

# Annual Review 2023



CERN & Society Foundation

#### DEAR DONORS AND FRIENDS,



#### A word from the Chair, Michel Spiro

First and foremost, we are now pleased to welcome everyone to the new emblematic centre for science and education: the CERN Science Gateway. Visitors of all ages can step into CERN's scientific world, immersing themselves in groundbreaking achievements and scientific wonders, and see the importance of fundamental research and its applications in society. By offering the chance to explore the Universe, this building designed by world-renowned architect Renzo Piano will, we hope, inspire all who visit with curiosity and a passion for science.

2023 marked the celebration of the tenth edition of one of the Foundation's very first programmes: the Beamline for Schools competition. We are thrilled with the growing success of this competition, and this edition was no exception as it saw a record number of proposals. More than 2500 high-school students from all around the world accepted the challenge of planning a particle physics experiment.

We not only witnessed stars in the eyes of students who could never have come to CERN without your support, but also the enthusiasm of teachers from around the world who found the inspiration to kindle their students' scientific spark. Equally important, improvements in the medical domain that will benefit us all were made thanks to the Biology Dynamics Modeller and MEDICIS projects. We also engaged many different audiences with the wonder of science through the interpretations of artists taking part in the Arts at CERN programme.

2023 gave the Foundation the opportunity to conclude its first threeyear Title Partnership. A Title Partnership agreement highlights that our Foundation has reached a higher level of visibility and maturity, and we hope it will bring other supporters committed to stimulating scientific curiosity, further heightening the Foundation's positive impact on society. Next year will mark the tenth anniversary of the Foundation. A decade ago, Professor Rolf Heuer had the vision to create a Foundation that would expand CERN's ability to reach audiences and advocate for the importance of science for the benefit of society. Celebrating this important milestone with you, and walking you through the achievements made together so far, will be our goal in 2024.

Your contribution is crucial, and there are no words to express our gratitude for your continued support. We have successfully achieved our goals and feel energised to do even better every year. We thank each of you for your trust. I close this message with a heartfelt thank you to all the donors of the CERN & Society Foundation. Your faith in our mission is a driving force to achieve so much more.

Sincerely,



What a year! Thanks to your unwavering support, the CERN & Society Foundation achieved impressive results in 2023.

As ever, we eagerly worked to spread CERN's spirit of scientific curiosity, and your trust has taken our work to the next level.

MSpino

# **SUMMARY**







"I BELIEVE THAT THE CERN & SOCIETY FOUNDATION PLAYS AN IMPORTANT ROLE IN INSPIRING THE NEXT GENERATION OF SCIENTISTS. AS THE STUDENTS OF TODAY ARE POTENTIALLY THE SCIENTISTS OF TOMORROW, IT IS OUR DUTY TO ENCOURAGE THEM TO UNDERTAKE A CAREER IN SCIENCE AND HELP THEM PURSUE THIS GOAL. I PERSONALLY KNOW SOME WHOSE CAREER IN SCIENCE WOULD NOT HAVE BEEN POSSIBLE WITHOUT THE SUPPORT OF THE CERN & SOCIETY FOUNDATION."

Fabiola Gianotti, CERN Director-General

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# **WHO WE ARE**

"BRIDGING SCIENCE, CULTURE AND INNOVA TO CREATE A BETTER AND BRIGHTER FUTUR

## WHO WE SERVE

Our primary target is students and science educators. We focus on engaging them in the scientific method and stimulating their curiosity and their motivation to understand and pursue a career in science, technology, engineering and mathematics (STEM) fields.

By supporting the development of practical applications from fundamental research, inspiring individuals and achieving greater public engagement with science, we seek to benefit society at large.

## WHO WE ARE

We believe in igniting curiosity, inspiring young people to choose scientific careers, engaging people in STEM and working towards improving lives around the globe.

At the CERN & Society Foundation, we operate nationally and internationally to pursue this mission, across three main areas: Education and Outreach, Innovation and Knowledge Exchange, and Culture and Creativity.

