

INSPIRING AND EDUCATING NEW GENERATIONS

CERN engages with society through a wide range of outreach, education and arts activities. These aim to broaden the understanding of science and of CERN's activities, to inspire people both young and old, to improve science education at secondary school level, and to train a new generation of scientists and engineers.

CERN took centre stage as guest of honour at Geneva's Automnales fair with a 1000-m² stand designed to resemble a particle collision. The 80 000 visitors were offered a virtual-reality tour of CERN, alongside workshops, shows and presentations. (CERN-PHOTO-201711-279-3)



WORLDWIDE INTEREST IN NUMBERS

Interest in CERN remained high in 2017, with 138 000 articles about the Laboratory published in the world's press, and the Press Office organising media visits for more than 500 journalists from around the globe. CERN's website, home.cern, had more than 3 million visits, 85% of which were from new visitors.

With more than 2 million mentions of "CERN" or "LHC" on social media, CERN continues to have a strong social media presence. In March, CERN's Twitter account passed the 2-million-follower mark and the Laboratory held its first Facebook live event from the CMS experimental cavern, reaching more than half a million people. The most successful video of the year, which went on to receive a Lovie award, involved musician Howie Day singing science-themed lyrics at CERN. Finally, several communication campaigns used new techniques such as 360° immersive photos and Instagram stories and grids.

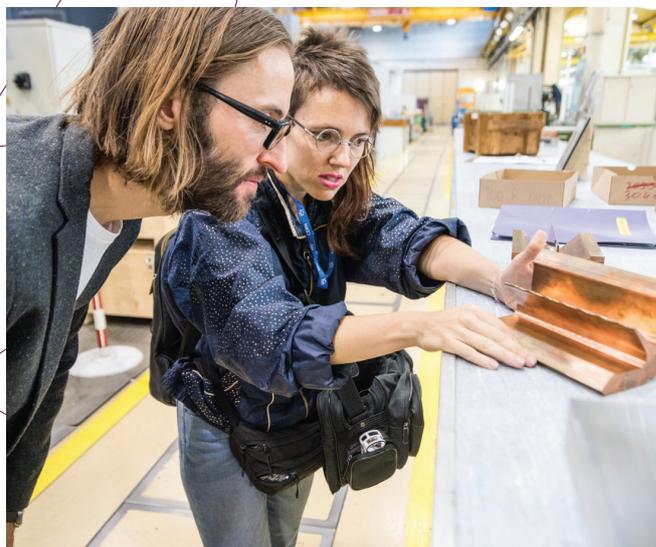
A communication campaign highlighted female CERN scientists for the "International Day of Women and Girls in Science" on 11 February.



IMPACT ON LOCAL COMMUNITY AND CULTURE

The most important local event in 2017 was CERN's presence as guest of honour at Geneva's biggest local fair, the *Automnales* in November. It was an opportunity to present CERN to people who would never normally think of visiting the Laboratory. Visitors were able to find out about fundamental research and its applications via objects, activities, films, quizzes and virtual-reality headsets allowing a (virtual) trip to the huge underground CMS detector. More than 110 workshops, shows and presentations took place, led by over 170 volunteers from CERN, who welcomed, guided and informed the 80 000 visitors to the CERN stand with great enthusiasm.

Additional CERN activities for the local community included various well attended public lectures at the Globe and European Researchers' Night in September, which between them involved more than 7000 participants. CERN also participated in the *Royaume du Web* event in May, with several thousand visitors to the CERN stand. Newly initiated outreach and communications campaigns this year included school visits in the days around the International Day of Women and Girls in Science, the celebration of World Teachers' Day and International Dark Matter Day with dedicated events, and the opportunity to showcase CERN's impact on society in the context of the Sustainable Development Goals at the UN Open Day in October.



Collide Pro Helvetia 2017 artist Laura Couto Rosado with her scientific collaborator in a CERN workshop. (CERN-PHOTO-201707-166-13)

The Arts at CERN programme hosted 12 renowned artists from around the world, who visited the Laboratory or partnered with CERN scientists for periods of one or three months. The programmes were fully supported by prominent arts institutions such as FACT in the UK, the Arts Council in the Republic of Korea, Kontejner in Croatia and ProHelvetia in Switzerland. A new scheme to support the production and exhibition of artworks resulting from the residencies was launched in collaboration with FACT.

