CERN: Updates for students and educators

http://home.web.cern.ch/students-educators/updates/feed

Browsing the Latest Snapshot | Browse All Articles (155 Articles) | Live Browser

10/03/16--05:36: Beamline for Schools 2016: how to be a CERN scientist

Stefania Pandolfi

Students from the Beamline for Schools competition in 2016 working at their experiment (Image: Noemí Carabán Gonzalez/CERN)

Two teams of high-school students from the UK and Poland had the opportunity to conduct their own experiments at a fully equipped CERN beamline, after winning the third Beamline for Schools competition.

The teams, “Pyramid Hunters” from Poland and “Relatively Special” from the United Kingdom, spent 10 days at CERN conducting the experiments they had dreamt up in their winning proposals.

More Channels

Showcase

RSS Channel Showcase 7512675

RSS Channel Showcase 8964881

RSS Channel Showcase 8729945

RSS Channel Showcase 7045975

Channel Catalog

Subsection Catalog

Articles on this Page

(showing articles 1 to 10 of 10)

10/03/16--05:36: _Beamline for School...

10/05/16--01:01: _ATLAS Open data use...

11/03/16--02:00: _Applications open f...

11/07/16--04:27: _New summer camp at ...

11/22/16--05:43: _Students from CERN ...
12/08/16--03:22: _Applications open f...
01/12/17--02:06: _Deadline extended f...
01/20/17--07:32: _Video contest: PACM...
01/31/17--03:48: _Second Innovation f...
02/23/17--07:00: _Meet the talented r...
(showing articles 1 to 10 of 10)

The Beamline for Schools competition gives high-school students the chance to run an experiment on a fully equipped CERN beamline, in the same way researchers do at the Large Hadron Collider and other CERN facilities every day.

The two teams, totaling 16 students, were selected out of 151 applications from 37 countries around the world, representing more than 1250 high-school students who engaged with particle physics as they worked on coming up with feasible experiments to test.

Beamline for Schools 2016 students with Fabiola Gianotti, CERN Director-General, in the East hall. (Image: Julien Ordan, Maximilien Brice/ CERN)

Pyramid Hunters is a team of seven students from the Liceum Ogólnokształcące im. Marsz. St. Małachowskiego. Their project involved measuring how limestone absorbs fundamental particle called muons. They hoped to use this knowledge to understand data from an old 3D image made of the Chephren pyramid using a technique called muon tomography. The technique builds images in a similar way to a CT scan, but muons are used as they can penetrate through thicker material than X-rays.

“It’s been a great experience and also a great chance to contribute to other experiments and mix with other cultures,” says Kamil Krakowski, a member of the Pyramid Hunters team.

“CERN is like a city where even if people work hard and do a lot of research, they still have time to sit together and talk,” another member of team, Kamil Szymczak, explains.

Relatively Special, from Colchester Royal Grammar School, aimed to test the validity of the Special Relativity theory using the decay rate of particles called pions.

Students from the Beamline for Schools competition in 2016 look at data from their experiments. (Image: Jacques Herve Fichet, Hugo Maxime Chemli/ CERN)

“Both teams worked for at least 12 hours per day and on some days it was not easy to get them out of the control room at 9 p.m. when the official shifts ended,” says Markus Joos, Beamline for Schools project leader. “The data they have collected will keep them busy for many weeks to come. Both teams are planning to write a scientific paper about their results.”

Dedicated CERN staff and users from across CERN departments were on site to guide the students through the experiment. “In the era of big experiments, it is a pleasure to prepare and conduct a few tiny, but educational experiments within a year, driven by curiosity and not by results,” says Oskar Wyszynski, one of the scientists who supported the teams.

Physicists, engineers and experts in several fields from across all CERN departments helped with the preparations for the experiment and offered guidance during the experimental phase at CERN. “I would like to thank the many colleagues at CERN who help us to organise the BL4S competition every year,” underlines Joos.

During their time at CERN, the students also spent a day undergoing training and safety awareness (see the Box) and visited many of CERN’s spectacular experiments and facilities, including CMS, ATLAS, the Antiproton Decelerator and the CERN Control Centre (CCC).