## WHAT MAKES US UNIQUE

CERN has a long tradition of scientific and technological excellence, generated by a culture of openness and knowledge sharing across borders, and nurtured through education and training. The CERN & Society Foundation is in a unique position to leverage this expertise and give it back to society.

4 CERN & Society



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# THE IMPACT OF YOUR DONATIONS

# OUR REACH AROUND THE WORLD





OUR GRANTS IN 2023 (EXCLUDING SCIENCE GATEWAY)



#### BEAMLINE FOR SCHOOLS COMPETITION

Engaging high-school students in real experimental particle physics research at CERN and DESY. **2536** students submitted **379** proposals, and three winning teams were welcomed on-site, fully supported by the CERN & Society Foundation.

Gender distribution:

**706 1136** Not specified: **694** 

**CERN NATIONAL TEACHER PROGRAMMES** 

Helping teachers to empower students and promote the future of science through their own scientific education. **187 of the 801** teachers trained at CERN were supported by the CERN & Society Foundation.

Gender distribution:

	104
•••	
	83

Through various projects in 2023, the CERN & Society Foundation impacted students and science educators from **94 countries** and territories around the world in STEM fields.

#### NON-MEMBER STATE SUMMER STUDENTS

Giving the next generation of scientists the skills to contribute to the development of their communities. **39 of the 138** students selected for the summer programme were fully supported by the CERN & Society Foundation.

Gender distribution:

**\*\*\*** 23

00

# **2023 HIGHLIGHTS IN PICTURES**





Elisa Storelli and Rohini

Connect India residency.

as the winners of the

at CERN and ICTS

**20 FEBRUARY** 

Three new ambassadors for the CERN & Society Foundation.

JANUARY

In 2023, the Foundation announced the appointment of three new official ambassadors: Professor Rolf-Dieter Heuer, former CERN Director-General; Dame Anne Richards, the first Chair of the Foundation; and Professor Peter Jenni, former Deputy Chair of the Foundation.

## Artist at CERN. Devasher are announced

The Connect residency's goal is to develop research towards an artistic project in dialogue with the laboratories' scientists and engineers, and with the support of the combined curatorial teams of Arts (International Centre for Theoretical Sciences). cosmovisions.

Maria Paz – Exotikdot – starts her stay as Guest

The Mexican artist aims to build a visual, audio and written archive that will form the basis of two projects: Quantum Fictions and Quantum Prelude. The starting point for both projects is the idea of interweaving possible connections between the narrative of quantum physics and the thoughts and words of ancient indigenous



12 JUNE

**CERN & Society** 

partnerships to

a new level.

**Foundation takes** 

The CERN & Society

Foundation concluded its

first Title Partnership with

Rolex, taking a further step

in a relationship that dates

As Title Partner, Rolex

will support education,

its positive impact on

society.

innovation and outreach

programmes that will enable

CERN & Society to deepen

from the early days of CERN.



#### **28 JUNE**

Three teams of highschool students win the tenth edition of the Beamline for Schools competition.

In 2023, for the second time since the competition was established, three teams won the Beamline for Schools competition. The winners were: the team "Myriad Magnets" from the United States, the team "Particular Perspective" from Pakistan and the team "Wire Wizards" from the Netherlands.





#### 4 JULY

#### All the summer students arrive at CERN.

Each summer, in the first week of July, all the students arrive at CERN. This year brought almost 300 students from more than 60 different countries to the CERN site.

#### **30 AUGUST**

#### A significant milestone for CERN's involvement in the development of KiCad.

In line with CERN's mission of promoting open access to information, KiCad is an important tool for designing open source hardware. After years of work and financial support from the KiCad community and all its donors, the project has now become self-sufficient.

# **OUR DONORS**

WE ARE GRATEFUL TO THE MANY DONORS AND PARTNERS WHO GENEROUSLY SUPPORTED THE CERN & SOCIETY FOUNDATION IN 2023. THANK YOU FOR YOUR CONTINUOUS AND OUTSTANDING SUPPORT.