VISITING THE LABORATORY

CERN was again a favourite destination for high-level visitors, resulting in 136 protocol visits (see pp. 6–11). However, it is mostly the general public – plus teachers and students – who want to discover how research in the world’s largest laboratory for particle physics addresses the big questions about the Universe. Responding to the huge public demand, the annual number of visitors continued to increase, from 20 000 in 2008 to 136 000 in 2017, a 13% increase compared to 2016, the previous record year. In addition, more than 70 000 people visited the Microcosm and Universe of Particles permanent exhibitions.

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For those who could not come to CERN, travelling exhibitions journeyed to different countries: the flagship Accelerating Science exhibition went to Istanbul, Turkey, for four months, attracting about 20 000 visitors, half of them from Turkish high schools. The smaller Interactive Tunnel and CERN in Images exhibitions featured at the FCC week in Berlin, at the Hannover IdeenExpo in June, with 300 000 visitors, and at the Karlsruhe KIT Open Day, also in June, which attracted 35 000 visitors.

The Science Gateway is a new initiative aimed at expanding CERN’s education and outreach activities. It is planned to be hosted in a new building constructed around CERN’s Globe of Science and Innovation and would include a new visitor reception area, spaces for permanent and temporary exhibitions, laboratories for hands-on experiments and a 1000-seat auditorium. CERN is now actively fundraising, seeking private and public donations to implement this exciting project.

EDUCATING THE SCIENTISTS OF TOMORROW

CERN’s engagement with science education focuses mainly on secondary school teachers and students. CERN’s teacher programmes help participants to increase their insight into particle physics, share experiences with other teachers and foster a love of science in future generations of students. The success of the traditional three-week international high-school teacher programme in July, with 43 teachers from 34 countries, led to the addition of a new two-week international teacher programme in August, with 44 teachers from 37 countries. In addition, 31 one-week national teacher programmes, held in the teachers’ national language, welcomed almost 1000 participants from 58 countries.

CERN has introduced additional programmes for school students to strengthen their understanding of science, develop their skills in a high-tech environment and ignite their passion for a career as a scientist or engineer. The High-School Students Internship Programme (HSSIP) was launched in May 2017 when 22 Hungarian students, aged between 16 and 19 years, spent a two-week internship at CERN. Hungary was one of the five pilot countries (alongside Bulgaria, France, Norway and Portugal) that participated in the programme in 2017, with a total of almost 120 students. In the coming years, the programme will be made available to all CERN Member States.

*CERN’S TEACHER PROGRAMMES
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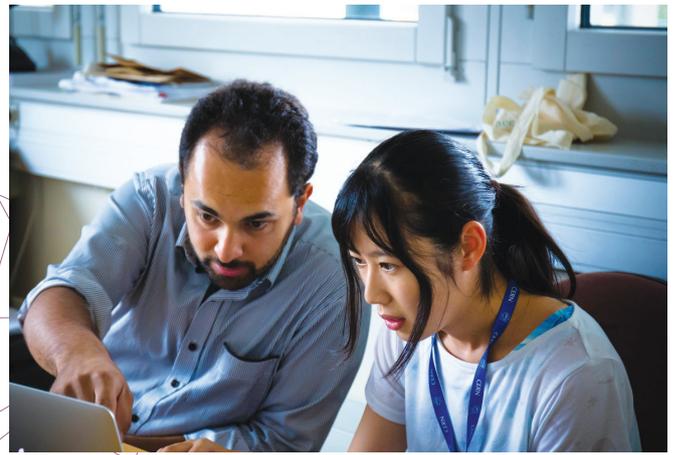
The High-School Students Internship Programme (HSSIP) was launched in May 2017 with the arrival of 22 Hungarian students, aged between 16 and 19, seen here during their visit to CERN’s magnet testing facility. (CERN-PHOTO-201705-131-24)

The first two-week S’Cool LAB summer camp welcomed 24 high-school students, selected from more than 2000 applicants from 24 different countries. The camp offered hands-on physics experiments in small groups. S’Cool LAB also offers regular workshops which welcomed 7230 participants in 2017. The S’Cool LAB is now operating at its maximum capacity.

