

## Annual Review 2015



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*CERN & Society*

*“Spreading the CERN spirit of scientific curiosity,  
for the inspiration and benefit of society.”*

CERN & Society Foundation  
Annual Review 2015



# Building partnerships for science in society



Since its establishment in June 2014, the CERN & Society Foundation has worked to enhance CERN's impact on society. Through its varied programmes, the Foundation has engaged young people in the pursuit of science, provided access to world-class education for talented students from less privileged parts of the world, inspired collisions between science and art, and advanced the development and exchange of technology for the benefit of society. These initiatives serve to strengthen CERN's impact outside its fundamental research remit and facilitate the creation of dedicated relationships with the private sector, promoting the value of pure fundamental research to audiences otherwise difficult to reach.

Over the past year, generous donations have brought remarkable results in the domain of Education & Outreach, with hundreds of young students engaged with STEM subjects, and many others enabled to pursue training in the world-class environment of CERN. In the framework of our Innovation & Knowledge Exchange efforts, important steps were made towards the development of mature Free and Open Source software and leading data repository for Open Science. Meanwhile in the

domain of Culture & Creativity, Arts @ CERN, CERN's official engagement with the arts, announced four winning projects for artists to come on a research residency at CERN.

In 2015, we have also made a substantial effort to ensure tax-effective cross-border giving for our donors. The CERN and Society Foundation has joined the Transnational Giving Europe network, permitting secure and tax-effective giving within eighteen European countries, and has established the CERN & Society Foundation US Fund at the King Baudouin Foundation United States, allowing donors based in the US to support our activities in a tax-efficient way.

You will find much more information on our activities and their impact over the past year in this review. As highlighted by the initiatives detailed here, it has been a busy and rewarding year, which is just the beginning of what we hope to be a continuous record of successful stories to share.

This year's achievements have only been possible due to the extraordinary support of our donors, who joined us with their passion *"to spread the CERN spirit of scientific curiosity, for the inspiration and benefit of society"*. We thank them for their engagement in support of science in society, and look forward to building on these indispensable partnerships to reach even further in the years ahead.

**Anne Richards CVO CBE**  
CERN & Society Foundation Chairperson

# MAKING A DIFFERENCE

## EDUCATION

### BEAMLINE FOR SCHOOLS COMPETITION

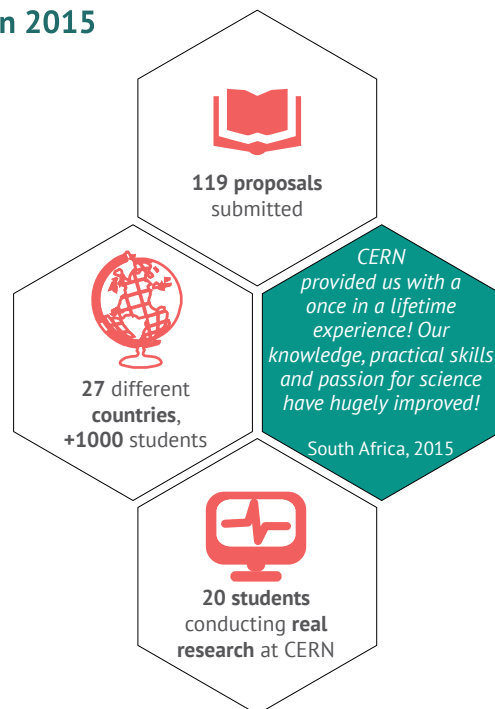


This project aims to **inspire young people to get involved in science and encourage them to consider STEM careers.**

High-school students between 16 and 19 years of age, regardless of nationality and background, **can compete for the chance to engage in real experimental particle physics research at CERN** using a fully-equipped particle beamline on CERN's Proton Synchrotron accelerator, with support from CERN scientists and engineers.

The two winning teams **work at CERN for 10 days as if they are real CERN scientists**, having stimulating discussions with peers and mentors, late-night shifts, health and safety training and everything that goes along with world-class science in an inspiring international environment.

In 2015



The competition took place for the second time in 2015. So far, it has managed to **engage more than 4,000 students from all around the world, who worked in teams to study the experimental set-up and write the full proposal. More than 400 teachers were also involved, who motivated and guided their classes as coaches and advisers.**

45% of the schools participating in 2015 had already entered the competition the previous year, returning with new teams and new proposals, demonstrating the **clear success** of the project.

