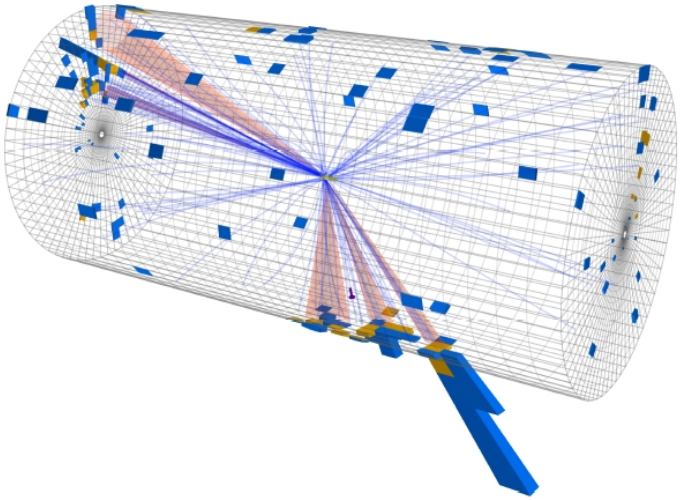


Outreach activities – Education

NCSR-D participation @ CERN

meeting 11/4/2018

G.Anagnostou

Outreach activities – Education

- Cern for Teachers
- Cern for Students
- Cern for Teachers & students
- International Particle Physics Outreach Group
- INPP Cern related outreach activities
- INPP Cern related education activities

Teachers

National Teacher Programmes (in greek)

one-week lectures to act as unique resources for all physics teachers when introducing particle physics into the classroom.

International Teacher Programmes (in english)

High School Teacher (HST) Programme (3-weeks)

International Teacher Weeks (ITW) Programme (2 weeks)

"update their knowledge of particle physics, learn more about educational resources available, and collaborate with fellow science teachers of different nationalities

lectures, on-site visits, hands-on workshops, discussions, and Q&A-sessions"

Students

Summer Student Programme (since 1962!)

Undergraduate students of physics, computing and engineering, in the day-to-day work of research teams participating in experiments at CERN.

Summer Students attend a series of lectures specially prepared for them.

Visits to the accelerators and experimental areas, discussion sessions, workshops and a poster session.

Students are required to prepare a short report on their work at CERN which should be submitted at the end of their stay.

Students come for between 8 weeks (minimum stay) to 13 weeks (maximum stay).

Students work placements

University training period @ Cern. Interships & work opportunities -carreers at CERN

S’Cool LAB -teachers & students

S’Cool LAB is a new **Physics Education Research** facility

S'Cool LAB Days: for **high school** students (aged 16-19) and their teachers.

Full-day itinerary include **guided tours** of CERN's research facilities, as well as several **hands-on physics experiments** in S'Cool LAB

S’Cool LAB Summer CAMP

selected 30 students (aged 16 and above) will spend almost 2 weeks of their summer at S’Cool LAB, CERN’s hands-on particle physics learning laboratory, for a programme of lectures and tutorials, their own team research projects and visits of CERN’s research installations.

Cloud Chamber Workshop in S'Cool LAB

After a brief introductory talk on the history of cloud chambers, students are instructed in how to build a cloud chamber by a **S'Cool LAB tutor**. Working in **small groups** of 2-4 participants each, students then proceed to **build their own cloud chambers**

Students (II)

Beamline for schools

is an official competition powered by CERN. It is open for all high-school students around the world

The competition invites teams of high-school students to propose a scientific experiment that they want to perform at CERN.

First prizes for two winning teams is a trip to CERN to carry out their proposed experiments on a fully-equipped accelerator beam line. There are additional prizes for short-listed teams and certificates for all participants.

