: this is the case for certain chambers such as those in the vicinity of the beam dump system that is currently being replaced.

From the handling teams who move the magnets, to the surveyors who reposition them to within a tenth of a millimetre, through to the electricians, surface analysis

QA experts and specialists in vacuums and magnets, many teams are hard at work and have to carry out their tasks in a precise sequence. "It takes four days to treat each magnet, but many operations are necessary before and after, which results in complicated logistics," says Wil Vollenberg, orchestrator of the operations.

Underground, the teams are already halfway there, working in collaboration with their colleagues on the surface. A new round of operations is envisaged during the third long shutdown, not only in the SPS but also in the LHC. The future will be less cloudy for the two large accelerators at CERN.

More photos of the vacuum chamber carbon coating on CDS.

Corinne Pralavorio

## CERN AT THE EU CONTEST FOR YOUNG SCIENTISTS

**CERN will host three winners of the EU Contest for Young Scientists, who were recognised for their project on the design and prototype of a High-Altitude Micro Air Vehicle**



The three winners of the CERN Special Prize, together with Charlotte Warakaulle, Director for International Relations at CERN and Attila Borics, Hungarian Academy of Sciences (Image: European Commission)

The 31<sup>st</sup>EU Contest for Young Scientists (EUCYS) took place on 13-18 September in Sofia, Bulgaria. Over 150 young scientists – pupils aged between 15 and 19 years old – from 39 countries presented their research projects to the public and to a jury composed of prominent scientists from around the world. The participants had all previously won first prizes in national competitions before being selected for EUCYS. The 100 projects presented

at EUCYS2019 covered a broad range of scientific areas including biology, physics, chemistry, computing, social sciences, environment, mathematics, materials, engineering and medicine.

EUCYS is the biggest science fair for young students in the EU. It is part of the *Science with and for Society* programme funded under Horizon 2020. The aim of the contest is to attract young people to a career in science and research.

This year's event was the largest so far. One of the guests of honour at the event was Ms Mariya Gabriel, the current Commissioner for Digital Economy and Society, and Commissioner-nominee for Innovation and Youth.

Claire Lee from Brookhaven National Laboratory and the ATLAS experiment presented a talk entitled "Building Blocks of the Universe" to the young audience at the adjacent Comic Con festival. Dr Lee

took also part in a panel discussion at EUCYS2019 on the theme of European Science in 2050: challenges and opportunities.

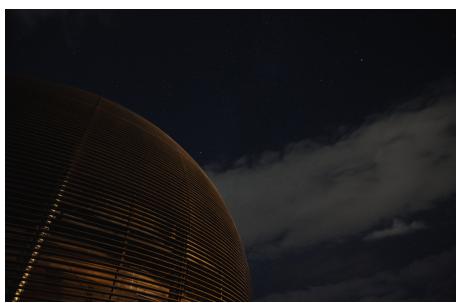
CERN, together with the other EIROforum organisations, awards special prizes at EUCYS, consisting of a one-week visit to its facilities and experiments. This year's winners of the CERN Special Prize were three young Polish scientists who designed a drone that could return from the lower layers of the stratosphere with a scientific payload to the launch location. More information about the project can be found here: <https://eucys.eu/projects-2019/high-altitude-micro-air-vehicle/>. The EIROforum prizes were presented to EUCYS2019 winners by Ms Charlotte Warakaulle, Director for International Relations at CERN.

The three winners from Poland will visit CERN in summer 2020.

Livia Lapadatescu, Svetlomir Stavrev

## "LA NUIT EST BELLE! THE NIGHT IS BEAUTIFUL!" : CERN SWITCHES OFF THE LIGHTS FOR AN EVENING

**During the night of 26 September, 149 municipalities in the Greater Geneva area switched off their lights to reveal the stars**



The Globe of Science and Innovation by night. (Image: CERN)

CERN supported the "La nuit est belle" initiative, which took place during the night of 26-27 September. With more than 149 municipalities taking part on both sides of the French-Swiss border, the Organization decided to switch off a large proportion of its own lights.

The initiative aimed to raise awareness among local residents in the Greater Geneva area about the harmful effects of

light pollution, energy saving and the protection of nocturnal biodiversity. Despite the cloudy intervals, many stars were still

visible and the conditions for star-gazing were ideal.

Take a look at photos of the Globe of Science and Innovation taken during the event.