#### INDIVIDUALS:

Aaro Kitunen Adam Walentynowicz Ahmed Cherif Aitor Aitor Alain Chamoux Albertas Mickėnas Alexandra Hahnstadt Alexandre Tenedor Aznar Anaita Daruvala Andrea Gaddi Andrea Zanellato Andreas Lemke Anna Cook Antti Onnela Ben Dooks Chase Patterson Christoph Stehlin Christopher Wilson Clarissa Stolfi Coignee Roger David Witten Dhrumil Thakkar Dimitrij Goldstein Douglas Kerns Edward Karavakis Elvezio Serena Emanuel Havasi Ermanno De Giuli Ethan Swint Fabiola Gianotti Franyó Dávid Gabriel Smith Gianluca Renzi Giovanna Landi Gordon Collins Hedwig Eisenbarth Heinrich Backhausen Huib Verweij Inna Berezhetska James Gillies Jens Müller John Simpson Jose Elvira Jussi Ylanen Kay Huettmann





#### The 2023 Beamline for Schools competition begins.

From 14 to 28 September, the three winning teams had the chance to use the test-beam facilities at CERN and DESY to perform their experiments, explained by experts.



#### **7 OCTOBER**

**CERN** inaugurates the **CERN Science Gateway**, its new outreach centre for science education.

This iconic building will be a place where scientists and members of the public of all ages can interact daily. As part of the CERN & Society Foundation project portfolio, this new facility would not have been possible without the generous support of the CERN Science Gateway sponsors, who share the same values and want to pay tribute to education and knowledge for the benefit of society.

# **16 NOVEMBER**

Future

Launch of the third edition of Sparks!, on the theme "Future Quantum".

On 16 November, in preparation for the third edition of the Sparks! forum, speakers took the audience in the recently inaugurated auditorium of CERN Science Gateway on a journey into the future of quantum technologies, as well as looking at how they are already shaping our present.

Kevin Phelan Konrad Elsener Kyle Terry Luca Malgeri Lucia Battistella Marco Belforti Mark Kittisopikul Marta Luffarelli Martin Kraus Maurits van de Lande Mazzy Cameron Michael Braun-Boghos Michael Lin Michele Rozzi Monika Zempleni Nancy Marinelli Nicolas Enguehard Nicolaus Steenken Nicole Yunger Halpern Nike Noor Olivier Betschi Pascale Goy Paul Sauer Paulina Barrena Peter Mount Petr Pazourek Phuong Bui PrithviRaj Narendra Rob Johnson Robert Seymour Sam Michael Satish Santhanam Shigeharu Gunji Simone Paoletti Stefan Bernegger Stefan Gloor Szczesny Kaminski Tamas Toth Thierry Flaven Thierry Orlandi Thomas Barker Valentina Topi Vincent Fartmann Yannik Zausig Yasemin Arik Zoltan Begovics

#### FOUNDATIONS

Associazione Culturale Radice Breakthrough Foundation Ernst Göhner Stiftung Fondation Gelbert Fondation Hans Wilsdorf Fondation Rizkallah & Salwa Genadry Fondation Didier et Martine Primat Fondation Meyrinoise du Casino Fondation ProTechno Fondazione Carla Fendi Fondazione Marino Golinelli GESDA - Geneva Science and Diplomacy Anticipator Hasler Stiftung John S. Latsis Public Benefit Foundation Korea Foundation LEGO Foundation Simons Foundation Stellantis Foundation Tamari Foundation Three Phycisists Foundation Wilhelm and Else Heraeus Foundation

#### ORGANIZATIONS

Camões - Instituto da Cooperação e da Língua, I. P. Copenhagen Contemporary Loterie Romande Plazi Pro Helvetia Scuola Media e Liceo Scientifico Statali I.M.I. European Broadcasting Union (EBU) Ville de Meyrin

We also thank the many donors who supported CERN & Society in 2023 and wished to remain anonymous.

A special thank you to those who left a gift to the CERN & Society Foundation in their will in 2023.

