Beamline for Schools

A physics competition for high-school students









BL4S 10th anniversary

In 2024, **461 teams** representing **78 countries** submitted a proposal, in total **more than 3000 high-school students!**





Determining the relationship between the energy of a π^- meson beam and its ability to penetrate and react with a carbon-based, non-biological material to determine the viability of "pior Sae Joon Cheon, Yash Karan, Sana Singru Liceo Scientifico Statale "T.C.Onesti", Fermo, Italy community. Two or Team TCO-ASA therapy2. These me extremely painful a was scope to develo have now come up skin tissue using gr ChDR-CHEESE therapy has on huma Cherenkov Diffraction Radiation - Characteristic Energy However, pions bein Detecting the Elusive Δ⁺ Baryon in an Electron-Proton Inelastic Scattering Through its Decay-Products International School of Geneva, Nations' Flying Foxes John Desalis, Yonnou Kim, Hiroki Kozuki, Sarah Shafiq, Mikhail Slepovskiy, Petr Strunilin, Zihong Xu Introduction Just as scattering visible light off of a cell using a microscope allows us to examine a cell, a collision between resting protons and an electron beam produced by a particle accelerator could allow us to "see" subatomic A blu particles and its miscellaneous interactions otherwise unobservable. Such a collision could result in interesting scattering effects, creation of elusive particles whose decay products can be detected and analyzed to trace back the event, which potentially enables us to further identify properties of the particles. A histogram depicting the collision of a 4.9GeV electron beam with a static source of protons can be seen on Fig 1. The x-axis represents the energy/momentum of the scattered electrons, while the y-axis indicates the number of times an interaction of a specific energy/momentum occurred. The approximate peaks in the band of 3.5~4.2 GeV electrons suggest an inelastic scattering, which we are interested in to investigate. e.g. Δ + 1232, produced (proton breaks up resulting (Fig.1) // Source - W. BARTEL, B. DUDELZAKI, H. KREHBIEL, J. MCELROY, U. , ELECTROPRODUCTION OF PIONS NEAR THE A(1236) ISOBAR AND THE FORM FACTOR C*M(a2) OF THE (vNA)-VERTEX - Deutsches Elektr and II. Institut für Experimentalphysik der Universität Hamburg, Germany (Fig. 1) Thomson, Mark. Particle Physics Handout 6: Deep Inelastic Scattering. The University of Cambridge, Department of Physics, C

Beamcats 2018 Beamline Proposal





Beamline for Schools

Winning teams 2024

Congratulations!

- * "Mavericks" from Estonia (CERN) calibrate their homemade muon detector for high-altitude ballooning applications
- * "Sakura Particles" from Japan (CERN) optimise their homemade two-dimensional muon detector for muon tomography applications
- * "SPEEDers" from the USA (DESY) research Smith Purcell radiation as a tool for beam diagnostics







Winners of the 2024 CERN Beamline for Schools competition: Sakura Particles" from Japan (left), "Mavericks" from Estonia (top right) and "SPEEDers" from the USA (bottom right) "(Images: Sakura Particles, Mavericks, SPEEDers)





Stay at CERN First Group Picture





Safety Day











Safety Day









Introduction









First visit at the beamline











Visiting CERN







Finally beam days, data analysis and hands-on ...

However, we were so busy that we haven't uploaded any pictures yet :(

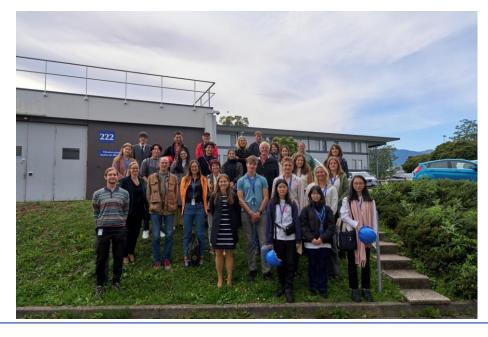
Luckily, Rolex filmed and photographed us for 3 days!



elebration of the Oth anniversary













Celebration of the 10th anniversary



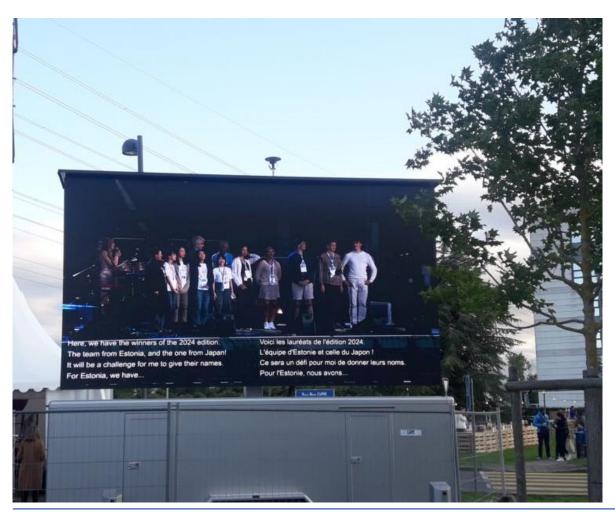








CERN70 event









Visiting CERN







Visiting Geneva









Visiting Geneva









Visiting CERN











Au revoir*

*French for "see you again"





Departure

26 September:

- Check out from the hotel by 12:00
 - luggage can be stored in the hotel
 - remove food (if any) from the fridge
- You can keep your safety shoes and helmets



Return your dosimeter,
CERN card, and lunch
check to Sarah & Markus!



It's just the beginning ...

BL4S will not be over on 26 September

- Continue analysing the data you will collect
- Write a report about your experience at CERN that can be published on the BL4S website
- Write a scientific paper about the results of your experiment ⇒ We will help you publishing it in a scientific journal!



Share your experience with others!









It was a great pleasure to meet you and to conduct experiments with you all!:)

We will miss you very much!









And most importantly: Thank you so much to our support scientists for all your time, kindness, and endless patience and passion!

We wish that you can catch up on sleep!



Thank you so much to all our fantastic supporters!