## ENABLING HADRON THERAPY IN SOUTH-EAST EUROPE

A new facility following the founding principles of CERN begins its design phase



Montenegro prime minister Duško Marković marks the start of the SEEIIST design phase on 18 September. (Image: gov.me/B Ćupić)

A state-of-the-art facility for hadron therapy in south-east Europe has moved from its conceptual to its design phase, following financial support from the European Commission. At a kick-off meeting held on 18 September in Budva, Montenegro, more than 120 people met to discuss the future South East European International Institute for Sustainable Technologies (SEEIIST) – a facility for tumour therapy and biomedical research that follows the founding principles of CERN.

The idea for SEEIIST came from former CERN Director-General Herwig Schopper and benefitted from a political push from Montenegro minister of science Sanja Damjanović, who is also a physicist who works at CERN and GSI-FAIR in

Darmstadt, Germany. SEEIIST aims to create a platform for internationally competitive research in the spirit of the CERN “science for peace” model, stimulating the education of young scientists, building scientific capacity and fostering greater cooperation and mobility in the region.

Europe has played a major role in the development of hadron therapy, with numerous centres currently offering proton therapy and four facilities offering proton and more advanced carbon-ion treatment. But currently no such facility exists in south-east Europe despite a growing number of tumours being diagnosed there. SEEIIST will follow the idea of the “PIMMS” accelerator design, which started at CERN two decades ago, profiting from the experience at the dual proton-ion centres CNAO in Italy and MedAustron in Austria, as well as centres at GSI and in Heidelberg. It will be a unique facility that splits its beam time 50:50 between treating patients and performing research with a wide range of different ions for radiobiology, imaging and treatment planning. The latter will include studies into the feasibility of heavier ions such as oxygen, making SEEIIST distinct in this rapidly growing field.

The next steps are to prepare a definite technical design for the facility, to propose a structure and business plan and to de-

fine the conditions for the site selection. To carry out these tasks, several working groups are being established in close collaboration with CERN and GSI-FAIR. “This great event was a culmination of the continuous efforts invested since 2017 into the project,” says Damjanović. “If all goes well, construction is expected to start in 2023, with first patient treatment in 2028.”

*This article was originally published on cerncourier.com (<https://cerncourier.com/a/hadron-therapy-to-get-heavier-in-southeast-europe/>)*



Montenegro science minister Sanja Damjanović (left) and prime minister Duško Marković (right) with SEEIIST founder Herwig Schopper at the Budva event. (Image: gov.me/B Ćupić)

Matthew Chalmers

## NA62 SPOTS TWO POTENTIAL INSTANCES OF RARE PARTICLE DECAY

The NA62 experiment has detected two candidate events for the decay of a positively charged kaon into a pion and a neutrino-antineutrino pair



The NA62 experiment in CERN's North Area (Image: CERN)

Are there new, unknown particles that can explain dark matter and other mysteries of the universe? To try to answer this question, particle physicists typically sift through the myriad of particles that are produced in

particle collisions. But they also have an

indirect but powerful way of looking for new particles, which is to measure processes that are both rare and precisely predicted by the Standard Model of particle physics. A slight discrepancy between the Standard Model prediction and a high-precision measurement would be a sign of new particles or phenomena never before observed.

One such process is the transformation, or “decay”, of a positively charged variant of a particle known as kaon into a positively charged pion and a neutrino–antineutrino pair. In a seminar that took place today at CERN, the NA62 collaboration reported two potential instances of this ultra-rare kaon decay. The result, first presented at the International Conference on Kaon Physics, shows the experiment’s potential to make a precise test of the Standard Model.

The Standard Model predicts that the odds of a positively charged kaon decaying into a positively charged pion and a neutrino–antineutrino pair ( $K^+ \rightarrow \pi^+ \nu \bar{\nu}$ ) are only about

one in ten billion, with an uncertainty of less than ten percent. Finding a deviation, even if small, from this prediction would indicate new physics beyond the Standard Model.

The NA62 experiment produces positively charged kaons ( $K^+$ ) and other particles by hitting a beryllium target with protons from the Super Proton Synchrotron accelerator. It then uses several types of detector to identify and measure the  $K^+$  kaons and the particles into which they decay.

In 2018, the NA62 team reported finding one candidate event for the  $K^+ \rightarrow \pi^+ \nu \bar{\nu}$  decay in a dataset recorded in 2016 that comprised about 100 billion  $K^+$  decays. In its new study, the collaboration analysed an approximately 10-fold larger dataset recorded in 2017 and spotted two candidate events. By combining this result with the previous result, the team finds that the relative frequency (known as “branching ratio”) of the  $K^+ \rightarrow \pi^+ \nu \bar{\nu}$  decay would be at most 24.4 in 100 billion  $K^+$  decays. This combined result is compatible with

the Standard Model prediction and allowed the team to put limits on beyond-Standard-Model theories that predict frequencies larger than this upper bound.