### ATLAS PhD GRANT SCHEME

The ATLAS PhD Grant Scheme was established by Fabiola Gianotti and Peter Jenni, former ATLAS experiment spokespersons, from the prize money they received as winners of the Fundamental Physics Prize in 2013. The aim of the scheme is to **encourage young, talented and motivated doctoral students in particle physics research** (including computing for physics)

and **to enable them to benefit from world-class research, supervision and training within the ATLAS collaboration.** Candidates, selected through a rigorous process, are granted a unique educational opportunity and receive a stipend to spend one year at CERN followed by one year at their host institute.

# REFERENCE IN... & OUTREACH

*I benefited a lot from the intensive discussions with other collaborators at CERN and this helped me come up with new ideas.*

Lailin Xu

*I'm sure this grant will be a boost to my future career as a scientist.*

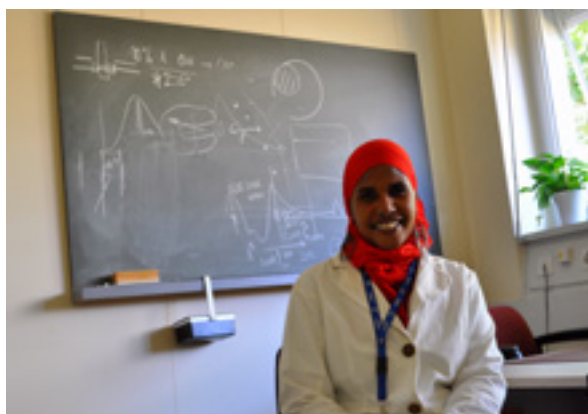
Josefina Alconada



Every year, three students are chosen from dozens of applicants, regardless of their nationality or socio-economic background. So far, **nine students**, have had the **opportunity**

**to work on part of their PhD thesis at CERN with the advice and guidance of world-class specialists in the field.**

## NON-MEMBER STATE SUMMER STUDENT PROGRAMME



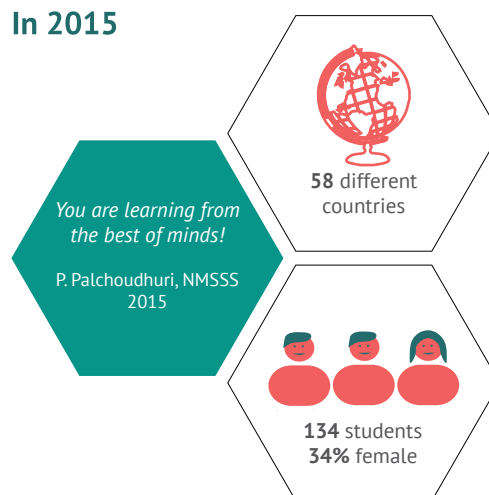
In a world in which a considerable gap between countries still exists in research and innovation, **equal access to advanced STEM education and the chance to work in a world-class research environment is crucial for any nation's scientific development.**

The Non-Member State Summer Student Programme (NMSSS) addresses this need by offering an **8-week-long on-site scientific training course at CERN** to undergraduates or recent graduates of physics, computing and engineering, who are nationals of Non-Member States, **in particular those from developing and less developed countries.**

The ultimate goal is to ensure that **promising**

**young students, regardless of their nationality, gender, race or religion,** are given the opportunity to become scientifically literate and motivated to embark on STEM careers to meet the need for a stronger workforce in STEM-related disciplines worldwide.

### In 2015

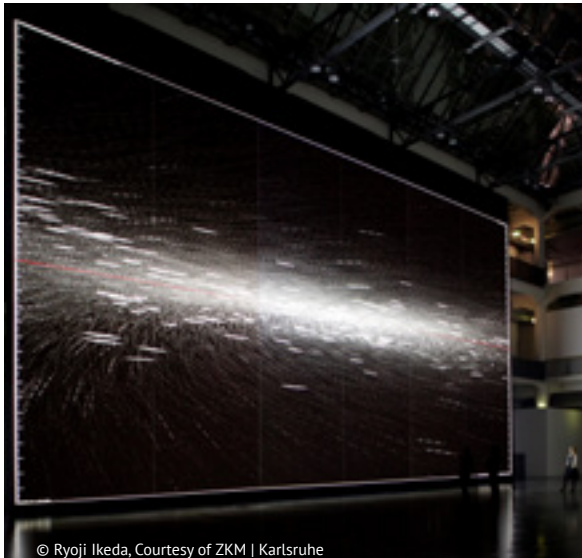


In 2015, this project provided the 134 selected students with a **unique and enriching scientific experience**, as they have worked in a **first-class scientific environment** side by side with other students and scientists from all over the world, building **collaborative bonds and international partnerships.**

