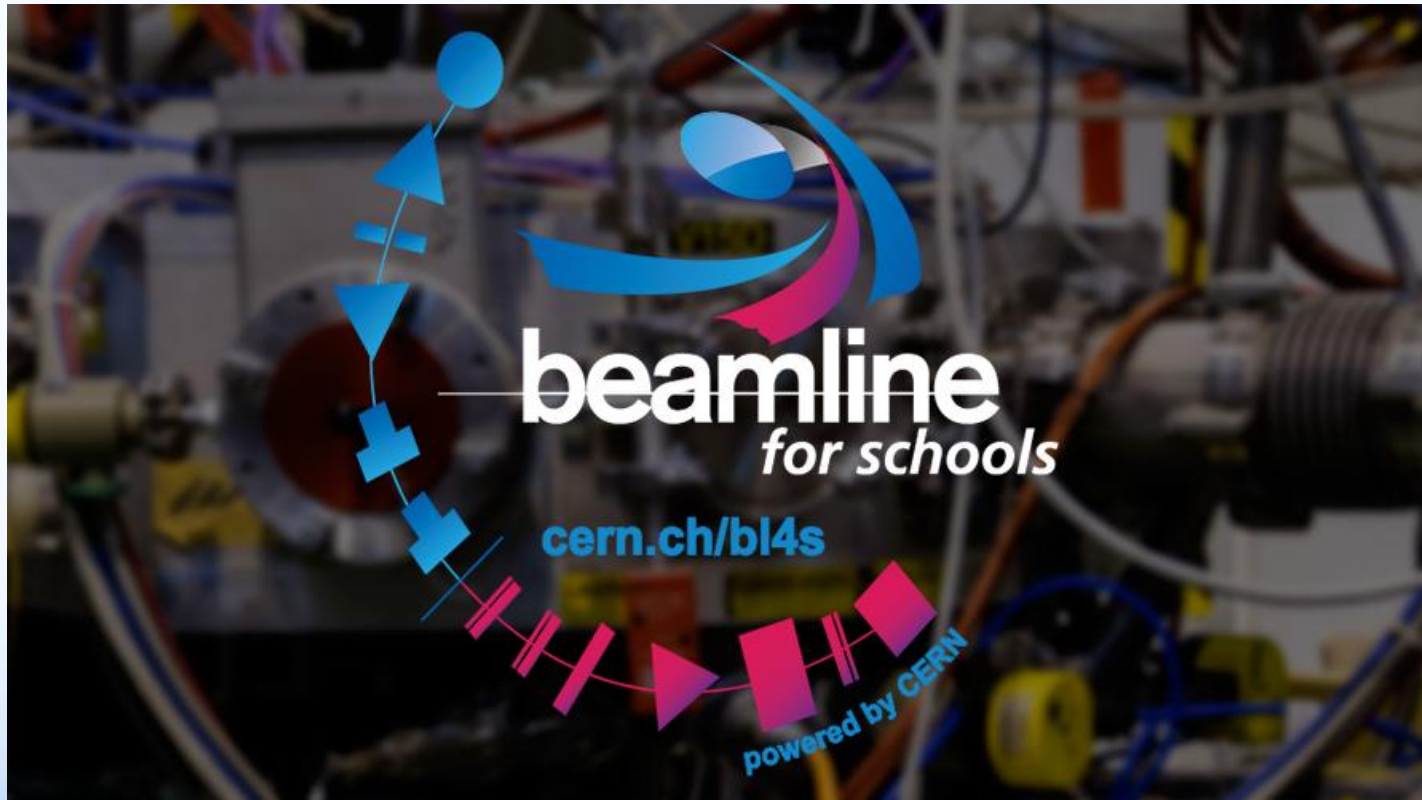


Beamline for Schools



BL4S edition 2017



Overview participants

	2014	2015	2016	2017
Full proposals	292	119	151	180
Countries	50	28	37	43

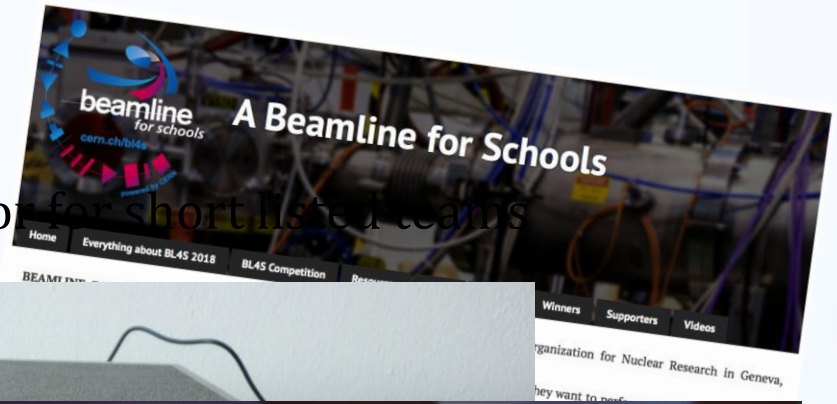
- 2/3 boys, 1/3 girls
- 1/3 from non member states
- In total ~7000 students have participated since 2014
- Two winning teams have written scientific papers about their experiment, one more is ready to be published

