
CERN

Evaluation of educational activities in S'Cool LAB

The S'Cool LAB Dream Team!

International Relations
Relations internationales

Introduction

S’Cool LAB

S’Cool LAB is a Physics Education Research facility at CERN.We offer high school students and their teachers the chance to take part in hands-on & minds-on particle physics experiment sessions on-site. By getting hands-on with physics in S'Cool LAB, students can make discoveries independently, learn to work scientifically and apply their knowledge in a new setting.

Our Project

- Preparation for the experiments
- Accomplishment of the experiments
- **Evaluation of the activities and feedback**
- Test new equipment

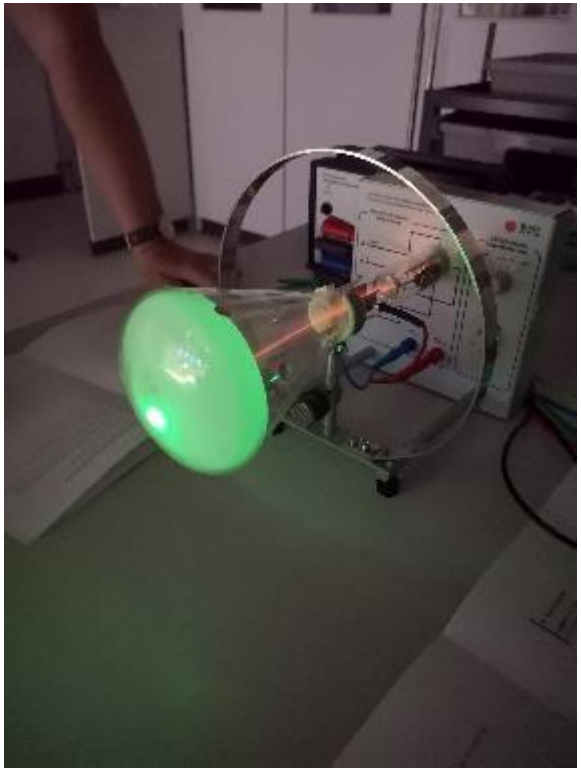
The experiments

The cloud chamber

Cloud chambers are used to detect ionising particles. These can include any electrically charged particle that passes through the chamber.

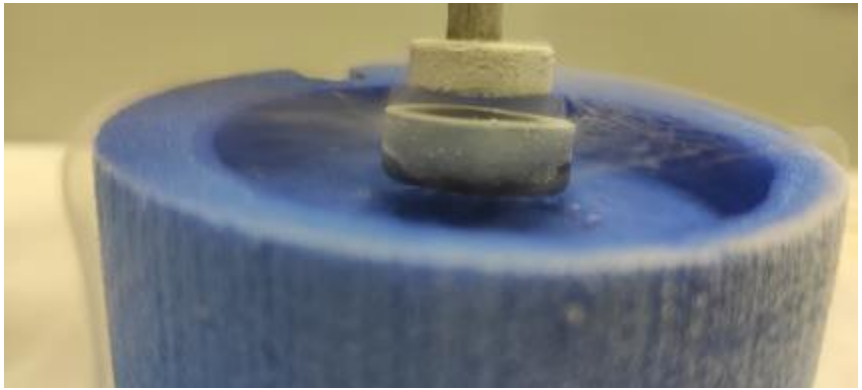
Electron Tube

Electron tube, also called vacuum tube, device usually consisting of a sealed glass or metal-ceramic enclosure that is used in electronic circuitry to control a flow of electrons.