IN AN ERA WHERE SOCIETY NEEDS SCIENCE MORE THAN EVER, I DO BELIEVE THAT INSPIRING NEW GENERATIONS NOT TO GIVE UP ON THEIR DREAMS AND GIVING THEM THE TOOLS AND SPACE TO CHANGE THE WORLD IS ESSENTIAL. THIS IS WHY I SUPPORT THE CERN AND SOCIETY FOUNDATION.

Individual donor, 2023

#### **COMPANIES**

Caixa Geral de Depósitos Crédito Agrícola Rolex S.A Sensortec AG Solvay UNIQA Fine Art Insurance, Switzerland Ecotrade S.A.

#### **IN-KIND CONTRIBUTION**

Pestalozzi Attorneys at Law

# EDUCATION AND OUTREACH

cience



### NON-MEMBER STATE SUMMER STUDENTS PROGRAMME

Accélénateur de scier



138 Students selected

39 Supported by the CERN & Society Foundation

> **61** Countries and representation

undergraduate and graduate students in STEM subjects with unique, hands-on experience at CERN. Over the decades, to support CERN's vision to become more inclusive and diverse, the programme has come to include CERN non-Member States. In 2023, 138 of 294 summer students came from non-Member States.

Since its establishment in 1962, the Summer Students programme has provided

To strengthen scientific education, particularly in developing countries, the programme targets a highly diverse group of students from around the world. Students have the opportunity not only to participate in some of the world's greatest scientific experiments, but also, at the end of their stay, to present their work to colleagues and supervisors. Being exposed to cutting-edge research and to CERN's international culture, as well as interacting with CERN scientists, are the other valuable experiences that the programme offers.

The 2023 edition received 3952 applications (1643 of which were eligible), from which 138 students representing 61 different nationalities were selected to take part in a summer internship.

The support received from our donors enabled 39 students to receive a fully funded scholarship. This life-changing opportunity trains students who will then be able to make a significant contribution to science and technology developments in their respective communities.

#### DID YOU KNOW?

- In 2023, the highest number of applications was received from Brazil, China and Egypt.
- The non-Member State summer student population consisted of 60 female students (43%) and 78 male students (57%).
- A diverse group of 102 physics students, 23 engineering students and 13 computing students took part in the programme.
- The largest number of selected students came from the Middle East and North Africa region, followed by the Asia and Oceania regions.

"WHENEVER I THINK ABOUT MY EXPERIENCE AT CERN, I CAN'T HELP BUT SMILE. I FEEL HONOURED TO BE ABLE TO IMMERSE MYSELF IN THIS WORLD WHERE QUESTIONS KNOW NO BOUNDS AND EVERYONE SHARES MY DEEP PASSION FOR PHYSICS."

Riana, non-Member State summer student from Albania, 2023



## **BEAMLINE FOR SCHOOLS COMPETITION**

In 2023, for the second time in the history of the Beamline for Schools (BL4S) competition, three teams were selected to perform their proposed experiments at a beam facility. The winners were announced in June, and in September the team "Myriad Magnets" from Exeter, United States, and the team "Particular Perspective", from Islamabad, Hasanabdal, Rawalpindi and Karachi, Pakistan, travelled to CERN while the team "Wire Wizards" from Eindhoven, Netherlands, was hosted at DESY (Deutsches Elektronen-Synchrotron) in Hamburg, Germany.

The BL4S competition is a physics competition open to curious and bright high-school students from across the world. Students are invited to prepare a proposal for a physics experiment that could be undertaken at a fully equipped beamline at a particle accelerator. Stepping into the shoes of innovators and problem-solvers, the teams prepare proposals that can be fully tested at CERN and DESY's beam facilities.

BL4S started in 2014 on the occasion of the 60th anniversary of CERN. Since the success of that first edition, the competition has steadily evolved, reaching its tenth edition in 2023. As of today, 22 teams have been selected as BL4S winners, while more than 16 000 pupils from all over the world have taken part in the competition.