Overview participants

Country	Number of applications	Country	Number of applications	Country	Number of applications
American Samoa	1	Hong Kong S.A.R., China	1	Portugal	22
Argentina	3	Hungary	4	Qatar	1
Australia	3	India	30	Romania	14
Austria	3	Indonesia	1	Russia	6
Bahrain	2	Iran	12	Serbia	9
Bangladesh	3	Ireland	2	Singapore	9
Belgium	1	Israel	10	Slovakia	7
Bolivia	1	Italy	121	Slovenia	2
Brazil	10	Japan	1	South Africa	6
Bulgaria	2	Jordan	2	South Korea	1
Canada	19	Kenya	1	Spain	81
Chile	3	Lebanon	1	Sri Lanka	1
China	4	Malaysia	1	Sweden	1
Colombia	3	Malta	1	Switzerland	8
Czech Republic	3	Mauritius	1	Thailand	3
Denmark	1	Mexico	7	Timor-Leste	2
Egypt	3	Montenegro	2	Tunesia	1
Estonia	3	Netherlands	18	Turkey	49
Ethiopia	1	New Zealand	5	United Arab Emirates	1
Finland	2	Norway	2	United Kingdom	77
France	8	Oman	1	United States	50
Georgia	1	Peru	1	Vietnam	1
Germany	26	Philippines	4		
Greece	32	Poland	22	Applications received:	741

News corner

- New layout of BL4S front page
- New and better Cosmic Pi detector
- Showc



Timeline BL4S 2018

- So far about 90 teams worldwide have already pre-registered
- Deadline for proposal submission is 31 March 2018
- Winners will be announced in June 2018
- Winning teams come to CERN in September 2018 (Council week)



Support of BL4S 2018

- Development of national contacts for students' questions
 - List can be found here: [National BL4S contacts](#)
 - The following countries represented in IPPOG are still uncovered (including two member states of CERN):
Australia, Bulgaria, Ireland & Romania
 - No contact for: **China** (1400), **Indonesia** (261), **Pakistan** (193), **Nigeria** (185), **Bangladesh** (162), **Russia** (143), **Mexico** (127), **Japan** (127), **Ethiopia** (104), **Philippines** (104)
Can IPPOG help here?
 - Additional contact persons for countries already in the list are very welcome
 - What have IPPOG members done so far to promote BL4S?

Organization of BL4S 2018

- Several pushes for promoting the competition
 - July, October & end of the year
 - Reminder in January/February
- List of channels expanded, but constantly looking for new ones
 - Science competition websites
 - Journals for science teachers
 - ... (ideas?)
- Different materials available
 - Articles in different lengths
 - Pictures
 - Videos

Promotion of BL4S



Beamline for Schools: a successful story continues

You haven't heard of [Beamline for Schools](http://cern.ch/bl4s) lately? Probably because we have been very busy in September. The winners of this year's edition have been at CERN to conduct their experiments.

The winning team from Italy has tested its self-designed and self-constructed Cherenkov detector while the Canadian team was looking for hypothetical exotic particles carrying a fractional charge. Have a look at <http://cern.ch/go/Cg6P> if you want to know more and get inspired by members of the Canadian team.

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Get even more inspired by two videos that have been produced by members of the Canadian team:
<https://www.youtube.com/watch?v=gI3ay1FgGt8>
https://www.youtube.com/watch?v=gF3BES_fy0Q&

Winning BL4S has been an incredible experience for both the students and their teachers. Both teams have been received by the officials of their home town and have given interviews on national TV and radio stations. When we asked them how they would describe their experience the two words that were used by most of them were "life changing".

BL4S 2018 is in the starting blocks. Do not miss your life changing experience by participating in the competition. [Pre-register](http://cern.ch/bl4s) now and [submit your proposal](http://cern.ch/bl4s) by 31 March 2018!