Student Intership Programme

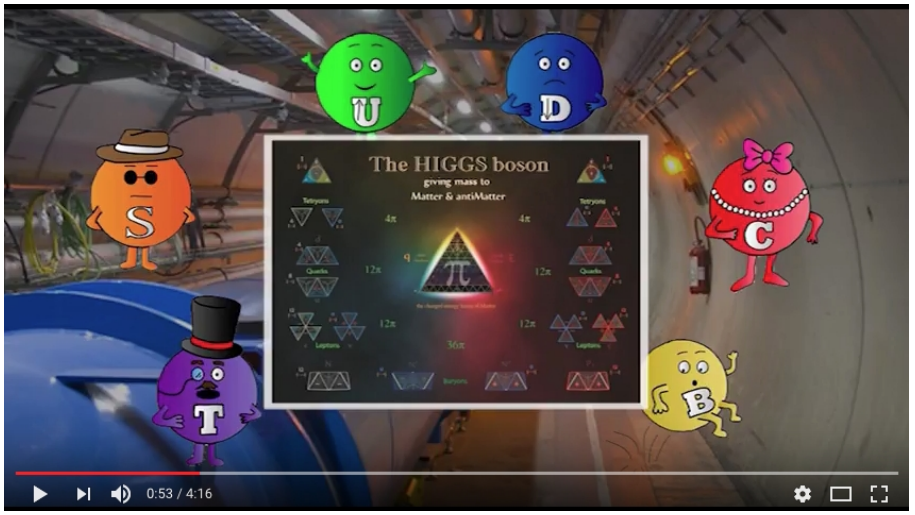
CERN invites high-school students (aged 16-19) to come to CERN for two weeks

This programme is an opportunity for high-school students to be introduced to CERN, its technologies and physics, as well as to learn through workshops and by shadowing, observing, and working with a member of personnel

Can be done also in national language for specific countries each year (National High-School Students Internship Programmes)

The International Particle Physics Outreach Group (IPPOG)

International Particle
Physics Outreach Group



IPPOG is a network of scientists, science educators and communication specialists working across the globe in informal science education and outreach for particle physics.

Current members come from the 22 member states of CERN (Greece included), Brazil, Australia, Ireland, Slovenia, South Africa, the USA, and from DESY, CERN, five of the major experiments at the Large Hadron Collider (LHC), and the Belle II experiment at KEK's SuperKEKB accelerator in Japan.

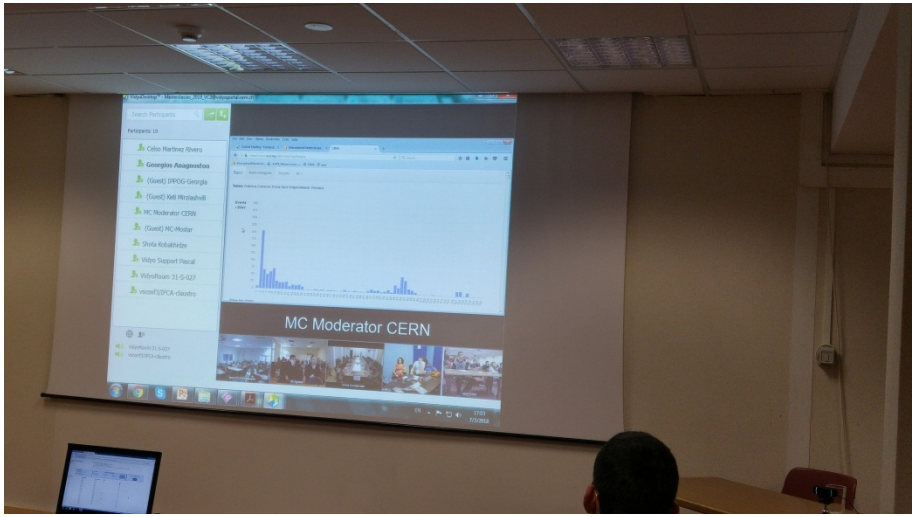
International Particle
Physics Outreach Group

International Masterclasses

Each year more than 13.000 high school students in 52 countries come to one of about 215 nearby universities or research centres for one day in order to unravel the mysteries of particle physics.

Lectures, measurements on real data from particle physics experiments themselves.

At the end of each day, like in an international research collaboration, the participants join in a video conference for discussion and combination of their results.



NCSR - 14th International Masterclasses 2018

OUTREACH @ INPP - CERN

Talks for high school students

visiting NCSR and the INPP

Demokritos summer school

talks related to LHC/CERN

Summer schools (ΕΕΦ)

union of physics teachers in Greece

Trainee Researcher

(1 week) high school students in INPP, including cern related projects

Researcher's day

An open day for all research projects, including Cern related experiments

Education @ INPP - CERN

Postgraduate courses

Institute of Nuclear Physics was the first Greek institution to organize a formal postgraduate program, leading to a PhD in Particle or Nuclear Physics, long before formal postgraduate studies were established in the Greek Universities. Many Greek scientists, in Nuclear or Particle Physics, working in Greek Universities and Institutes or abroad have been former postgraduate students of the INP.The postgraduate program is now organized in cooperation with Greek and other European Universities leading to a MSc and a PhD degree, under the supervision of INP scientists. INP provides 17 scholarships for PhD students, thanks to a special fund of GSRT to Demokritos. (Oct 2008)

Diploma/Master thesis

Diploma and master thesis in instrumentation (detectors) and data analysis.