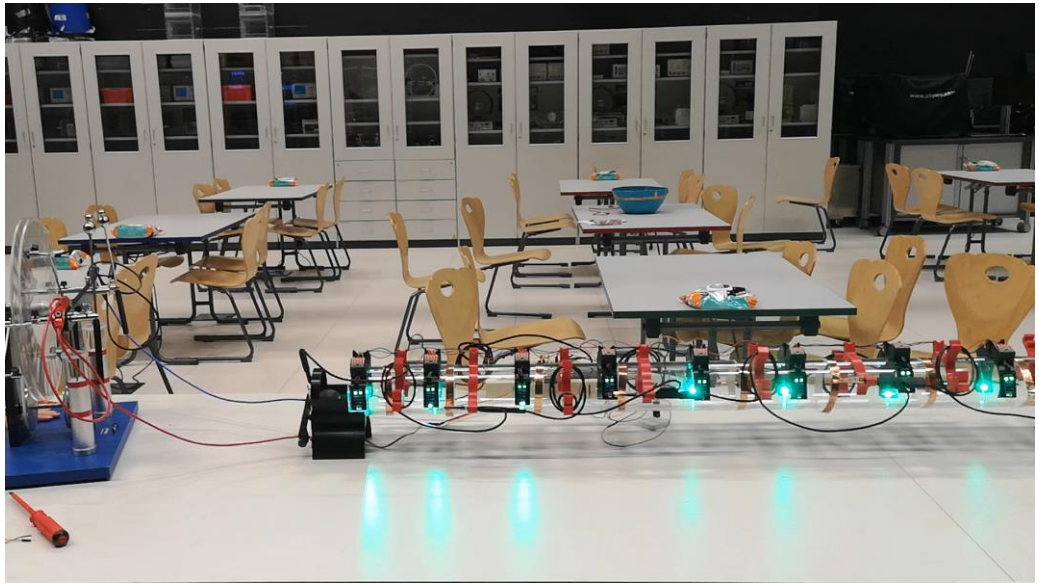
Superconductivity

Below a certain temperature, superconductors lose their electrical resistance.



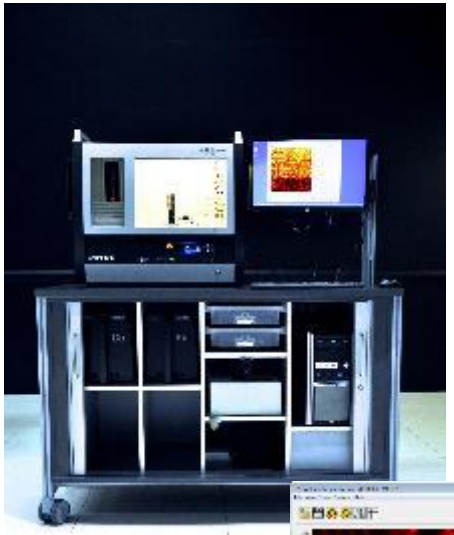
Accelerator

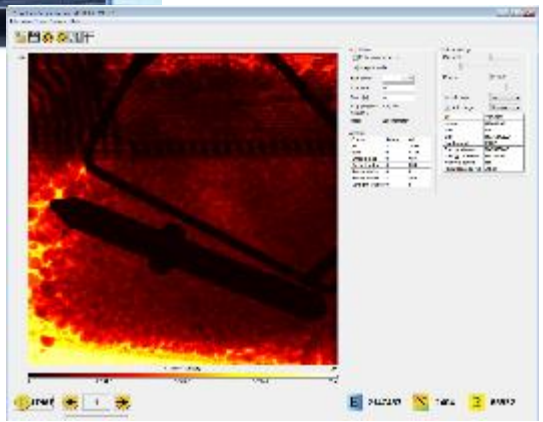
We created a simulation of an accelerator in order to speed a small ball covered with graphite. Using Arduino, we managed to move the ball to the correct direction by alternating the poles.



X-Rays

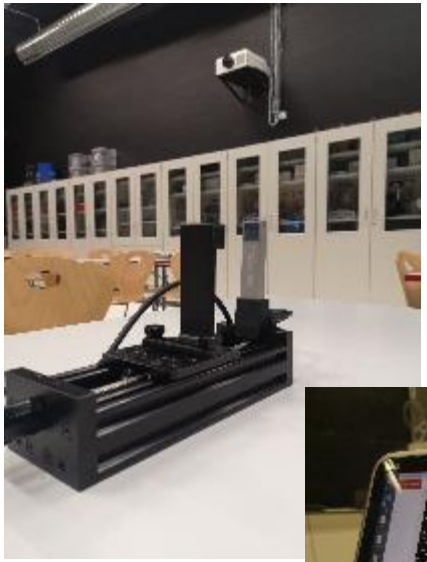
High-energy photons produced by X-ray machines interact with matter, as a result some of them are absorbed and we see a “shadow” behind strongly absorbing objects. Depending on their energy, photons interact differently with matter. With the pixel detector one can measure particles all the time even without turning on the X-ray source – the so called background radiation.

