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01/12/17--02:06: Deadline extended for CERN high-school summer camp 0 0

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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*.

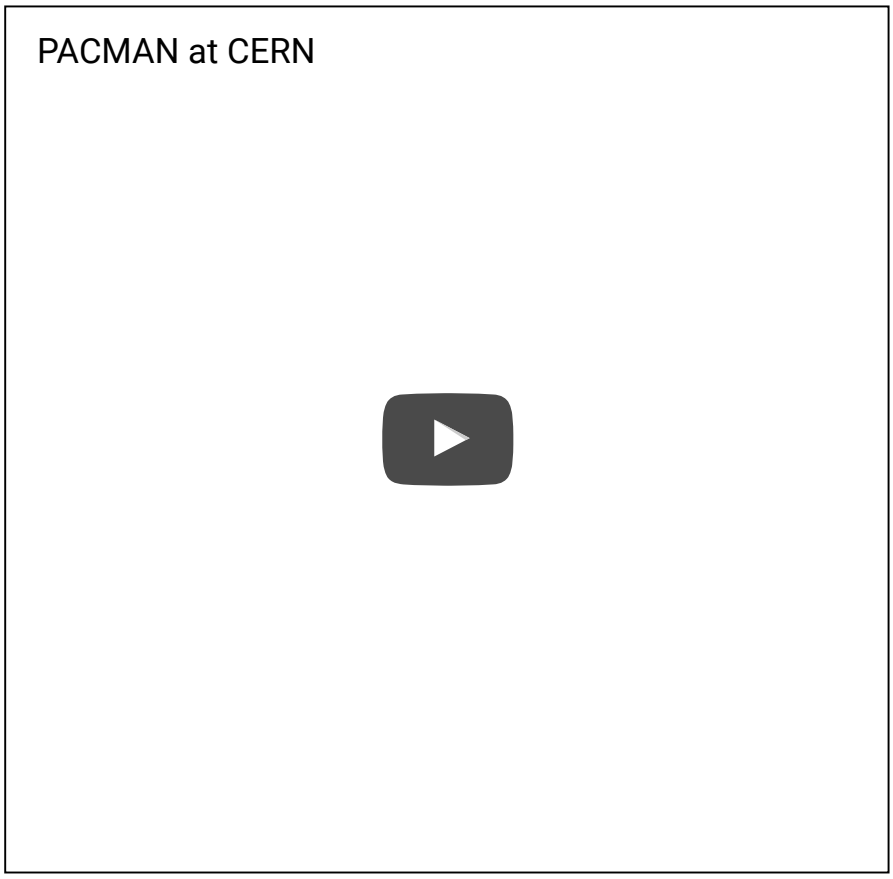
The PACMAN project, whose acronym stands for Particle Accelerator Components' Metrology and Alignment at the Nanometre scale, aims to develop new alignment techniques for the Compact Linear Collider (CLIC) modules and other future accelerators. Now in its final year, the last workshop will be held from 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.