Thomas Ypsilantis

"..he joined the four person team at the Berkeley Bevatron that observed the first antiproton ; this became the subject of his PhD thesis and the two senior members of this team won the Nobel Prize in Physics in 1959. Ypsilantis was Associate Professor of Physics at the University of California, Berkeley, and was instrumental in the founding of the Demokritos Research Center in Athens, Greece. In 1969, he went to Geneva to work at CERN (Centre European Research Nucleaire), where he met Jacques Séguinot. In 1977, Ypsilantis and Séguinot proposed the technique later called the Ring Imaging Cherenkov (RICH) counter.." (**Wikipedia**)

Education @ INPP / PhD thesis 2000-2018

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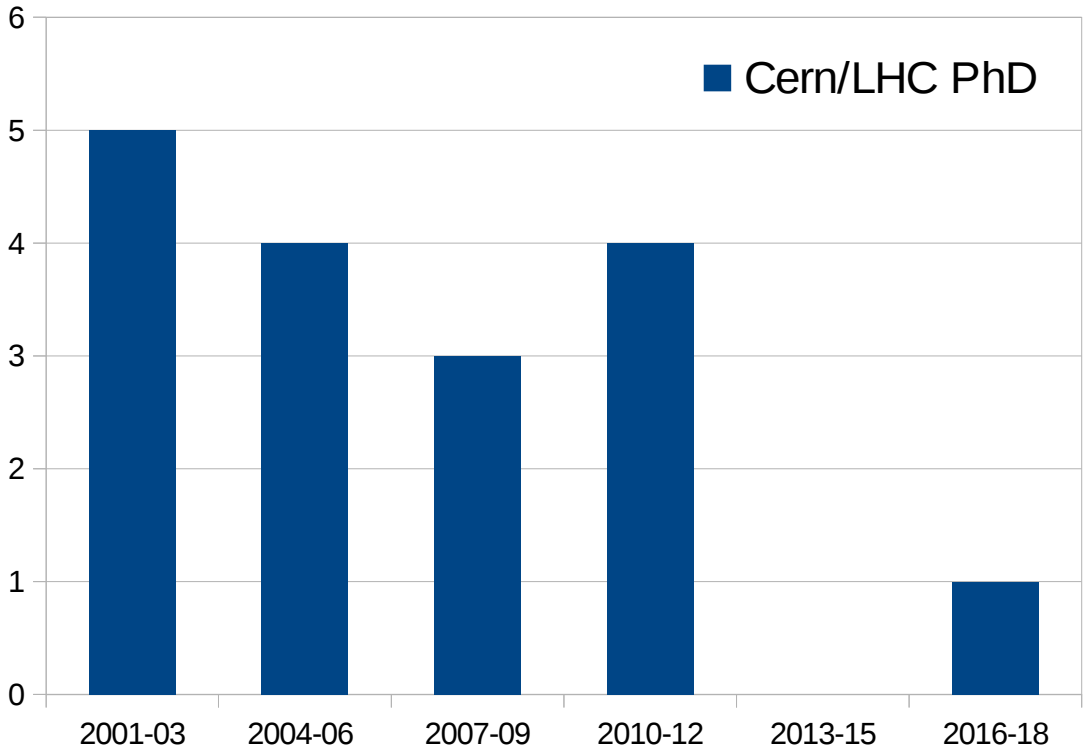
Education @ INPP / PhD thesis 2000-2018



Outreach activities – Education

NCSR-D participation @ CERN

Education

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Many Greek scientists, in Nuclear or Particle Physics, working in Greek Universities and Institutes or abroad have been former PhD students of the INP.

Cern related education is a tradition for both NCSR and INPP.

Outreach

Everybody wants to know what happens @ Cern. Teachers, students, the public.

We have to try to explain in the simplest way possible, a very challenging task..

We are also educated in this proccess. We learn how to do it, what not to do.

The public is funding the basic research ..