# MAKING A DIFFERENCE

## CULTURE & CREATIVITY

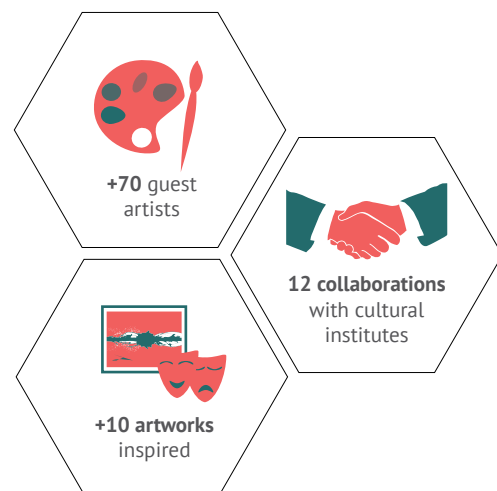
### ARTS AT CERN



Exploring the reasons for our existence is the shared goal of particle physics and the arts; what it is to be human and our place in the universe. The two fields are **inextricably linked** and are **natural partners for innovation, research and development**.

ARTS AT CERN is a platform for creative **collision between the arts and science** with three strands: *COLLIDE*, artists' residencies; *ACCELERATE*, artists' research; and the *GUEST ARTISTS* programme, which invites selected artists to undertake a two-day curated visit on CERN site.

#### So far



#### In 2015

#### ACCELERATE



37 applications



2 artists from 2 different countries selected for a one-month research residency at CERN.

ACCELERATE is the **country-specific one-month research award** for artists who have never before spent time in a science laboratory.

Every year, **two artists from two different countries and artistic domains** are given the **award** after competing in a national open call. The winners receive a stipend for their one-month research visit to CERN.

#### In 2015

#### COLLIDE



155 applications for COLLIDE International

26 applications for COLLIDE Geneva



1 international artist selected for a 3-month research residency at CERN.

1 local artist selected for a 3-month research residency at CERN.

The COLLIDE award brings world-class artists and scientists together in a **free exchange of ideas**, thanks to a **fully funded residency at CERN for up to 3 months**.

The programme gives artists the **time and space to reflect, research and renew their artistic practice and career** by introducing them to the multi-dimensional world of particle physics in carefully curated encounters.



# REFERENCE IN...

## INNOVATION & KNOWLEDGE EXCHANGE

### ZENODO

In 2015, the CERN & Society Foundation welcomed Zenodo into its portfolio of projects.

Despite the fact that the sharing of research findings has advanced science throughout history, **today data is rarely shared when scientific results are published.** The data is too big or complex to find a home in traditional publication chains. This prevents researchers and scientists from deriving the full benefit from the results of public research, which leads to the duplication of research efforts and wasting of resources that could otherwise be used for further original research.

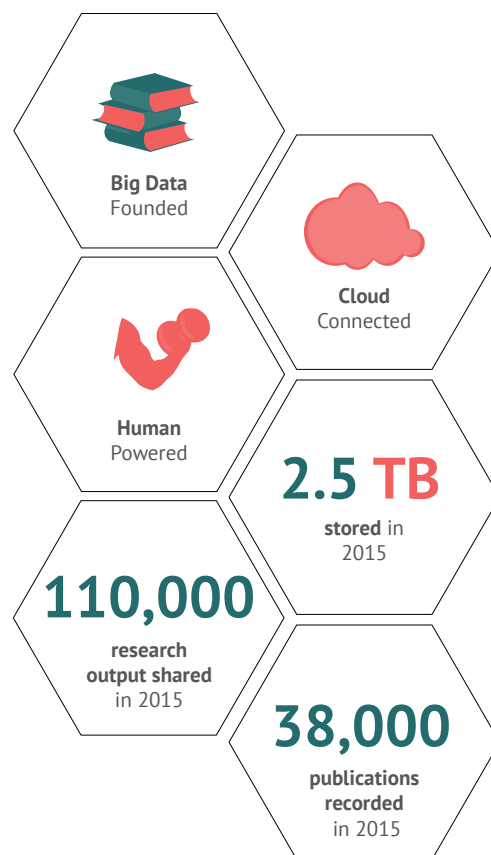
Access to research data is not the only problem. It is often very difficult or even impossible to interpret the data without also having free access to the code used to perform the published analysis.