The Beamline for Schools competition, running for the fourth consecutive year, received 180 proposals from student teams in 43 countries worldwide. The two winning teams, from Canada and Italy, were invited to CERN in September to conduct their experiments at the Proton Synchrotron. Both teams are aiming to follow students from previous years by writing scientific papers about the results of their experiments.

CERN supported the “Hands on Particle Physics” International Masterclasses, involving more than 13 000 high-school students in 52 countries, organised by the International Particle Physics Outreach Group. Students spent the day working with recent data from the LHC experiments. They also listened to lectures about particle physics and the process leading to a scientific discovery.

Several of these programmes were backed financially by the CERN & Society Foundation, whose aim is to “spread the CERN spirit of scientific curiosity for the benefit of society”. In 2017, the Foundation focused on the support of teacher and student activities: 90 schoolteachers received partial support for their participation in the National Teacher Programmes and 39 summer students from non-Member States were granted a full scholarship. The Foundation also fully financed the Beamline for Schools competition.

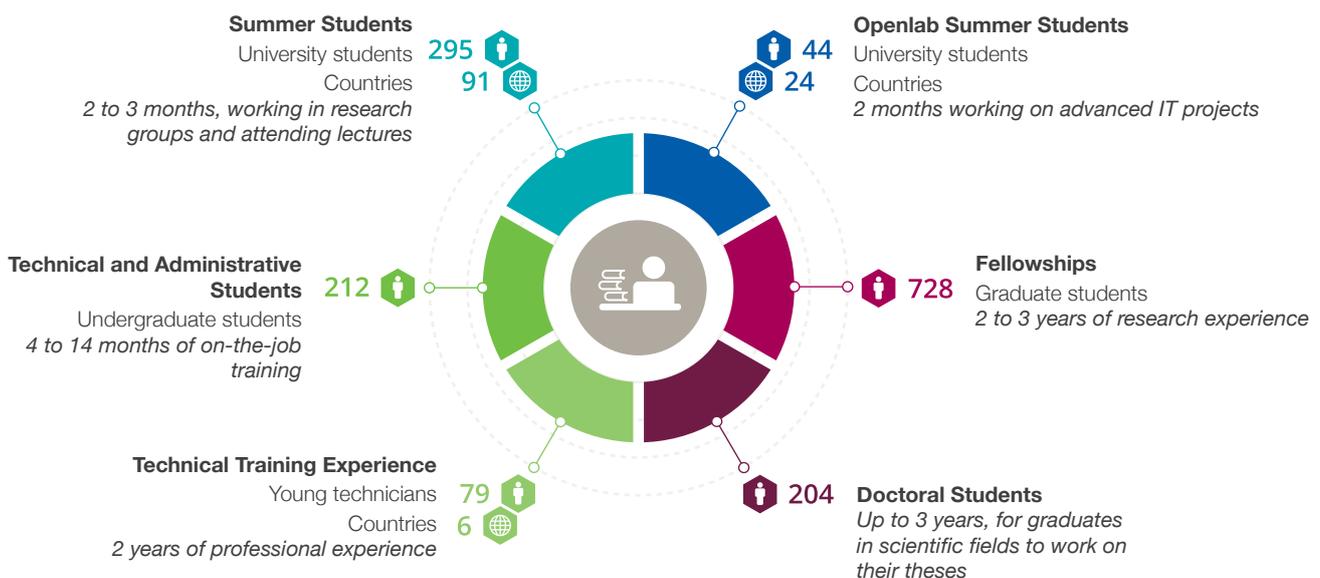


CERN’s training programmes provide opportunities to acquire early-career professional experience. Here, a summer student and her supervisor work on ATLAS physics research. (ATLAS-PHOTO-2016-015-4)

THE FIRST STEPS IN THEIR CAREER

The training of young researchers is also an essential part of CERN’s educational activities. CERN offers an enriching training environment for graduate and post-graduate students, providing a steady stream of highly qualified people with excellent technical skills and international experience to take back to business and industry in CERN’s Member States. More than 2000 young people were trained in 2017, including more than 800 fellows, over 400 doctoral, technical and administrative students and some 470 trainees.

TRAINING PROGRAMMES AT CERN



CERN offers a large range of training opportunities providing excellent technical skills and international experience.