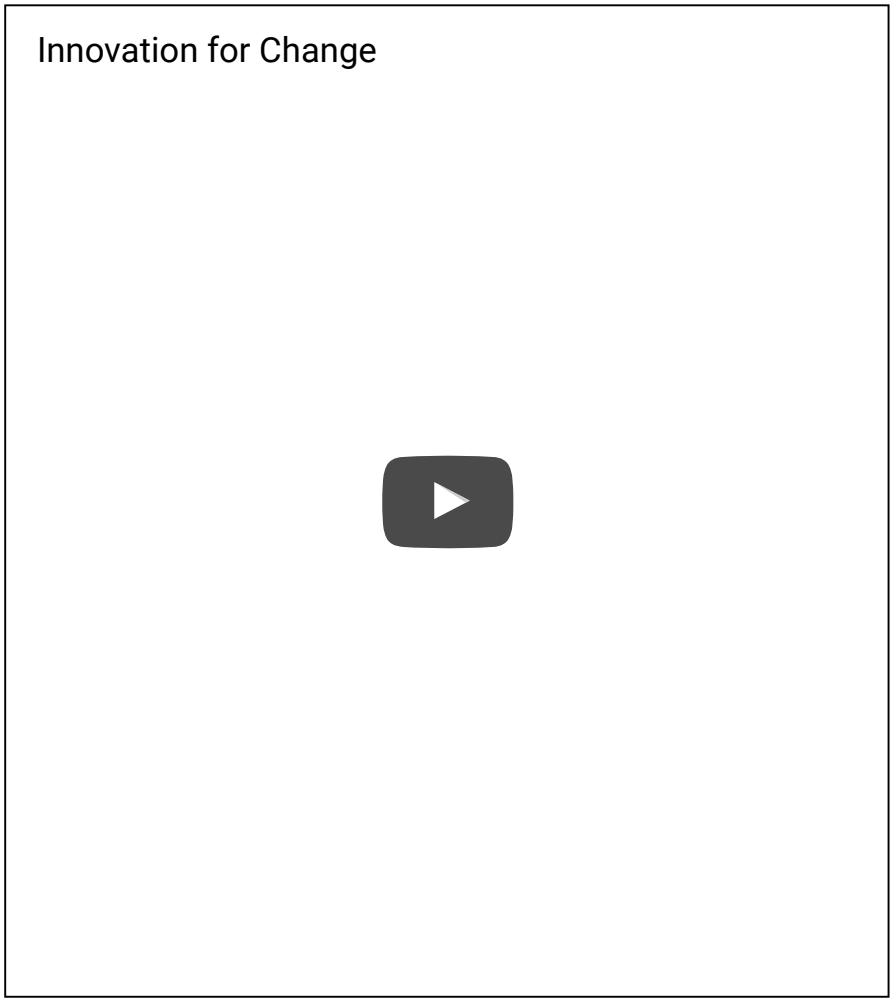
The project asks 50 students, with scientific or engineering backgrounds, to work together for the next five months in both Geneva and Turin. The students are split into several groups, but with a common goal: to apply the most advanced technologies to global social challenges, in particular in food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