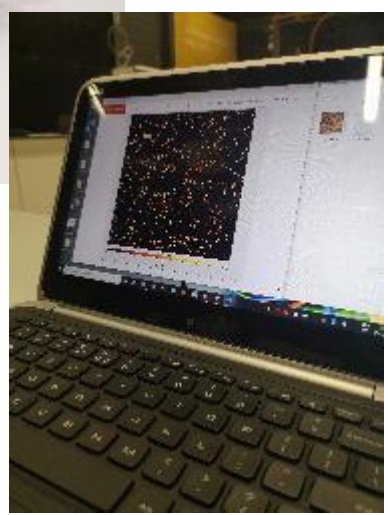




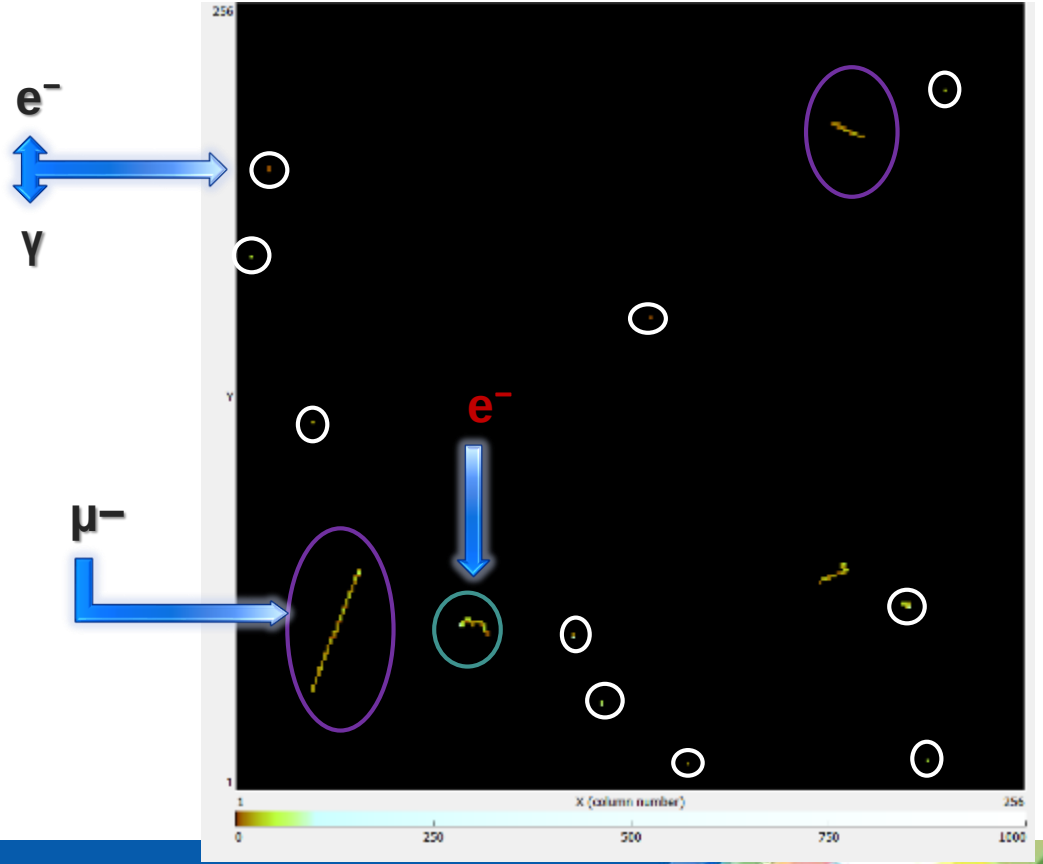
Pixel detector

This is a device, which detects radioactivity. We used a PC program in order to observe some measurements and collect data about the number, the kind and the energy of the particles.