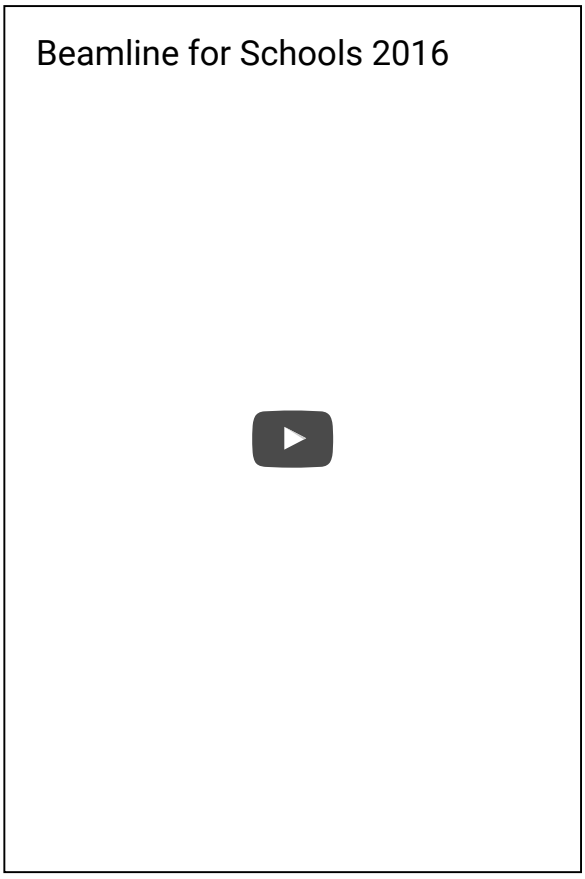
As part of the trainings organised during the safety-dedicated day, the students learned, among other things, how to properly use a fire extinguisher. (Photo: Julien Ordan/CERN)

The students also had the opportunity to meet the supporters of the Beamline for Schools 2016 competition. Representatives from the Alcoa Foundation and National Instruments met with the winning teams from the UK and Poland, exchanged ideas and shared their passion for scientific education and advancement. The Motorola Solutions Foundation team, although not physically present due to scheduling conflicts, sent a message to the students.

Beamline for Schools is an education and outreach project funded by the CERN & Society Foundation, supported by individuals, foundations and

companies. The project is funded in part by the Alcoa Foundation; additional contributions are received from the Motorola Solutions Foundation, the Fund Ernest Solvay managed by the King Baudouin Foundation, and National Instruments.

The fourth edition of BL4S has already been announced and proposals will be accepted until 31 March 2017.



Two teams of high-school students from the UK and Poland had the opportunity to conduct their own experiments at a fully equipped CERN beamline, after winning the third Beamline for Schools competition. (Video: Noemí Carabán Gonzalez/CERN))

10/05/16--01:01: ATLAS Open data used at a University

0 0

Katarina Anthony

From the left: two Dortmund students working with ATLAS Open Data, Isabel Nitsche, who is supervising the students during the lab course, and Sonja Bartkowski, the main developer of the course. (Image: Markus Alex/TU Dortmund)

Over the last 2 years, LHC experiments have released large batches of data from real LHC collision events. These data are available to the public on the open data portal and can be used for educational purposes. During the current semester, the Technical University of Dortmund in Germany is offering its Master's students an 8-hour lab course, which uses open data from the ATLAS experiment.

Read more on ATLAS website.

11/03/16--02:00: Applications open for 2017 International Teacher Programmes

0 0

Teachers participate in the High School Teacher's programme (Image: Anna Pantelia/ CERN)

In summer 2017, CERN will offer two residential programmes for high school physics teachers. Both programmes will be delivered entirely in English and are open for teachers from around the world. The annual 3-

week International High School Teacher (HST) Programme will be on 2-22 July 2017, while a new addition to the calendar sees the International Teacher Weeks (ITW) Programme taking place on 6-19 August 2017.

Teachers can find out more and apply via the CERN Teacher Programmes website until 31 December 2016.

