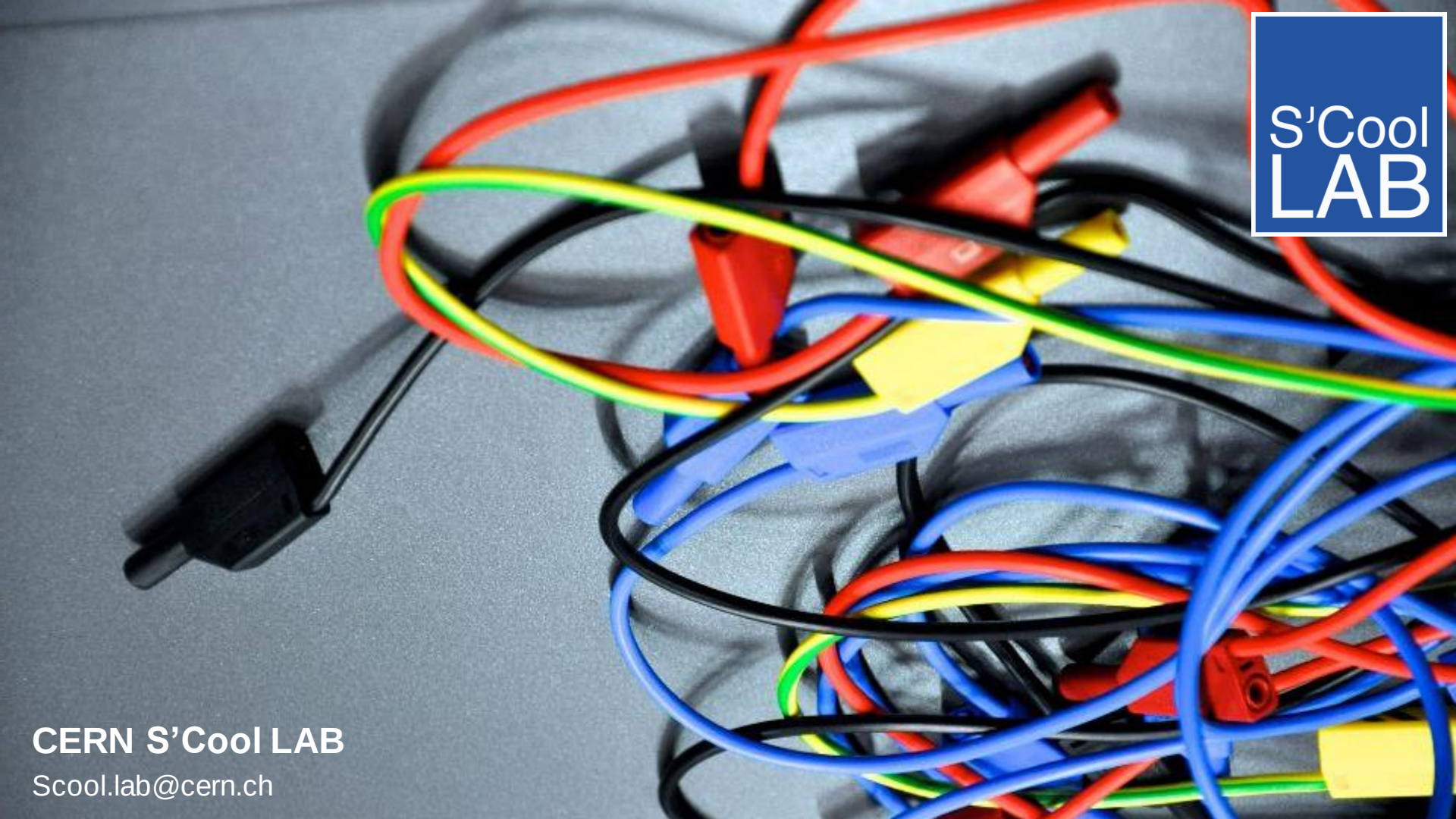


CERN S'Cool LAB
Scool.lab@cern.ch

Outline

- What is S'Cool LAB?
- What are S'Cool LAB's aims?
- Offer for school groups
- Experiments
- DIY ideas for the classroom
- Questions & Discussion

What is S'Cool LAB?

200 m^2 laboratory space at CERN

hands-on particle physics learning laboratory

test bed for physics education research

What are S'Cool LAB's aims?