**Zenodo was created at CERN to address this very need:** to make the publishing, sharing, and long-term stewardship of scientific data and software a reality for all researchers.

Zenodo is a **free, open, dependable repository** for the previously unpublished long-tail of science, **enabling researchers to share and preserve any research outputs of any size or format and from any science**, making it available for society at large to fully benefit from public research results.

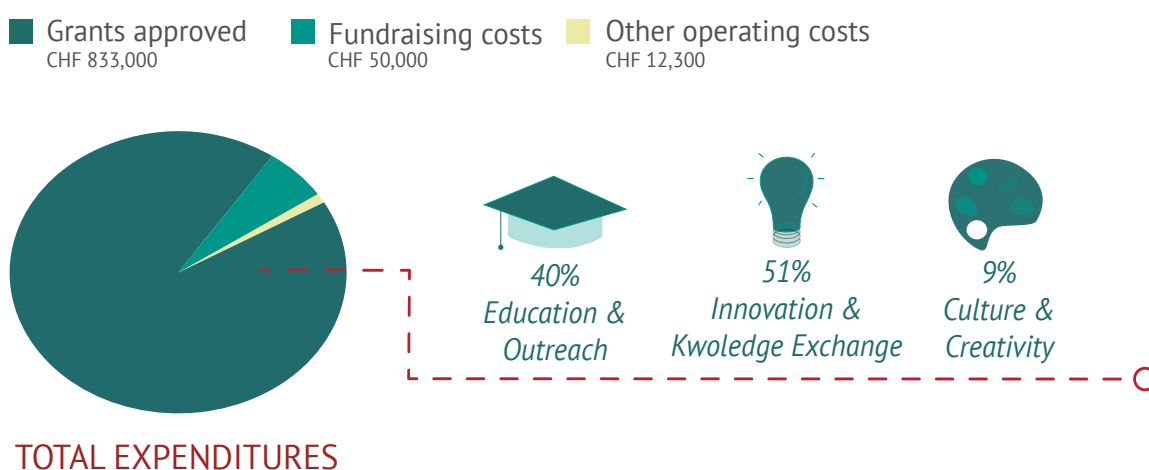
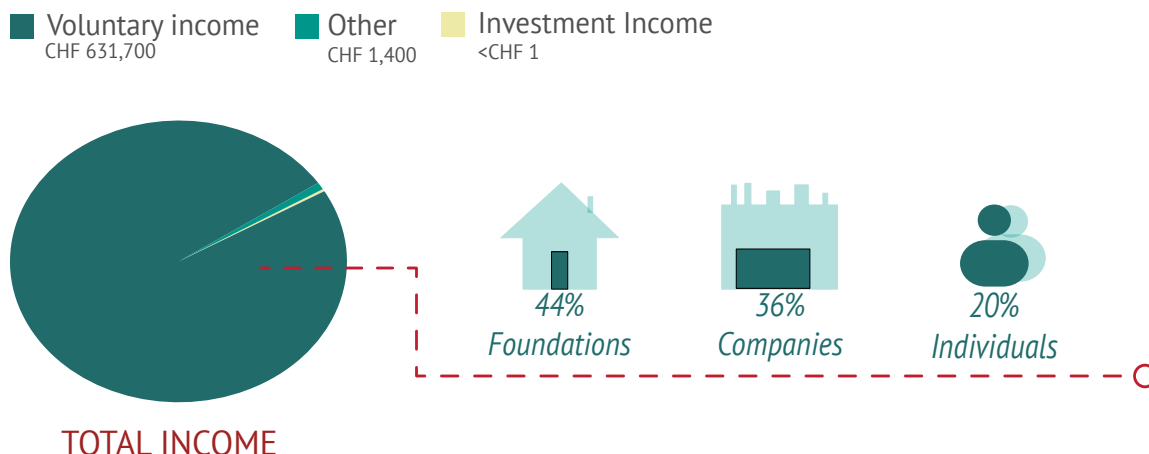
The project was launched at CERN within the OpenAIREplus project as part of the creation of a Europe-wide research infrastructure. CERN has **considerable knowledge and experience in building and operating large-scale digital repositories** and Zenodo taps into **CERN's longstanding tradition and experience of sharing and preserving scientific knowledge for the benefit of all.**