It is a testament to the success of the programme that in 2023 BL4S received a record number of nearly 380 applications from school teams worldwide. In the words of Christoph Rembser, a CERN physicist at the ATLAS experiment and one of the BL4S founders: *"Every year I am astonished by how many young people submit very creative, interesting proposals. In 2014, we weren't sure at all whether this competition would work. Ten years and 16 000 participants later, I am proud to say that it is obviously a resounding success."* 

In addition to the winning teams, this year an additional 24 teams made it to the final round of the evaluation: 10 were awarded an "Outreach Proposal Award" and 2 additional teams were selected for the "Best Video Award".





63 Countries and representation

ONE MEMORABLE MOMENT WAS THE TIME WHEN ALL THE TEAMS WERE SITTING TOGETHER - PEOPLE FROM DIFFERENT CULTURES, BACKGROUNDS, AGES AND GROUPS - AND WE WERE ALL TALKING ABOUT THE SAME TOPIC: PHYSICS. IT'S TRULY EMPOWERING TO SEE HOW PEOPLE LEARN FROM THE SAME PASSION! Student from the Particular Perspective team, Pakistan

#### **DID YOU KNOW?**

- 2023 marked the tenth edition of the competition.
   A hybrid event took place on 20 September at CERN and DESY. The event was attended by H.E. Ms Bathsheba N. Crocker, Permanent Representative of the US Mission to the United Nations Office and Other International Organizations in Geneva, H.E. Mr Zaman Mehdi, Deputy Permanent Representative of Pakistan to the United Nations Office in Geneva, and Ms Ellen Ipenburg-Tomesen, Counsellor for Education and Science at the Embassy of the Kingdom of the Netherlands in Germany.
- In 2023, the countries represented among the shortlisted teams were Antigua and Barbuda, Bangladesh, Brazil, Canada, Costa Rica, Finland, France, India, Italy, Japan, Mauritius, Netherlands, Pakistan, Romania, Spain, Türkiye, the United Kingdom and the United States.
- The country with the largest number of submissions was Türkiye, followed by India and Pakistan.
- Students from Bangladesh, Costa Rica, Greece, India, Iran, Italy, Mexico, Pakistan, Portugal and Türkiye received the "Outreach Proposal Award", with telescopes offered by the Belgian project "Stars Shine for Everyone".



## NATIONAL TEACHER PROGRAMMES

Every year, CERN welcomes about 800 teachers from more than 50 countries. Through lectures, on-site visits, handson workshops and Q&A sessions, participants experience a dynamic, international research environment.

The national teacher programmes are brief and intensive professional development programmes that enable high-school teachers to keep up to date with the latest developments in particle physics and related areas.

Besides offering individual professional development, the programmes enhance teachers' scientific concepts and knowledge of curricula, which are key indicators of successful educators.

Another important dimension of the CERN teacher programmes is the social aspect. Over the past years, teachers from all over the world have met at CERN, become colleagues and remained in touch with one another. This has led to increased interest and participation by fellow teachers.

#### **On-site programmes**



**Online programmes:** Ukrainian teacher



"THE MAIN VALUE OF THE PROGRAMME IS THE CONSTANT INTERACTION WITH SCIENTISTS AND TOP-NOTCH RESEARCHERS. THE PROGRAMME EVOKES ADMIRATION FOR THE ACHIEVEMENTS OF THE HUMAN MIND AND SCIENCE. TEACHERS CAN THUS TRANSFER THIS FEELING TO THEIR STUDENTS AND MOTIVATE THEM FOR THEIR PROFESSIONAL CAREER ORIENTATION."

Participant in the Greek Teacher programme 2023

## THE GLOBE OF SCIENCE AND INNOVATION

2023 saw the Globe of Science and Innovation become an integral part of the larger CERN Science Gateway campus. In this intense and memorable year for the Laboratory, the CERN & Society Foundation supported 12 public events, engaging some 3000 participants, especially younger generations, with science and technology. Ranging from workshops and talks to theatre and art performances, CERN's public events aim to further CERN's mission by offering a platform to explore current scientific challenges and by conveying the importance and relevance of fundamental research.