11/07/16--04:27: New summer camp at CERN 0 0

S'Cool LAB Summer CAMP is an opportunity for 22 high-school students (aged 16-19) from all around the world to spend 2 weeks exploring the fascinating world of particle physics. The first S'Cool LAB Summer CAMP will take place from 23 July to 5 August 2017. If you want to spend your summer at S'Cool LAB, CERN's hands-on particle physics learning laboratory, for an epic programme of lectures and tutorials, your own team research projects and visits of CERN's research installations, then learn more about the camp, and how to apply here.

Applications close on 20 January 2017.

11/22/16--05:43: Students from CERN competition publish research paper 0 0

Christoph Rembser

CERN competition: a beam line for schools Dominic...

Team Dominicuscollege, from Nijmegen, Netherlands, designed, built and tested a crystal calorimeter in the context of CERN's first beam line for schools competition (Video: Team Dominiscuscollege/ CERN)

Five high-school students, who won the chance to conduct particle physics experiments at CERN in 2014, have just published the first ever research paper to come from CERN's Beamline for Schools competition.

When they won the competition, Team Dominicuscollege, from Nijmegen, Netherlands, were given the opportunity to experience life as true scientists – writing proposals and conducting research on working scientific equipment. But now, the young winners have realised the rewards that come from having your research recognised by the rest of the science community.

The team published a paper in the scientific journal, Physics Education, instructing other students and schools how to build their own particle detector. In the first publication to come out of the competition ever, the team describes their experience at CERN, their interactions with other students, physicists and engineers, and how, for two weeks, they were treated as fully-fledged scientists, not high-school students. The students, together with their teachers, describe how their crystal calorimeter was designed, built and tested in their school and what results their detector achieved in the tests with electrons and muons at CERN.

The Beamline for Schools competition gives high school students an insight into the everyday life of a researcher. Teams are asked to design a particle physics experiment, write a proposal, which is then judged by a scientific committee,and, if successful. prepared and carried out by the students at the CERN Proton Synchrotron. As part of the competition the students are expected to act as CERN physicists, including undertaking shifts at the experiment day or night, attending crucial meetings and – of course – sharing in the marvelous experience of the CERN campus and its international cafeteria. As one of the team members said “It was an amazing experience that I will never forget! I really hope that I will ever be able to return to CERN! I signed up for a science excellence program, and the first courses are about particle physics. I can’t wait to learn even more about the wonderful world of physics!”

Since 2014, more than 5500 students from all around the world have participated in the competition, a third of them from non-member state countries. On average teams spend around 24 hours developing their ideas for an experiment and preparing their proposals.

The 2017 competition is now open for entries, and you can find out more information and apply here: http://beamline-for-schools.web.cern.ch/.

We hope that many students follow the advice of Team Beamline from Thailand: “ We want to throw out that lump of a book, kick the classroom door open and go out to see real things.”

Congratulations to Team Dominicuscollege!

To find out how you can support Beamline for Schools through the CERN and Society group, go to this page: https://giving.web.cern.ch/civicrm/contribute/transact?reset=1&id=11

12/08/16--03:22: Applications open for 2017 CERN openlab student programme

0 0

Andrew Purcell

The 2016 CERN openlab summer students in front of the Globe (Image: Andrew Purcell/CERN)

Are you a bachelor's or master's student in computer science, mathematics, engineering, or physics? Do you have a strong computing profile, and would be interested in working on advanced ICT projects at

CERN during summer 2017? If so, we have just the solution for you... the CERN openlab Summer Student Programme.

CERN openlab is a unique public-private partnership that accelerates the development of cutting-edge solutions for the worldwide LHC community and wider scientific research. Through CERN openlab, CERN collaborates with leading ICT companies and research institutes.

Over nine weeks (June-August 2017), the CERN openlab summer students will work with some of the latest hardware and software technologies, and see how advanced ICT solutions are used in high-energy physics. The students will also attend a series of lectures prepared for them by ICT experts at CERN, in addition to the main lecture series for CERN summer students. Visits to the accelerators and experimental areas are included in the programme, as well as trips to other research laboratories and companies.

CERN is a place where dizzying ICT challenges abound. The CERN openlab Summer Student Programme may lead to follow-on projects in your home institute, or it may even inspire you to become an entrepreneur in cutting-edge ICT.