“This is a great achievement and one we will build upon. Having clearly established our experimental technique, we’ll now explore ways to perfect it using a dataset that we took in 2018,” says spokesperson Cristina Lazzeroni. “The 2018 dataset is twice as large as the 2017 dataset, so it should allow us to find more events and make a more precise test of the Standard Model.”

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*For a detailed account of the results, see the recording of the CERN seminar (<https://indico.cern.ch/event/846814/>) and the EP newsletter article (<https://ep-news.web.cern.ch/content/na62-experiment-presents-new-results>).*

Ana Lopes

## CERN'S USERS' OFFICE CELEBRATES ITS 30TH ANNIVERSARY

The Users’ Office, which was founded in 1989, is an essential part of CERN’s infrastructure for the more than 13 500 registered guest scientists at CERN today



A ceremony to celebrate the 30th anniversary of the Users’ Office. From left to right: Dragoslav-Laza Lazic (ACCU Chair), Fabiola Gianotti (CERN Director-General), Manfred Krammer (head of the EP department), Michael Hauschild (head of users’ support), Gaëlle Duperrier (Users’ Office supervisor), and members of the Users’ Office team (Image: CERN)

The 1980s saw a rapid increase in the number of guest scientists working at CERN, also known as “users”, with the population more than doubling in just five years, reaching 3700 in 1985.

In response to this considerable increase and in order to maintain the international character of science and technology at CERN, a Users’ Office was set up. It officially opened its doors on 3 July 1989, becoming the gateway for guest scientists

at CERN, namely users, cooperation associates and visiting scientists.

Today, around 3000 new arrivals register at the Users’ Office every year. They go there to sign their contract and collect their residence permit, if they need one, as well as to benefit from the valuable advice of the Users’ Office team. More than 13 500 users are currently registered at CERN, three times more than thirty years ago.

## CERN & SOCIETY FOUNDATION ANNOUNCES ITS FIRST AMBASSADOR

William Hurley is a leading influencer on entrepreneurship and equality



William Hurley giving a presentation at the CERN Entrepreneurship Student Programme (CESP) in 2018

The CERN & Society Foundation is proud to announce William Hurley, known as whurley®, as its first official Ambassador.

An Eisenhower Fellow, Senior Member of the Institute of Electrical and Electronics Engineers (IEEE), and Vice Chairman of the Entrepreneurship Steering Committee at the IEEE, whurley® is a serial entrepreneur, technologist and philanthropist. He has over 25 years of experience in bringing groundbreaking technologies to the market, and is a leading influencer on entrepreneurship and equality.

He is the founder of many ventures and projects with the overarching intention of “leveraging technology to solve the world’s problems, not just as consumers but also as global citizens”. His latest company, Strangeworks, has the mission to accelerate the advancement of quantum computing by democratizing access to hardware, creating an open environment to drive collaboration.

“A key role of a CERN & Society Ambassador is to contribute to raising awareness of and resources for our mission of spreading CERN’s scientific curiosity for the inspiration and benefit of society”, says Anne Richards, chairperson of the CERN & Society Foundation Board. “With Whurley’s strong commitment to science and technology, he will be a compelling and eloquent Ambassador for the CERN & Society Foundation, able to send powerful messages about the impact of our work and generate more resources to implement our programmes.”

Following his first visit to CERN in summer 2016, whurley® engaged with the CERN & Society Foundation’s mission, being himself an advocate for STEM (Science, Technology, Engineering and Mathematics) education and equal opportunities across the STEM disciplines. This led to his generosity in fully supporting the first edition of the CERN Entrepreneurship Student Programme (CESP), which took place in 2018.

“I am honored to be named Ambassador. Entrepreneurship is an incredible equalizer, and our world desperately needs more science-based, ‘deep tech’ start-ups in order to address its looming challenges,” said William Hurley. “This programme supports the critical entrepreneurial contributions required in ‘deep tech’, counter-balancing a disproportionate increase in consumer-focused entrepreneurship over the last decade. As a scientist and an entrepreneur, I consider fostering these efforts an honour, a challenge and a personal mandate.”

After also supporting the second edition of CESP, whurley® has expressed his willingness to help the CERN & Society Foundation more broadly in the pursuit of its mission. Thanks to his readiness to contribute to raising awareness of and resources for the CERN & Society Foundation, the Board has now decided to attribute him the prominent role of Ambassador.