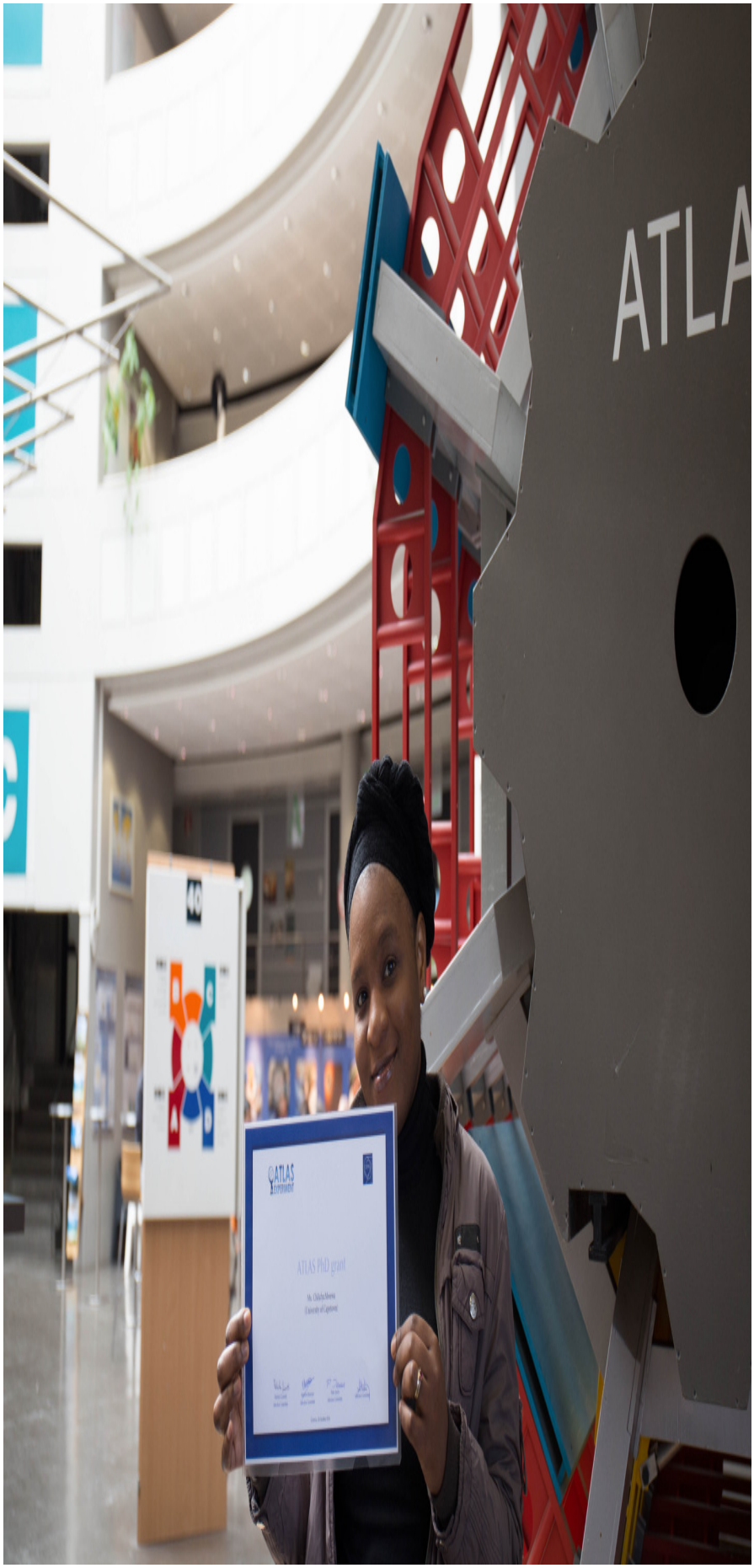


What is the Innovation for Change project? (Video: SAFM)

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.

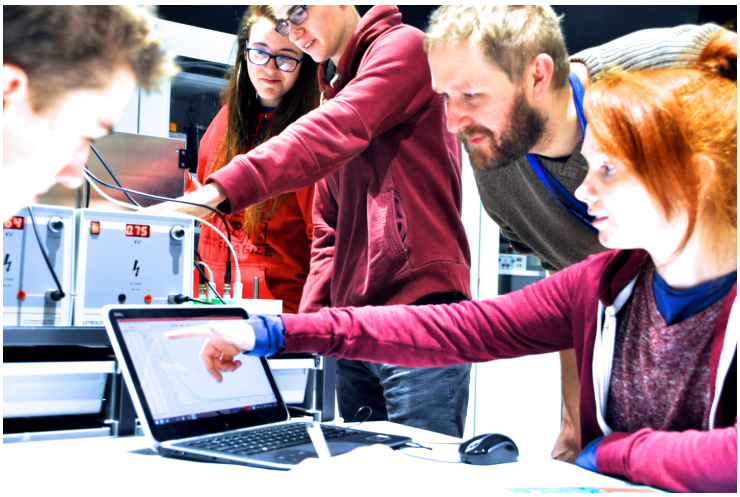
On Tuesday 14 February, the 2017 ATLAS PhD Grant recipients were presented with certificates at a small ceremony in CERN's Building 40. It was a chance for Chilufya Mwewa (University of Cape Town), Santiago Paredes Saenz (University of Oxford) and Giulia Ripellino (KTH Royal Institute of Technology)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

03/01/17--12:33: Applications for S'Cool LAB Days in 2017/18 now open 0 0

S'Cool LAB



Students working at CERN during a S'Cool LAB Day. (Image: CERN)

High school teachers are invited to apply now to visit S'Cool LAB between September 2017 and June 2018 for a full day programme of hands-on particle physics experiments & CERN tours.