Join the adventure here: cern.ch/bl4s



Apply for CERN's 2018 Beamline for Schools competition

CERN is pleased to announce the 5th edition of the Beamline for Schools competition. Once again, in 2018, a fully equipped beamline will be available at CERN for students from around the world. What better way to learn about physics? As in previous years, two teams will be invited to carry out their proposed experiments. The Beamline for Schools competition is open to teams of at least 5 students aged 16 and up with at least one supervisor, or "coach". Think of a simple, creative experiment and submit a written proposal and short video by the end of March 2018. Previous winners have tested webcams and classroom-grown crystals in the beamline and have studied how particles decay and investigated high-energy gamma rays.

- Registration is already open
- Register your team name and your coach's contact details now
- Get email updates: beamline-for-schools.web.cern.ch/pre-registration-2018
- 2018 – Proposal deadline is 31 March 2018 at 10:00-word proposal and 1-minute video (both by midnight CET).
- 2018 – Winners announced: The winners will be announced about 20 shortlisted teams, two of them will be invited to CERN.
- 2018 – Winners conduct their experiment: The winners' experiments will be agreed between CERN and the winners.

Participants will receive a certificate. Shortlisted teams will receive each team member, a cosmic-ray detector and a chance to visit a nearby physics laboratory. Up to two adult coaches per team will be invited to CERN for 10 days to carry out their experiments.

Join the adventure here: <http://cern.ch/bl4s>

Beamline for Schools 2017: a successful story continues



The participants in this year's Beamline for Schools competition sharing their experiences with members of the CERN Management. On the right: Charlotte Warkentin, CERN Director for International Relations (Image: Sophie Barrelet/CERN)

Can high-school students conduct physics experiments just like real scientists? Two teams of students from Italy and Canada proved that they can. After winning the 2017 Beamline for Schools (BL4S) competition, "TICO-AS4" from Fermo, Italy, and "Charging Cavaliers" from Cambridge, Canada, came to CERN for two weeks to conduct their own experiments at a fully equipped CERN beamline. The teams were selected out of 180 applications. "Looking up with the ideas and writing a scientific proposal is a lot of work, but also an experience we can profit from when we finish school and start looking for a job," says Davide Cattaneo from the Italian team.

The Italian team, consisting of eight students, designed and constructed a simple and low-cost Cherenkov light detector. Cherenkov light is a phenomenon observed when particles pass through a medium with a speed higher than the speed of light in that medium. The students assembled a light-tight plastic box filled with water. A sensitive camera and a silicon photomultiplier placed outside the box were used to detect the flashes of Cherenkov light inside.

The Chinese Canadian students bravely immersed themselves in the unexplored territories of particle physics, looking for hypothetical exotic particles carrying a fractional charge. It is believed that fractionally charged particles can be created by the collision of ordinary particles with a nucleus. For this reason, the team directed the proton beam from the [Proton Synchrotron](http://cern.ch/bl4s) at a block of iron. The fully charged particles were deflected with a magnetic field and a specially developed scintillator was used to pick up the faint signals that the fractionally charged particles might leave. In addition, the team found a clever way to reduce the background noise. The data the students collected will be analysed in detail once they are back in Canada.

"We feel incredibly privileged to be given this opportunity. It is a once-in-a-lifetime opportunity that opens so many doors to knowledge that is otherwise inaccessible to us," says Decia Lapierre from the Canadian team. Besides working on their physics projects, the students had a full day of safety training and visited various CERN facilities. In four shifts per day the students worked in the control room and the TV beam line in the East Hall, while at the same time several volunteers helped them with data acquisition. "For more than 10 days they lived the life of a scientist. Everyone is so knowledgeable, friendly and open. We talked to scientists and they were all welcoming," said Martin Rubin from the Canadian team.

Remembering their schools do not miss their experience to an end. Data analysis will continue with the help of the support scientists and teachers, and they are encouraged to write a scientific paper, which can eventually be published in a scientific journal or presented at a conference, as two former winning teams have done already.



Promotion of BL4S

The Winners' Proposals

BL4S VIPs

...and check their [written proposals from here](#)

BL4S Videos

CERN Official Videos

BL4S VIPs

The Winners' Proposals

Winners' post-competition media coverage

Hangout with CERN



Video by 2017 winner Andrew Mourcos - team "Charging Cavaliers"

Video by 2017 winner Paul McKarris - team "Charging Cavaliers"

2014 Edition



Bastille

2016: Team Pyramid Hunters

CERN Beamline Competition
Video Proposal

Elementary particles
visit Florence

Outlook 2019

- BL4S not feasible in 2019/20 due to LS2 & refurbishment of the East Hall
- Idea: Collaboration with partner institute
 - 4 interested institutes: DESY; PSI, INFN (Frascati) & IN2P3
 - Information about the competition and detailed work plan under institutes' review
 - Final decision to be expected in the next few months

Thank you very much!