In addition, more than 3000 visitors, including school classes, attended one of the 45 science shows which were delivered at the Globe in the first half of the year and are now offered as a permanent activity at the CERN Science Gateway campus. Discovering science while having fun with physics!

## **SPARKS!**

In 2023, the Sparks! forum, which enables serendipitous conversations and collaboration across disciplines, launched its third edition. The theme selected for this edition was Future Quantum.

The launch took place in Science Gateway in November 2023. This event was an opportunity to take a first dive into quantum technologies, their future developments and ramifications for society.

Quantum technologies have the potential to revolutionise science and society but are still in their infancy. Cutting-edge research in quantum systems has been performed at CERN for years to investigate the many open questions in quantum mechanics and particle physics. The ongoing activities in quantum computing, sensing, communications and theory have been brought together in a common strategy to assess the potential impact on future CERN experiments.







engaging







## SCIENCE GATEWAY

On 7 October, CERN inaugurated its new state-of-the-art facility for science education and outreach. A day-long inauguration event brought together the President of the Swiss Confederation, ministers and other high-level authorities from CERN's Member and Associate Member States, the project's donors and partners in CERN's research, education and outreach activities. Designed by the world-renowned Renzo Piano Building Workshop, the new facility is now open to visitors from around the world, from the age of five and upwards. Science Gateway allows CERN to significantly expand its portfolio of educational and outreach activities.

"THIS WILL BE A PLACE WHERE PEOPLE MEET: KIDS, STUDENTS, ADULTS, TEACHERS AND SCIENTISTS, EVERYBODY ATTRACTED BY THE EXPLORATION OF THE UNIVERSE, FROM THE INFINITELY VAST TO THE INFINITELY SMALL. IT IS A BRIDGE, IN BOTH A METAPHORICAL AND A REAL SENSE. THIS BUILDING IS FED BY THE ENERGY OF THE SUN. LANDED IN THE MIDDLE OF A NEWLY GROWN FOREST."

Renzo Piano, chief architect of the project

"WE WANT TO SHOW THE IMPORTANCE OF FUNDAMENTAL RESEARCH AND ITS APPLICATIONS TO SOCIETY, INFUSE EVERYONE WHO COMES HERE WITH CURIOSITY AND A PASSION FOR SCIENCE. AND INSPIRE YOUNG PEOPLE TO TAKE UP CAREERS IN SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS."

Fabiola Gianotti, CERN Director-General

The iconic building, inspired by the tubular structure of CERN's accelerators, comprises five areas housing exhibitions, education laboratories and an auditorium and is both a literal and a metaphorical bridge between science and society. The transparent glass panels and bridge also represent CERN's commitment to collaboration across borders and culture and to open science.

The project was formally launched in 2018, and construction of the Science Gateway campus took only two years. This new facility would not have been possible without the generous support of the CERN Science Gateway sponsors, who share the same values and, through their contributions, pay tribute to education and knowledge for the benefit of society.

"CERN IS AN EXAMPLE OF HOW WE CAN WORK TOGETHER IN HARMONY, USING SCIENTIFIC KNOWLEDGE AND INGENUITY FOR THE GREATER GOOD. STELLANTIS FOUNDATION IS PROUD TO PARTNER WITH SUCH AN INSTITUTION AS IT OPENS TO THE PUBLIC THE NEW SCIENCE GATEWAY."

John Elkann, Chairman of Stellantis



oxie-wren - PCB Edito

### **KICAD**

The journey with KiCad began when CERN employees recognised the need for high-quality, free and open source software (FOSS) printed circuit board (PCB) design tools to facilitate effective sharing of designs. In order to structure contributions to KiCad, in 2014 CERN and the CERN & Society Foundation initiated a donation programme to finance external lead developers working on developing new features and fixing bugs. KiCad has now reached a level of features and quality which makes it suitable for many of the PCB designs at CERN.

For this reason, the best way to continue supporting KiCad is, as it has been done for other electronic design automation (EDA) / computer-aided design (CAD) tools, to hire a commercial company (KiCad Services Corporation, KSC) to support CERN users through a dedicated group in CERN's IT department. The commercial support contract now includes the possibility of paying for new features. CERN contributions to KiCad code base will continue in that form.