S'Cool LAB is a new Physics Education Research facility at CERN. High school students and their teachers are invited to contribute to our research projects by taking part in hands-on and minds-on particle physics experiments on-site at CERN's dedicated particle physics learning laboratory.

Teachers interested in this unique opportunity for high school students aged sixteen and up, are invited to apply online now.

For complete information about S'Cool LAB Days at CERN and the application process, click here to visit the S'Cool LAB website.

The deadline for applications is 14:00 CEST on Monday, 3 April 2017.

03/08/17--01:17: Award season at the ATLAS Experiment 0 0

Katarina Anthony

From left to right: ATLAS Spokesperson Dave Charlton; awardees Matthias Saimpert, Benjamin Philip Nachman, Joana Machado Miguéns, Lene Bryngemark, Kurt Brendlinger and Miguel Arratia, C. Gemme and K. Tokushuku (Image: S. Biondi/ATLAS Experiment)

The ATLAS Thesis Awards highlight outstanding contributions to the collaboration by PhD students. The theses awarded can cover any area of ATLAS physics, from contributions to the detector to analysis.

On February 16, 2017, at a celebration in CERN's Main Auditorium, six winners were announced: Miguel Arratia (University of Cambridge), Kurt Brendlinger (University of Pennsylvania), Lene Bryngemark (Lund University), Joana Machado Miguéns (Lisboa University), Benjamin Philip

Nachman (Stanford University), and Matthias Saimpert (Université Paris-Saclay).

“Once again, we received outstanding nominations for the award, encompassing all the major achievements in all areas of ATLAS results and activities,” said Claudia Gemme, addressing the auditorium on behalf of the 2016 ATLAS Thesis Awards Committee. “It was a pleasure for the committee to evaluate these excellent candidates, and selecting the winners was a real challenge!”

Following this introduction, each winner was presented with a certificate and a glass model of the ATLAS detector from Spokesperson Dave Charlton, Collaboration Board Chair Katsuo Tokushuku and Thesis Committee Chair Claudia Gemme. The winners went on to give short presentations about their work and experience at ATLAS, each thanking the committee for their selection.

Concluding the ceremony, Katsuo Tokushuku urged members of the collaboration to continue to send high-quality nominations – ensuring outstanding winners for many years to come.

For more information, visit the ATLAS website.

04/06/17--04:27: (Almost) the whole world represented in BL4S 0 0

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

On 31 March 2017 the submission period ended for the fourth Beamline for Schools competition with a huge total of 180 teams sending in proposals to conduct an experiment to CERN.

The proposals have come from 43 countries across all 5 continents and submissions have been received from as far afield as Timor-Leste, American Samoa and Bolivia.

The huge effort and amount of work done by the 1470 students who participated is remarkable, and it is overwhelming to see the time and energy invested by some of the teams. On average, teams spent around 40 hours learning about CERN's science, coming up with an idea and building their proposal, and many spent over 100 hours perfecting their experiment design.