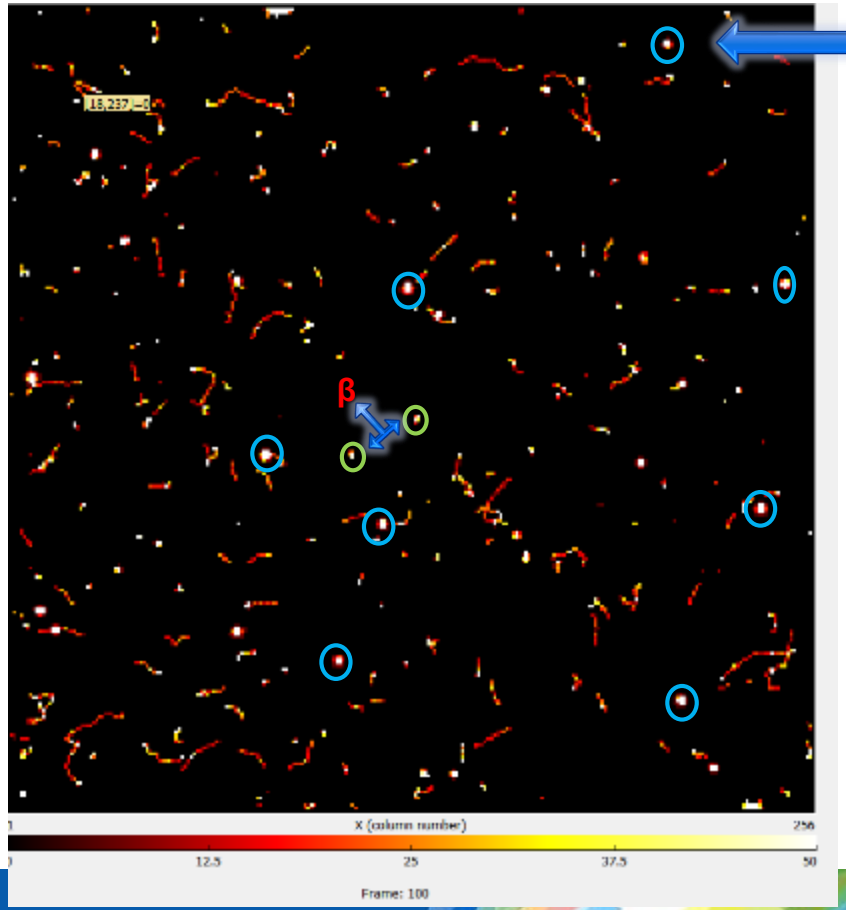




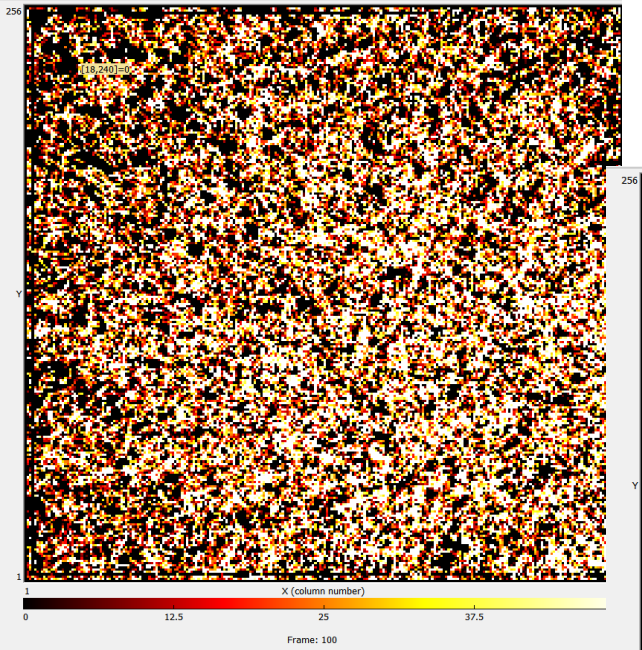
Measuring of background radiation



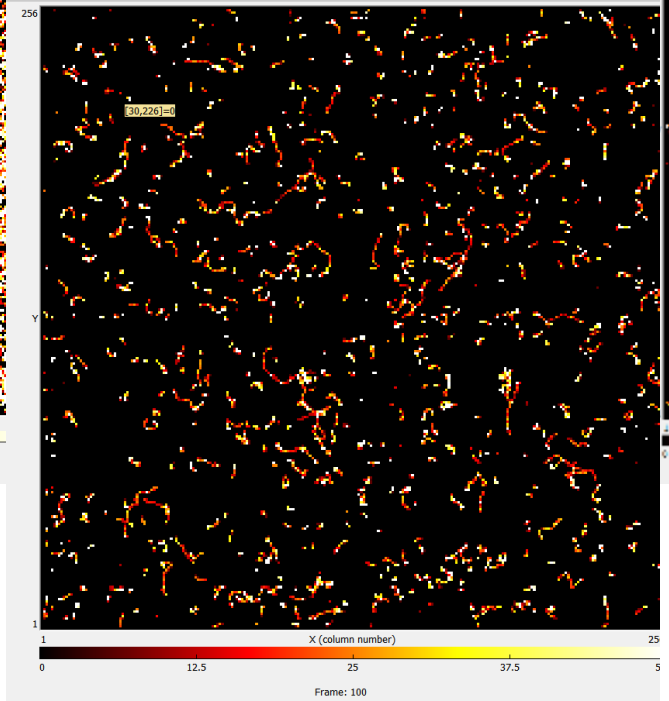
Demonstration of thoriated electrode activity