Apply by 15 February and open a world of possibilities!

Don't just take our word for it, see what previous students have to say about the programme in this video:

Openlab Summer Students Invitation

Previous CERN openlab students share their experience (Video: Noemi Caraban/CERN)

Full information on the CERN openlab Summer Student Programme is available on the CERN openlab website.

01/12/17--02:06: Deadline extended for CERN high-school summer camp

0 0

Students at the CERN S'cool LAB (Image: Jeff Wiener/ CERN)

Are you a high-school student and fascinated by the world of particle physics?

If yes, you have 4 weeks left to apply for the first S'Cool LAB Summer CAMP at CERN!

- **We offer 22 places for high-school students (aged 16-19) from all around the world.**
- **The camp will take place from 23 July to 5 August 2017 at S'Cool LAB, CERN's hands-on particle physics learning laboratory.**
- **The programme will consist of lectures and tutorials, your own team research projects and visits of CERN's research installations.**

Interested? Learn more about the camp, and how to apply here.

Applications close on 5 February 2017.

- **01/20/17--07:32: Video contest: PACMAN needs you!** 0 0

Tommaso Portaluri

The ten PACMAN fellows holding an object representative of their research field. (Image: PACMAN)

PACMAN, a Marie Curie Project, has launched an animation contest, with a prize of 500 Swiss Francs. The competition asks students to submit an animated video that explains to the general public the basic physics and engineering, as well as the technical difficulties, of the PACMAN project*.

The PACMAN project, whose acronym stands for Particle Accelerator Components' Metrology and Alignment at the Nanometre scale, aims to develop new alignment techniques for the Compact Linear Collider (CLIC) modules and other future accelerators. Now in its final year, the last workshop will be held from 20 to 22 March 2017. The three-day conference will bring experts in the field from all over the world to CERN.

The award ceremony will take place during this final workshop and the creator of the winning video will be invited to attend it at the Organization's expense.

To apply, you must upload the animation on a video-sharing website (such as YouTube or Vimeo), the link can be sent using the registration form available on the PACMAN website. Registrations will be open until 15 February; the winner(s) will be announced on 28 February.

Apply now!

PACMAN at CERN

What is the PACMAN project? (Video: www.letimora.com)

PACMAN aims at developing an integrated alignment technique for CLIC's components, with a micron accuracy. CLIC (Compact Linear Collider) is a concept machine for a future linear collider accelerating and colliding particles along a 50-km long machine. This would provide significant fundamental physics information, complementary to that conveyed by the LHC. It will employ high-energy technologies operating at an unprecedented degree of precision, at the nano- and micrometre level. Topics of interest for the PACMAN project include: alignment, metrology radio-frequency, signal processing, magnetic measurements, microwave technology. Read more about the PACMAN project at this page.

01/31/17--03:48: Second Innovation for Change project kicks off today

0 0

Last year's Innovation for Change project kick off was held in CERN's IdeaSquare (Image: Luca Magnani/SAFM)

Following last year's success the Innovation for Change project kicked off it's second edition today, at CERN.