## COMPUTER SECURITY ARTICLES TURN 200

Recently, we celebrated the 200th *Bulletin* article focusing on various topics relating to computer security. Two hundred hopefully informative articles about the current situation of cyber-security at CERN. About best practices, guidelines and useful tools. About threat scenarios and current attack vectors. About new or established means of mitigation. About the workings of the Computer Security team. About policies and Do’s and Don’ts. Two hundred articles trying to raise your awareness and trying to help you to improve your approach to computer security – the security of your laptops, smartphones, tablets, e-mail accounts, passwords, software and systems – at CERN and at home.

While some articles were published a long time ago – the first ones were released in

2008 – they have never lost their relevance. Sometimes it is useful to crawl into the past and dig out information from them and often these articles also provide guidelines for us when producing advisories for users. So for this 200th anniversary, we have produced a compilation of all the articles published so far. This compilation covers a plethora of topics, sorted into the notorious themes of “Computer Security”, i.e. the literal cyber-security of computers, “Mobile and Cloud Security”, “Network and Data Centre Security”, “Account and Password Security”, “Control Systems and IoT” – the Internet of Things –, “Secure Software Development”, “Data Protection and Privacy”, “Copyrights”, “Rules and Policies” and more. Giving a deeper insight into the computer security landscape, these articles are complementary to our Monthly

Reports, which usually depict the operational side of what is currently happening at CERN. You can download the compilation here ([https://cern.ch/security/training/en/CERN%20Articles%20On%20Computer%20Security%20\(2019\).pdf](https://cern.ch/security/training/en/CERN%20Articles%20On%20Computer%20Security%20(2019).pdf)). Please feel free to share it with your colleagues, family and friends!

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*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*

# A DIFFERENT SOUND IN THE LHC TUNNEL

World-famous cellist Yo-Yo Ma performs 100 metres underground at the Large Hadron Collider



Cellist Yo-Yo Ma performs 100 metres underground at the Large Hadron Collider (Image: Maximilien Brice/CERN)

On a recent visit to CERN, the world-famous cellist, Yo-Yo Ma played in a unique music hall – 100 metres underground in the tunnel of the Large Hadron Collider (LHC).

This video shows Yo-Yo Ma playing the Prélude from Bach's Cello Suite No. 6 in D Major.

*“I have always thought that philosophy, arts, and sciences belong together as equal partners in this thing we call culture,*

explained Yo-Yo Ma. “We must fight for this belief. Because the widening gaps between disciplines of inquiry and between culture, economics, and politics have led to increasing and frightening fractures in the world.”

Speaking after the performance, CERN's Director-General, Fabiola Gianotti said “It was a great moment of music in a very special place, and an occasion to underline the deep links between art and science”.

## Official communications

## CERN PENSION FUND – 2019 ANNUAL INFORMATION MEETING

All members and beneficiaries of the Pension Fund are invited to attend the Annual Information Meeting on Thursday 17 October 2019 - 2:30 p.m.

All members and beneficiaries of the Pension Fund are invited to attend the

### Annual Information Meeting

to be held in the Council Room (503-1-001)

on Thursday 17 October 2019 from 2:30 p.m. to 3:15 p.m.

Following a presentation by the Chief Executive Officer of the Fund there will be a Questions and Answers session. Members and Beneficiaries are welcome to send questions **in advance of the meeting** by post to:

Mr Matthew Eyton-Jones  
“Annual Information Meeting”  
CEO - CERN Pension Fund  
Office 5-5-012, Postbox C23800  
CH- 1211 Geneva 23 – Switzerland

or via email to: [pension-fund@cern.ch](mailto:pension-fund@cern.ch)

Copies of the 2018 Pension Fund Annual Report & Financial Statements are already available in accessible PDF on the Pension Fund: [pensionfund.cern.ch/en](http://pensionfund.cern.ch/en) and will also be distributed at the annual meeting.

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*Coffee and tea will be served prior to the meeting as off 2:00 p.m.*

# Announcements

## CONFERENCE ON MOBILITY AT CERN

The presentation on mobility and video of the conference are available

Improving mobility at CERN – making it more fluid, greener and easier for the personnel and collaborators – is the aim of the Enterprise Mobility Plan (EMP), which is being developed by the SMB department.

On 20 September, Lluis Miralles, head of the SMB department, presented CERN's current mobility provisions, the results of the personnel survey on mobility and the measures under study to improve mobility.

You can consult the slides of the presentation on the Indico page (<https://indico.cern.ch/event/849318/>) and watch the video (<https://cds.cern.ch/record/2690851>) below.