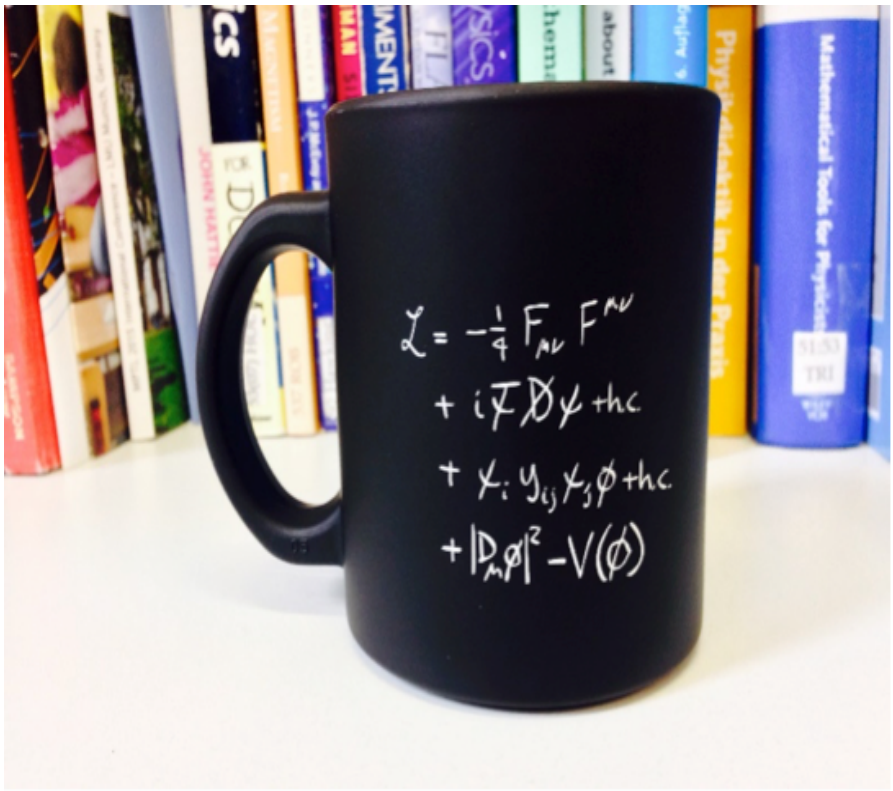
The success of this round of entried shows how much Beamline for Schools excites and encourages students from all over the globe, with both particle physics and the work done at CERN.

The winners of all prizes will be announced by an official press release in June.

Find out more on the Beamline for Schools competition website.

04/07/17--06:03: Sit down for coffee with the Standard Model 0 0

Julia Woithe



The Standard Model Lagrangian on a mug available in the CERN shop (Image: CERN)

A new, open-access paper, published in Physics Education, helps teachers, to explain the Standard Model, and the equation used to describe it.

The Standard Model of particle physics is one of the most successful theories about how our Universe works, and describes the fundamental interactions between elementary particles. It is encoded in a compact description, the so-called 'Lagrangian', which even fits on t-shirts and coffee mugs.

This particular formula draws a lot of attention and everyone who visits CERN will come across it at some point. For example, the CERN gift shop sells t-shirts and coffee mugs featuring this four-line version of the Lagrangian. This can be especially challenging for physics teachers, who might then be asked by interested students to explain the meaning and the physics behind the Lagrangian.

But now, no one needs to stress about how to explain the equation, as this new paper provides a qualitative explanation of the terms of the Lagrangian and their interpretation, based on associated Feynman diagrams

Hopefully, this paper will support high school teachers in their challenging endeavour of introducing particle physics in the classroom, and guide interested students towards the fascinating world of quantum field theory.

Find out more:

Woithe, J., Wiener, G. J., & Van der Veken, F. F. (2017). Let's have a coffee with the Standard Model of particle physics!. Physics Education, 52(3), 034001. http://iopscience.iop.org/article/10.1088/1361-6552/aa5b25

- **04/10/17--01:45: 40th CERN School of Computing goes to Spain: Apply now!** 0 0

Sebastian Lopienski

Applications are now open for CERN's 40th School of Computing. The CSC 2017 will take place from 27 August to 9 September 2017 in Madrid, Spain, in collaboration with Universidad Politécnica de Madrid (UPM).