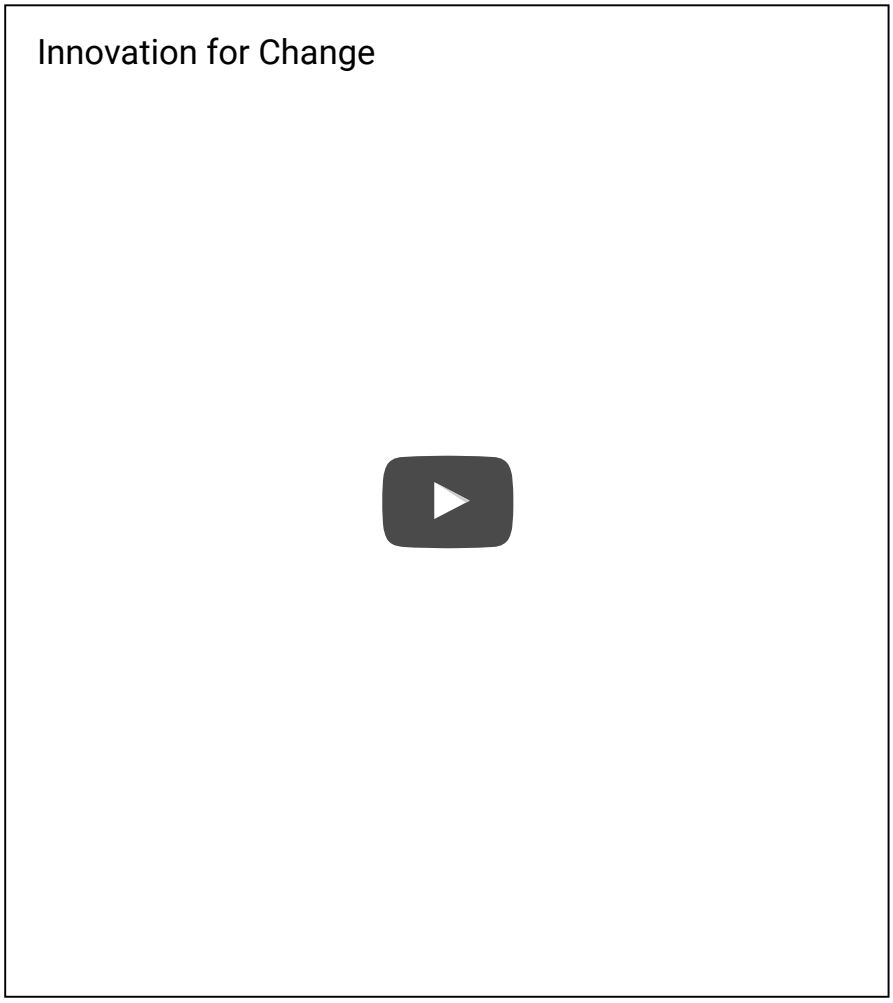
The project asks 50 students, with scientific or engineering backgrounds, to work together for the next five months in both Geneva and Turin. The students are split into several groups, but with a common goal: to apply the most advanced technologies to global social challenges, in particular in food and health.

Eight new startup projects will be generated by the intensive work in the coming months. Each of these will be capable of competing on the global market with innovative products or services that also respond to global societal challenges and that match the needs of industrial groups or global organisations. The teams will be supported by Scuola di Alta Formazione al Management of Turin (SAFM) alumni entrepreneurs or those who now work in big industrial groups, along with the scientists of CERN and researchers of Politecnico di Torino. These supporters will help the teams to find advanced tech tools and solutions to create prototypes for their startups that are ready for market entry and development.

Big industrial companies and global organizations are also collaborating with the teams by selecting relevant social challenges guiding them through a joint effort to find viable innovative solutions: the Italian Ministry of Economic Development, the United Nations Industrial Development Organization, Associazione Italiana Ulcere Cutanee, Casillo Group, ENEL and Humanitas.

At the end of the project, scheduled for end June 2017, the teams will share the outcome of their work with a group of companies, entrepreneurs and investors, in a public pitch and expo also attended by the heads of the founding institutions.

The project is promoted by SAFM, Politecnico di Torino and IdeaSquare, a dedicated facility for experimental innovation at CERN.