# **AND KNOWLEDGE**

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As KiCad now offers two alternative donation options, the CERN & Society Foundation's previous donation programme has become redundant. The remaining funding from this platform will be used to subcontract development tasks to KiCad lead developers, as in the past.

CERN & Society's journey with KiCad so far has been filled with both challenges and incredible rewards. Special thanks go to the KiCad community and all its donors for taking part in this evolution. It would not have been possible without you.





## MEDICIS



25 batches of radioisotopes were delivered to partners/ research institutes in 2023

Nearly 4000 MBa

of total radioactivity collected and delivered to partners/research institutes in 2023

In the fight against cancer, researchers must innovate and find new ways to diagnose and treat patients via a personalised approach. CERN is contributing, based on its unique capacities, through the MEDICIS programme. MEDICIS is CERN's cutting-edge laboratory for medically required radionuclides (radioactive atoms). Radionuclides are routinely used in the medical field to diagnose cancers and other diseases, as well as to deliver a radiation dose, exactly where it is needed, to kill cancerous cells, while avoiding impacting healthy tissue. MEDICIS is one of the only - and sometimes the only - facility in the world to produce high-purity-grade novel radionuclides showing high potential in nuclear medicine.

The radionuclides produced are sent to research institutes in and outside Europe for research and development, pre-clinical trials and clinical trials. In 2023, MEDICIS continued innovating in radionuclide production. It successfully collected, with high efficiency, two very promising alpha-emitters for cancer treatment: Ra-225/Ac-225 and Ra-224/Pb-212. Moreover, the first proof of concept of the Ra-224/Pb-212 generator was successfully achieved in collaboration with an institute that is part of the EU-funded PRISMAP project.

These therapeutic radionuclides have several proven use cases for treating prostate cancers and more. MEDICIS also provided, along with a list of other radionuclides, the Ba-128/ Cs-128 & Cs-129 pair for research in the treatment of osteosarcoma (bone cancer), with encouraging results. Last but not least, in 2023 the facility provided a record activity of high-specific-activity Sm-153, kicking off the first clinical trial in radionuclide targeted therapy by means of a radionuclide produced at CERN-MEDICIS.

Looking to 2024, MEDICIS has an exciting road ahead, filled with many firsts and breakthroughs!

"I HAVE ALWAYS BEEN VERY INTERESTED IN BASIC RESEARCH IN THE FIELD OF NUCLEAR AND HIGH-ENERGY PHYSICS. HOWEVER, MY LIFE PATH TOOK ME AWAY FROM BASIC RESEARCH AND TOWARDS INFORMATION TECHNOLOGY. NEVERTHELESS, THE FUNDAMENTAL QUESTIONS OF PARTICLE PHYSICS ARE STILL SO IMPORTANT TO ME THAT I WANT TO STAY UP TO DATE AND SUPPORT THE RESEARCH. LAST BUT NOT LEAST, I AM AN ADMIRER OF COMPLEX TECHNOLOGY SUCH AS WHAT CAN BE FOUND AT CERN."

Legacy donor, 2023

# CULTURE

35 Artists involved

+350Scientists involved

b Art commissions

"FOR ME, IT IS IMPORTANT TO APPROACH ALL THE REALMS EXPLORED COLLABORATIVELY AT CERN THROUGH AESTHETICS BECAUSE IT CAN BE THE BRIDGE BETWEEN SCIENCE AND SOCIETY, AS WELL AS A WAY FOR US, AS CITIZENS, TO PARTICIPATE IN IT WITH OUR THOUGHTS. AESTHETICS ENABLES PEOPLE TO OPEN UP THEIR MINDS. TO HAVE THEIR OWN ASSOCIATIONS. OPINIONS AND MEANINGS AND TO HAVE NEW IDEAS." Johanna Bruckner, Swiss artist in residency at CERN

## **ARTS AT CERN**

The Arts at CERN programme enables artists to come in residency at CERN and interact with scientists to nourish their artistic practices. The programme also supports art productions. Some of them are exhibited in the "Exploring the Unknown" space of the newly inaugurated CERN Science Gateway. This exhibition space manifests as a fertile meeting ground where art and science enter into dialogue, a conversation initiated by Arts at CERN a decade ago. On display are four new art commissions by Julius von Bismarck, Chloé Delarue, Ryoji Ikeda and Yunchul Kim. As residents of Arts at CERN, their artistic practices have been nourished by the dialogue with physicists.