The two-week programme consists of more than 50 hours of lectures and hands-on exercises, all in advanced, interesting and challenging computing topics. It covers three main themes: data technologies, base technologies and physics computing. In particular, we will explore:

- **Many-core performance optimization**
- **Concurrent programming**
- **Key aspects of multi-threading**
- **Writing code for tomorrow's hardware, today**

- **Storage technologies, reliability and performance**
- **Cryptography, authentication authorization and accounting**
- **Data Replication, caching, monitoring, alarms and quota**
- **Writing secure software**
- **Observing software with attacker's eyes**
- **Software engineering for physics computing**
- **Statistical methods and probability concepts in physics-data analysis**
- **Monte Carlo method**
- **Multivariate analysis and visualisation**
- **Hypothesis testing as exemplified by recent HEP discoveries**

The CSC is not a conference but a true summer university. As with every summer CSC, the programme is audited by the hosting university (UPM), and this year we are aiming to deliver 6 ECTS credits upon successful completion of the CSC exam.

The School will be hosted at UPM's Montegancedo campus, which is situated in a beautiful natural landscape of oaks, with views across to the mountains. Near our lecture rooms on campus lives "Magerit", one of the most powerful supercomputers in Spain. The presence of such a resource should come as little surprise when you consider that UPM is ranked as the top technical university in Spain (according to the annual university ranking by El Mundo), and stands out for its research activity.

However it's not all study; the social and sporting programme is also a vital part of the School. Madrid is famous for its culture, sports and cuisine, which we will be exploring together over the course of the School!

The CSC 2017 school is aimed at postgraduate engineers or scientists, working at CERN or at other research institutes, with experience in particle physics, in computing or in related fields. We welcome applications from all nationalities, and encourage all qualified persons to apply!

Apply now at www.cern.ch/csc

The deadline is 10 May – places are limited!

- **06/12/17--05:46: Training tomorrow's ICT specialists: students return to CERN**

0 0

Orestis Galanis

From left to right: Anda-Catalina Chelba (Romania), Dmytro Petruk (Ukraine), Dimitrios Christidis (Greece), Emil Kleszcz (Poland), Jelena Banjac (Serbia), Cristina-Gabriela Moraru (Romania), Kristina Satara (Serbia), and Nikola Hardi (Serbia).

Next week, the first 2017 CERN openlab summer students will arrive at the laboratory. For the 37 students selected, a summer of enriching work — with fascinating lectures, exciting trips, and hands-on experience with the latest ICT hardware and software — awaits.

CERN openlab has been running its summer student programme for 15 years. During this time, roughly 300 students from across the globe have come to CERN to spend the summer working on cutting-edge ICT projects. Aided by the skills and knowledge developed during their summer at CERN, many of our student alumni go on to exciting careers in the ICT industry. Some of our students also return to CERN, in roles that may or may not be directly related to the projects they carried out over summer.

Our 2016 summer students enjoyed their time at CERN so much that nine of them are already back working at the laboratory. “The summer student programme is a great introduction to life at CERN. It really gives you an insight into the wide range of roles that exist and how you could participate,” says Kristina Satara from Serbia, who has returned to CERN to work in the controls group

“I realised that, even in the limited nine-week period we spent at CERN, it is really possible to develop something that will be put to use at the laboratory,” says Emil Kleszcz from Poland Kleszcz, who is now working on asset management and maintenance in the Engineering Department, continues.

“As a summer student, you get to work with — and learn from — leading ICT experts,” says Ahmad Hesam from the Netherlands, who has returned to CERN to work on a project called BioDynaMo. “CERN is a place where you’re surrounded by knowledge and expertise; there’s no limit to how much you can learn.”

As well as developing their technical skills in a challenging research environment, the CERN openlab summer students are able to pick up new ‘soft skills’ that can be of great use in their future careers — at CERN and

beyond. For many, it is their first time working in such a large, international context.

Thus, if you're a student aspiring to a career in ICT, the CERN openlab Summer Student Programme is the place for you. It can help you to gain unique experience and develop key skills that could be vital to launching your career — at CERN, with one of our collaborators, or beyond!

More information about the CERN openlab Summer Student Programme is available on the CERN openlab website. Read the original, longer version of this article here.