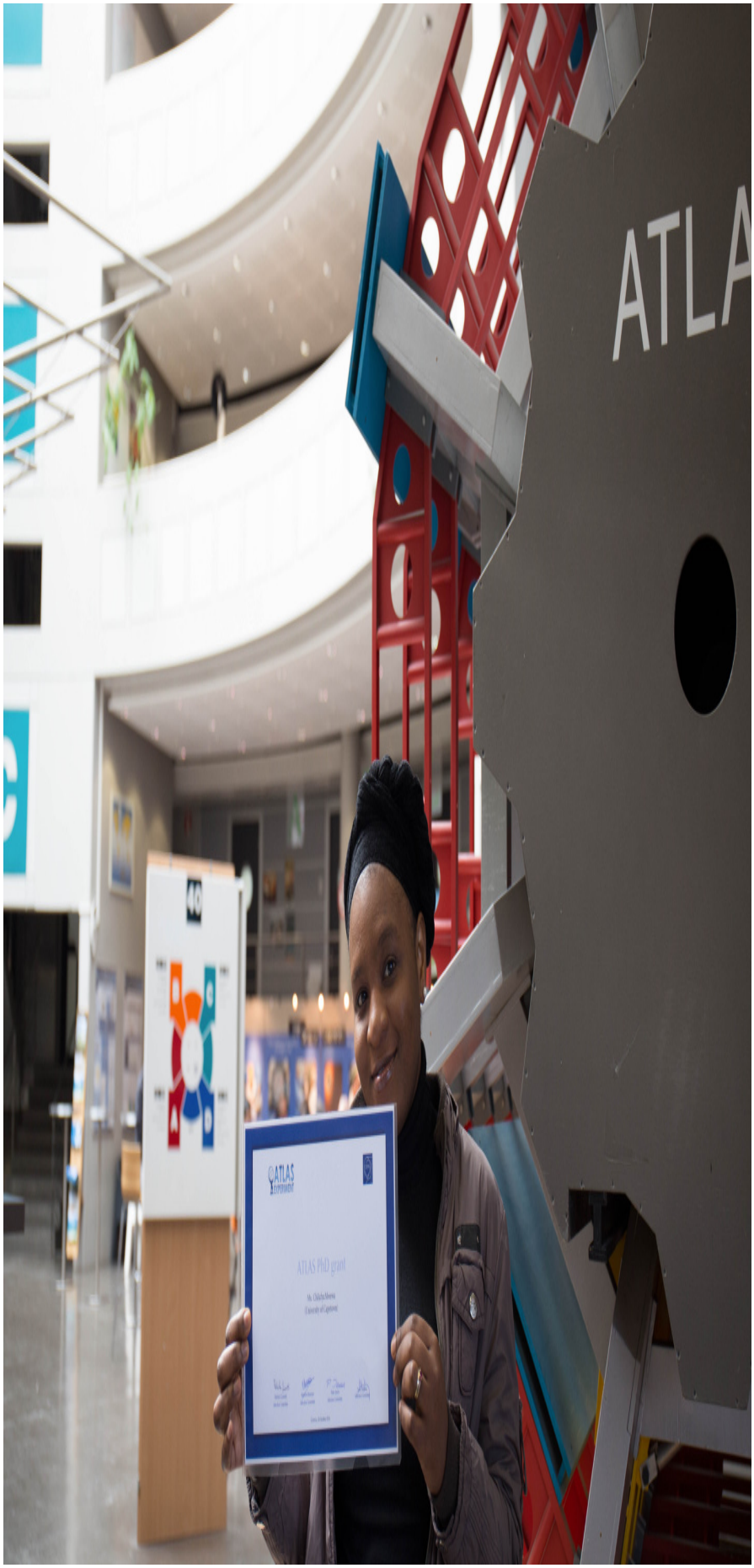


What is the Innovation for Change project? (Video: SAFM)

02/23/17--07:00: **Meet the talented recipients of the ATLAS PhD Grant**

0 0

Katarina Anthony



Chilufya Mwewa, one of the 2017 ATLAS PhD Grant recipients. (Image: S. Biondi/ATLAS Experiment)

Motivated. Outstanding. Enthusiastic. These are the criteria used when selecting the recipients of the ATLAS PhD Grant. It's a tough competition. Now in its fourth year, the Grant gives doctoral students an opportunity to

benefit from world-class research, supervision and training within the ATLAS collaboration. The students receive two years of funding for their studies, spending one year at CERN and another back at their home institute.

On Tuesday 14 February, the 2017 ATLAS PhD Grant recipients were presented with certificates at a small ceremony in CERN's Building 40. It was a chance for Chilufya Mwewa (University of Cape Town), Santiago Paredes Saenz (University of Oxford) and Giulia Ripellino (KTH Royal Institute of Technology) to meet the committee members and share stories with the previous year's recipients.

The ATLAS PhD Grant was established by former ATLAS spokespersons Fabiola Gianotti and Peter Jenni, who created the fund with Fundamental Physics Prize award money they received in 2013. Hopefully the Grant will be sustained over the coming years with the support of private contributions. Visit the CERN & Society website to find out how you can contribute.

Visit the ATLAS website for more information.