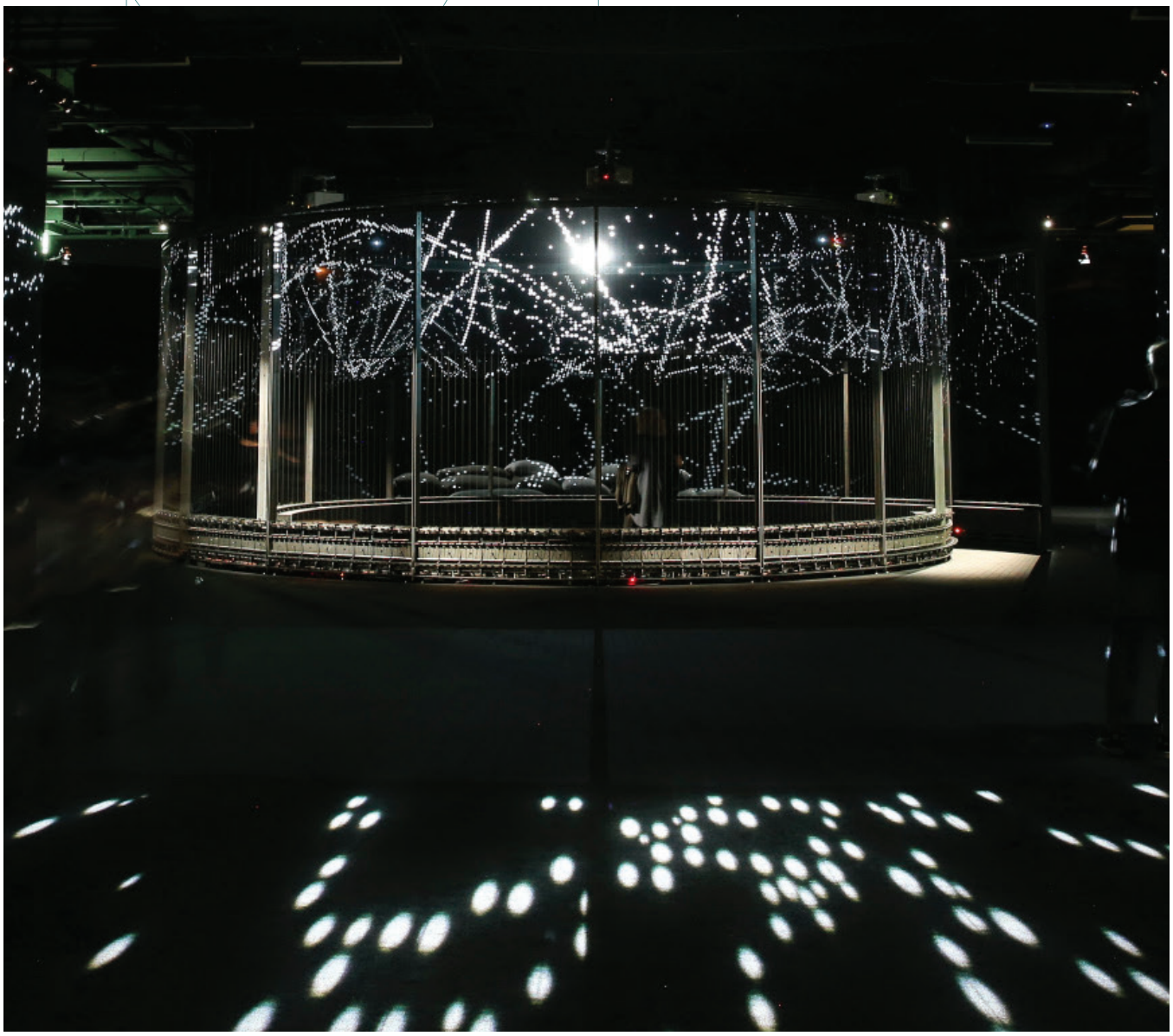
INSPIRING AND EDUCATING

With scientific and technological developments from fundamental research transforming our society, CERN strives to engage and inspire different audiences across all sectors of the public. In 2018, the Laboratory enabled a diverse public to experience its science and technologies, with initiatives to increase accessibility and to empower students to pursue careers in science and engineering.

HALO, an immersive art installation conceived by CERN artists in residence, the Semiconductor duo Ruth Jarman and Joe Gerhardt, was showcased at Art Basel in June. The installation uses data from the ATLAS experiment. (OPEN-PHO-EXHI-2018-003-10)



ENGAGING WITH CERN

More than 135 000 visitors from 86 countries came to CERN in 2018 for guided tours of the research facilities. Offering an opportunity to go behind the scenes with a CERN scientist or engineer, such tours are increasingly appealing. In 2018, 56% of our visitors were students.