In 2023, no fewer than 35 artists came to CERN in residency or as guest artists. The Arts at CERN programme invites artists from all disciplines who are interested in the crossovers between art, science, technology and society.

20 CERN & Society



# **AND CREATIVITY**

During the residency, the artists engage in artistic research and exploration, in dialogue with physicists, engineers and laboratory staff. Following this period, there can be a phase to conceptualise a new production, with curatorial support from teams in Geneva and in CERN's partner institutions. The resulting artwork may also be showcased in partner institutions.

In 2023, collaborations took place between the Arts at CERN programme and external exhibitions such as "Dark Matters" at the Science Gallery Melbourne and "Yet, it moves!" at Copenhagen Contemporary, as well as the exhibition "Time. From Dürer to Bonvicini" at Kunsthaus Zürich.

# **YOUR SUPPORT MAKES GREAT THINGS HAPPEN**

In the previous pages, you discovered some of the projects that can benefit society. There are many ways to support CERN & Society initiatives, encouraging students, researchers and artists to thrive and make a difference to our future:

#### - MAKE A GIFT

You may choose to support CERN & Society initiatives via earmarked donations or make an unrestricted donation



that can be used to support the immediate and pressing needs of our projects. We accept payments by credit card, PayPal, cheque or wire transfer. Visit our website

#### - GRANTS AND SPONSORSHIPS

Foundations, corporations and other organisations can help us leverage the benefits that science has on society by collaborating with us in a joint venture or by entrusting us with the necessary resources to enlarge the impact of CERN & Society projects.

Contact: partnerships.fundraising@cern.ch

#### - RENT THE GLOBE

Individuals, companies and other organisations can rent the Globe of Science and Innovation for their private events. The Globe is a unique and remarkable venue able to accommodate up to 300 people and is fully equipped for meetings, conferences, cocktail parties and dinners. 100% of the revenue from renting out the Globe goes to CERN & Society projects.

Contact us to schedule your event: partnerships.fundraising@cern.ch

#### - VISIT THE CERN SHOP

If you happen to be close to CERN, why not pay a visit to the CERN Science Gateway gift shop? It's an amazing place where you will even find authentic CERN data tapes that would make an original gift or a souvenir of your visit. 100% of the revenue from the data tapes purchase will be used to support CERN & Society projects. Check the shop's opening hours or buy online: https://visit.cern/shop

#### - MAKE AN IMPACT BEYOND YOUR LIFETIME

You can also consider supporting the CERN & Society Foundation in your personal estate planning. With legacies and bequests, you can pass on your values to the next generation.

#### - SPREAD THE WORD

Raising awareness of our mission and work is also a great way to support us. Do you frequently use social media like Facebook or LinkedIn? Then follow us, like and share our posts to give more visibility to our projects and spread the idea of using science for the benefit of society. Join our community!







CERN & Society Foundation - 25 398 followers

#### **OPERATING COSTS**

CERN provides the majority of the resources needed to operate the CERN & Society Foundation. Unless otherwise agreed with the donor, only a small fraction of unrestricted donations is used to cover the cost of processing contributions received by credit card or PayPal and other operating expenditure. Otherwise, all funds go directly to fund projects and increase their impact.



# **CERN & SOCIETY FOUNDATION BOARD**



Michel Spiro, Chair of the Foundation Board President of the International Union of Pure and Applied Physics (IUPAP)

Daphné de Laleu, Vice-Chair of the Foundation Board, Senior Partnerships Manager - Foundation Programme Lead, Audemars-Piquet, Switzerland



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