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## VIDEO CONFERENCES: PLEASE MOVE FROM VIDYODESKTOP TO VIDYOCONNECT TO PREVENT AUDIO ISSUES

All Vidyo users are kindly asked to switch as soon as possible to VidyoConnect (the replacement for VidyoDesktop [1]) for connecting to a video conference. Using the former client is affecting the quality of the whole video conference.

Linux users have to move to VidyoConnect for WebRTC [2]. Mac and Windows users can either choose VidyoConnect for WebRTC or the VidyoConnect desktop application.

We remind mobile users that they can use the VidyoConnectMobile app on their device to join a Vidyo video conference. This app is available on the Google play store or on the Apple store.

We recommend doing the transition to VidyoConnect as soon as possible to improve the quality for everyone and because the old client is now deprecated by Vidyo.

The CERN video conference team

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[1] This change was announced in the Bulletin in August 2018: <https://home.cern/news/announcement/computing/conference-vidyoconnect-replace-current-clients>  
<https://webrtc.vidyo.cern.ch/web/> Portal:  
<https://vidyoportal.cern.ch>.  
More information about VidyoConnect: <https://support.vidyocloud.com/hc/en-us/sections/115000595753-Using-VidyoConnect->

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## OPEN DAY AT THE INTERNATIONAL LABOUR OFFICE

The International Labour Office (ILO) will open its doors to the public for the first time on Tuesday, 15 October in Geneva

On the occasion of its 100th anniversary of action for social justice, the ILO invites you to discover the past, present and future of the world of work through various fun and interactive activities.

See you Tuesday, October 15 from 3.00 p.m. in Geneva.

Find out more: [https://www.ilo.org/global/meetings-and-events/events/WCMS\\_717602/lang-en/index.htm](https://www.ilo.org/global/meetings-and-events/events/WCMS_717602/lang-en/index.htm)

# A CONVERSATION ON ART AND LIFE SCIENCES



*Ionat Zurr and Oron Catts (Image: CERN)*

SymbioticA is an artistic research centre at the University of Western Australia's School of Anatomy and Human Biology. The lab looks at biology and life sciences from an artistic point of view and has

been used to develop a number of artistic projects linked to the field of bioart. SymbioticA offers a new means of artistic inquiry where artists actively use the tools and technologies of science, not just to comment about them but also to explore their possibilities.

In this conversation, Ionat Zurr and Oron Catts artists and researchers, will share their experience of running an interdisciplinary programme, the complex and rich relations between artistic and scientific research, the projects that emerged and their

impact. They will give an overview on some of their artistic practice.

**Art and Life Sciences. SymbioticA as artistic research lab  
A conversation with Ionat Zurr and Oron Catts**  
presented by Mónica Bello

Tuesday, 8 October, 2019  
At 5.30 p.m. at CERN's Main Auditorium

*More information is available on the Indico event page (<https://indico.cern.ch/event/850190/>).*

## PREPARING FOR RETIREMENT – SEMINARS FOR STAFF

If you are a **staff member** and considering retirement in the next one or two years, we encourage you to participate in two special seminars, organised by the Human Resources Department.

Retirement marks the end of a person's professional career and the start of a new chapter in life. This transition is easier for those who are well informed and prepared.

This programme consists of two seminars:

1. **Leaving CERN** (half day): an information seminar at CERN, with presentations by internal speakers.  
- Organised once per year  
- Next session scheduled on **Thursday 17 October**, morning

2. **Preparation for retirement** (2.5 days): a seminar organised at ILO, for international civil servants from different organisations in Geneva.  
- Organised once a year, with simultaneous translation in English/French

- Next session is scheduled from **Wednesday 13 November to Friday 15 November**

**Enrolment and more info:** CERN Learning Hub (Browse Catalogue, then select Your career@CERN, then Leaving CERN).

*Learning & Development Group  
HR Department  
[your.career@cern.ch](mailto:your.career@cern.ch)*

## 2019 EDITION OF THE CERN ROAD RACE

**The 2019 edition of the annual CERN Road Race will be held on Thursday 10 October at 18:15**

The 2019 edition of the annual CERN Road Race will be held on Thursday 10 October at 18:15.

The 5.5-km race takes place over three 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.

Children (under 15 years) have their own race over one lap of 1.8 km and a mass

start. 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. There will also be a team category. Teams must consist of at least 4 runners that have participated in the relay race together in 2019.

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

More information, and shortly the registration form, can be found at <http://runningclub.web.cern.ch/content/cern-road-race>

*CERN Running Club*