CERN guides also took part in many offsite events, engaging with the local population. In particular, CERN was the City of Geneva's guest of honour at the Swiss National Day celebrations. Researchers' Night was also popular, with workshops and hands-on activities taking place on the freshly inaugurated Esplanade des Particules in front of CERN's reception area (see p.10).

A young participant at the Swiss National Day celebrations is transported underground to an experimental cavern by a virtual-reality headset. (CERN-PHOTO-201808-185-7)

In November, 900 people attended TEDxCERN in Geneva. The largest audience was online as more than 4000 people watched the live webcast, either on the TEDxCERN homepage or at one of the viewing parties organised by 34 CERN-associated institutes around the world.

For the younger public, CERN's popular programme for French-speaking students, "Dans la Peau de Scientifiques", attracted 700 participants from primary schools, introducing them to the scientific method through hands-on experimentation in the classroom.

In June, 1800 professionals from science centres and museums in 58 countries worldwide came to Geneva for the annual Ecsite Conference. CERN offered participants guided tours and hosted a welcome event for all the speakers. This was a chance to communicate the material available at CERN, including interactive games and objects available for loan, to external science museums wanting to develop their own exhibitions about particle physics. In 2018, such collaborations resulted in the installation of permanent content in museums in Denmark, Vietnam and Spain.

Meanwhile, CERN's big Accelerating Science exhibition went to Riga, Latvia. Over 18 000 people visited the exhibition, learning how scientists at CERN are working to uncover the hidden secrets of the universe. CERN's LHC Interactive Tunnel toured exhibitions in Germany, Greece, the Netherlands and Switzerland. This popular digital interactive visualisation of the LHC allows visitors to attempt to collide protons themselves.

Looking to the future, the Science Gateway project received approval from the CERN Council in December, and work is now starting in earnest to develop new education labs and exhibitions to welcome visitors of all ages. The project will be housed in a series of striking new buildings designed by architect Renzo Piano, including a major new auditorium and a restaurant.

INSPIRING EDUCATION

CERN's teacher programmes turned 20 in 2018. They have grown considerably over the years and today form an important part of CERN's educational offering. The impact of such programmes is high, each teacher taking back inspiring ideas to share with other teachers locally and pass on to class after class of students. In 2018, 906 teachers from 55 countries came to CERN to participate in 31 national and two international programmes.

CERN also offers many opportunities to students directly, giving them all-important first-hand experience of where a career in science might take them. In 2018, the High-School Students Internship Programme welcomed 118 participants from the Czech Republic, Israel, the Netherlands, Poland and Sweden.

S'Cool LAB provided workshops for 7540 students aged 14 to 19 and made a range of material available to teachers for classroom use, including 3D-printable designs, new in 2018.

The Beamline for Schools competition continues to inspire students around the world to propose creative experiments to be carried out on a CERN beamline. In 2018, two winning teams were chosen from a total of 195 entries from 42 countries. The two teams, from India and the Philippines, measured the Bragg peak of pions in order to assess their potential for tumour therapy, and the effect of the Lorentz force on relativistic charged particles. The competition is one of the many outreach projects funded by the CERN and Society Foundation, which merged with the Globe Foundation in 2018.

Student winners of the Beamline for Schools competition prepare their experiments at CERN in September. (OPEN-PHO-MISC-2018-011-514)

Blind and visually impaired visitors work with CERN guides and the exhibitions team to develop tactile material. (CERN-PHOTO-201812-327-29)

DIVERSITY IS ONE OF CERN'S STRENGTHS, AND IS INCREASINGLY REFLECTED IN OUR INITIATIVES.

SCIENCE NEEDS EVERYONE

With collaborations spanning more than 100 nationalities, diversity is certainly one of CERN's strengths, and it is one of the Organization's core values as science needs all bright minds. There is now an increased effort to reflect this diversity in CERN's public face and to ensure that our education, talent acquisition and communication actions speak to as wide a section of society as possible. Through its diversity-related activities, CERN also seeks to positively influence other research institutions.

The International Day for Women and Girls in Science on 11 February provided an excellent opportunity to introduce younger pupils to female role models. A total of 102 local classes, representing some 2400 children, signed up for talks about CERN by female scientists and engineers. Many of these were from primary schools, an important group to target in the drive to change aspirations.

In a similar vein, CERN's Women in Technology network contributed to the Girls in ICT event, which was attended by more than 500 students in Geneva, and to the Django Girls coding workshop in April, both designed to inspire more young girls to think about careers in information technology.

Across CERN's teacher programmes and student residencies, efforts are made to ensure that girls and boys have the same opportunities and come into contact with both male and female role models during their time at CERN. In addition, 50% of the S'Cool LAB workshops are facilitated by women.