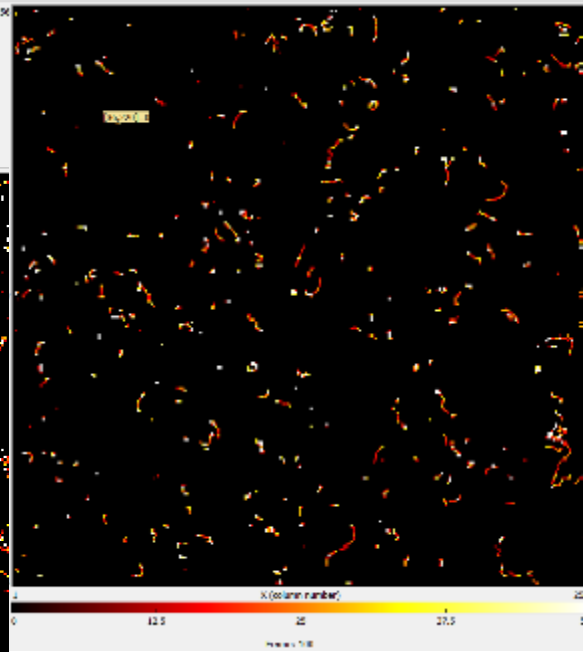


Demonstration of Co.60 electrode activity



POSITION: ¼ AWAY FROM THE CAMERA

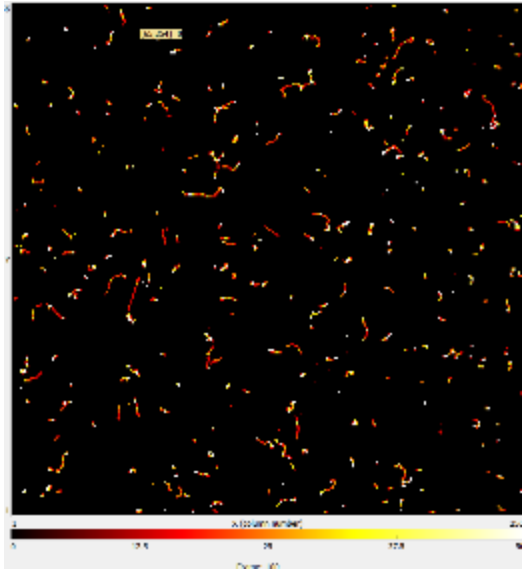




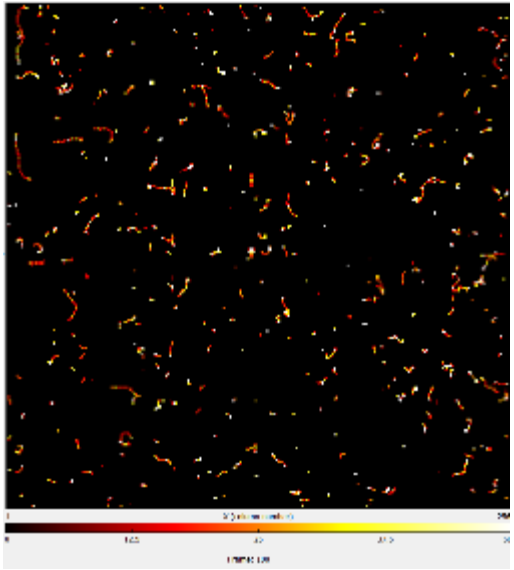
POSITION: INFRONT OF THE CAMERA

POSITION : HALF WAY FROM THE CAMERA

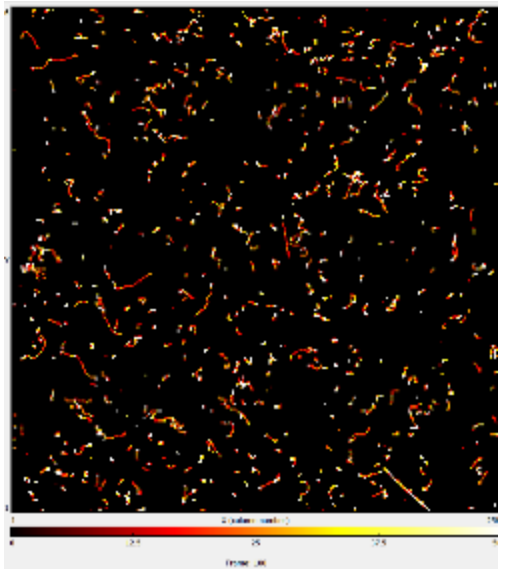
Difference between shields



Al



Pb



Plastic

Conclusion

Final thoughts and feedback

Positive

- Equipment
- Hands-on activities
- Unique experience

Negative

- Minor technical issues
- Worksheets

The team

- Gernot Werner Scheerer
- Stavie Kotsi
- Ioanna Anastasopoulou
- Alexandra Gkentzi
- Despina Fouka

Thank you!

Questions?