The scientific community now has the option to store its data in a non-commercial environment to be **freely available for society at large.**



The digital revolution has necessitated a change in the scholarly processes that handle data and software, but this is proceeding at varying speeds across different communities, disciplines, and countries. **To ensure no-one is left behind through lack of access to the necessary tools and resources, Zenodo makes the sharing, curation and publication of data and software a reality for all researchers.**

# 2015 in figures



## STRUCTURE AND GOVERNANCE

The governing document of the CERN & Society Foundation allows for a maximum of nine and a minimum of three Trustees, including the Director General of CERN ex officio, and one member designated by CERN.

The Trustees hold board meetings throughout the year, at approximately four-month intervals.

The Foundation Board is responsible for the overall direction, management and administration of the Foundation and its assets.

## TRUSTEES<sup>1</sup>

**Anne Richards CVO CBE**  
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 Chairperson

**Professor Rolf-Dieter Heuer**  
 Director-General, CERN  
 Trustee, ex officio

**Professor Peter Jenni**  
 Albert-Ludwigs-University Freiburg, Germany  
 Former Spokesperson, ATLAS Collaboration  
 Trustee, CERN appointee

<sup>1</sup>As per 2015.



# THANK YOU

## *to all the supporters of the CERN & Society Foundation!*

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*Additional supporters of the CERN & Society Foundation in 2015:* Amanda Liddle, Andreas Lemke, Andreas Pfau, Bryan Newbold, Christoph Bishko, Christopher Parish, Christopher Stook, Connor Crenshaw, Damir Tadic, Dani Revilla, Darian Cabot, Dave Harper, David Choi, David Flynn, Donovan Squires, Douglas Bowlus, Drew Wilson, Dustin Sanders, Eva Anna Barton, Giovanni Bianchessi, Gordon Hardman, Heinrich Backhausen, Henri Valta, Ilya Elenskiy, Isaac Clark, Jakub Stano, James Utter, Jamie O'Neil, Joe McPherson, Joel Silvestre, John Cook, John Poirier, Jonathan Klein, Justin Jenkins, Justin Jovic, Justin Mathews, Karl Zeilhofer, Kim Blomqvist, Kurt Pochert, Line Deblander, Lisa Baum, Marcin Ziemianowicz, Mark Spatz, Martin D'allens, Matej Slavik, Matej Zubcic, Maurits Van de Lande, Maxim Melcher, Michael Hidingier, Michail Misirlis, Michele Scarlatella, Nick Kartsioukas, Nicolaas Baas, Nicolas Jeker, Nikita Maximov, Nikolai Beier, Obsidian Technology, P., Rounce, Patrick Fleischmann, Patrick Marmorat, Patrieck Reybaud, Peeranut Visetsuth, Peter Ogden, Poppleton Road School Parents and Carers, Rebecca Kearney, Ricardo Martin Marcucci, Ritchie Wilson, Rob Maris, Robert Garnett, Rolando Murillo, Shawn Sun, Simon Diehl, Simon Turner, Sokolov Nikita, Stephane Guindon, Stéphane Régnier, Su Nam Kim, Sylvie Vulllioud, Tamas Novak, Thomas Andrews, Thomas Jean Marie, Timo Alexander, Kuschat, Timothée Manaud, Tronixlabs Pty Ltd, Valentina Petricciuolo, Vito Marolda, Waltech Systems, Weston Braun, Wojciech Zabootny, Yee Man Tse.

*We would also like to thank donors who supported CERN & Society in 2015 but who wish to remain anonymous.*

*Our heartfelt gratitude also goes to CERN personnel (who are often volunteers), without whose curiosity, creativity, hard work and social conscience, CERN & Society projects would not be possible.*

*Finally, we express our thanks to the Swiss legal firm, Pestalozzi, for their invaluable pro bono advice and support in establishing the Foundation, and in particular to Oliver Widmer, for his commitment and wise counsel.*

**CERN & SOCIETY FOUNDATION**

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