An inclusive working environment, where all voices are heard, is conducive to creativity. In 2018, the EIROforum members formed a working group to join forces on diversity and inclusiveness in the work place, exchanging ideas and moving forward together to share best practices and build common actions. On 5 July, the first International Day for LGBTQ+ in STEM was another opportunity to underline the importance of diversity to all organisations in the group.

In addition to spear-heading such actions, the CERN Diversity Office launched new internships for young people with disabilities during 2018.

Reaching a diverse public means ensuring that our content is accessible to all. To this end, CERN's exhibitions team organised a workshop in December involving blind and visually impaired visitors, in order to co-develop content for its exhibitions.

MEDIA AND WEB COMMUNICATIONS

CERN and the LHC received extensive coverage in 2018, with 150 000 mentions by media outlets. This interest was stimulated in many cases by site visits, with 431 journalists coming to CERN over the course of the year. The ground-breaking ceremony for the High-Luminosity LHC generated 2000 media articles alone. CERN's press office also organised a photowalk for amateur photographers, opening up premises behind the scenes at CERN to inspire creative photos.

With 1.6 million mentions of CERN or the LHC on social media in 2018, CERN continues to have a strong and well-respected presence on social-media channels. CERN is currently active on Twitter, Facebook, Instagram, YouTube and Linkedin. The video "Voyage into the world of atoms" on Facebook was CERN's social-media post with the most engagement, with 1.3 million views. The Laboratory has continued to hold Facebook Live events, with its most successful one (from the LHC tunnel) reaching 1.7 million people.

Visitors to Researchers' Night discover stands and hands-on activities on the new Esplanade des Particules. (CERN-PHOTO-201809-250-8)

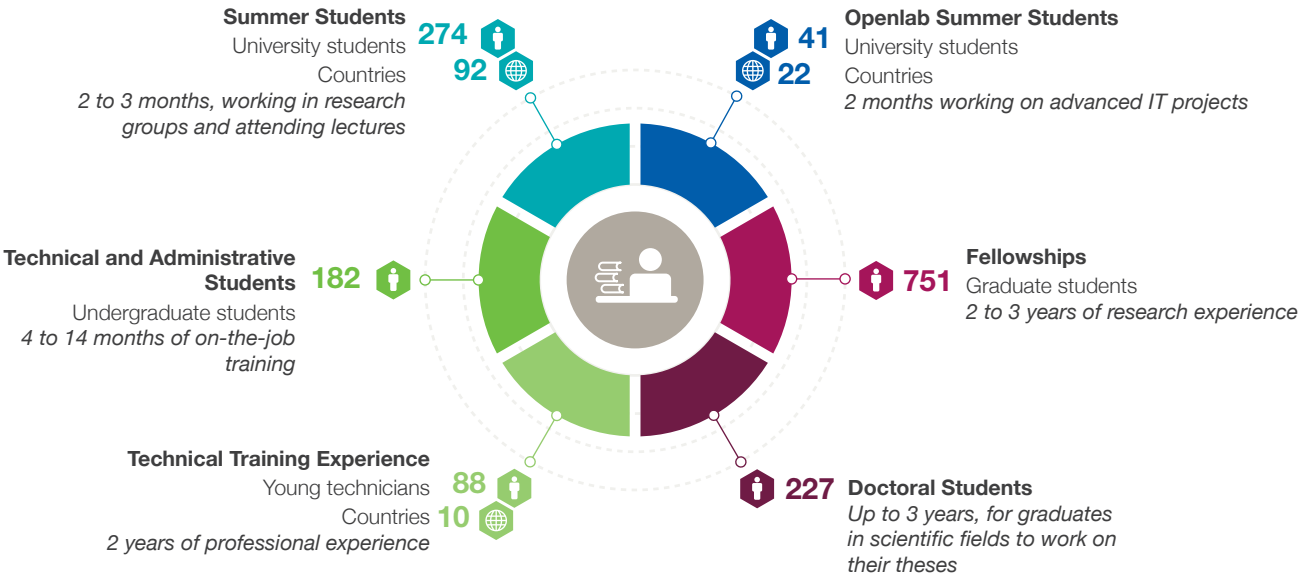
In keeping with its status as the birthplace of the web, CERN advanced its online presence with the strategy for its top-level domain ".cern", which received management approval in early 2018. This heralded a year of change for CERN's websites, a huge task that included a complete update of CERN's public website and a new content-management system for the websites across CERN. In 2018, home.cern had 9 million page views by 3.5 million users.

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 environment for graduate and post-graduate students, providing business and industry in CERN's Member States with a steady stream of highly qualified people with excellent technical skills and international experience.

Training of young researchers in 2018 encompassed more than 830 fellows, including those following the technician training experience programme, as well as over 300 summer students from 100 countries, more than 400 doctoral, technical and administrative students, some 120 trainees and about 330 short-term interns.

TRAINING PROGRAMMES AT CERN



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