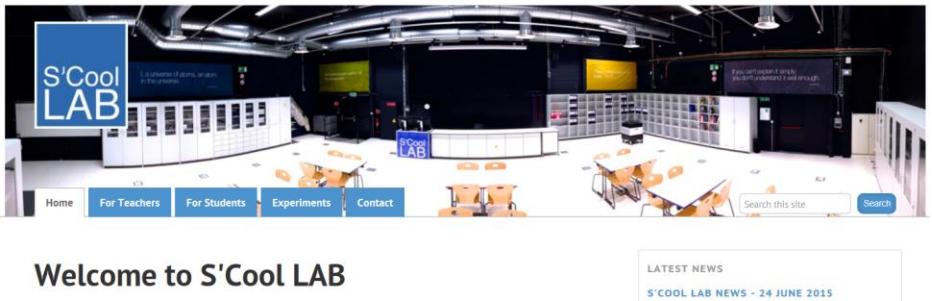
Make CERN's physics and technologies understandable for students through hands-on experimentation

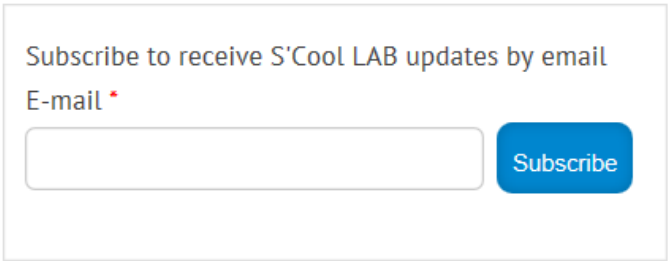
Offer for school groups

- 1-day programme for max. 36 school students from 16 to 19 years old at CERN on Wednesdays including
  - introductory talk and two visits to CERN's research facilities in the morning (9 - 12:30)
  - workshop with hands-on experiments in the afternoon (14 - 17)
- Hands-on workshops require preparation of the students via S‘Cool LAB e-learning
- The accompanying research depends on feedback surveys from both, students and teachers
- The visit to CERN is free of charge. Travel and accomodation are under the responsibily of the groups.

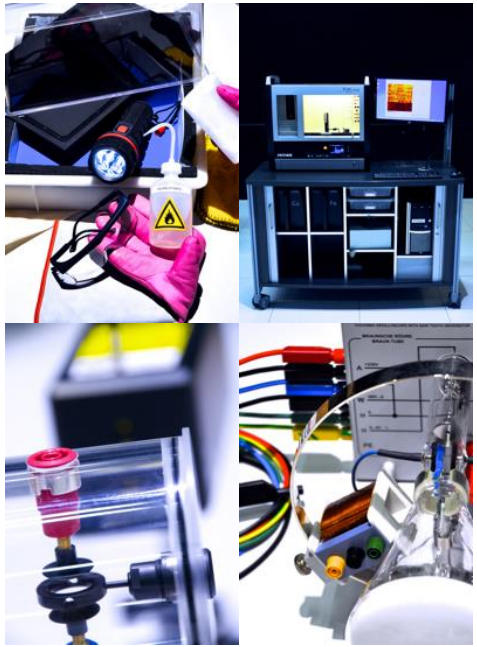
Offer for school groups

- Applications
  - At the moment only for Wednesdays
  - Demand is approx. 5 times higher than current capacity
  - Only during certain application periods via S‘Cool LAB‘s website: http://cern.ch/s-cool-lab





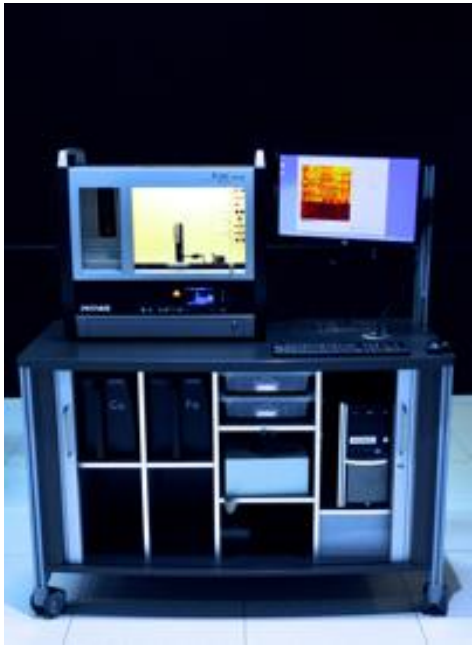
Experiments



Overview

- At the moment we offer 3 different experiments
- every student will perform 2-3 experiments in S'Cool LAB
- Scientists working at CERN will facilitate the workshops
- Many more experiments are currently under development

Experiments



X-Ray machines

- Properties of high-energy photons
- Detection of particles using pixel detectors
- Medical applications of particle physics
- Students‘ conceptions on radiation

Experiments

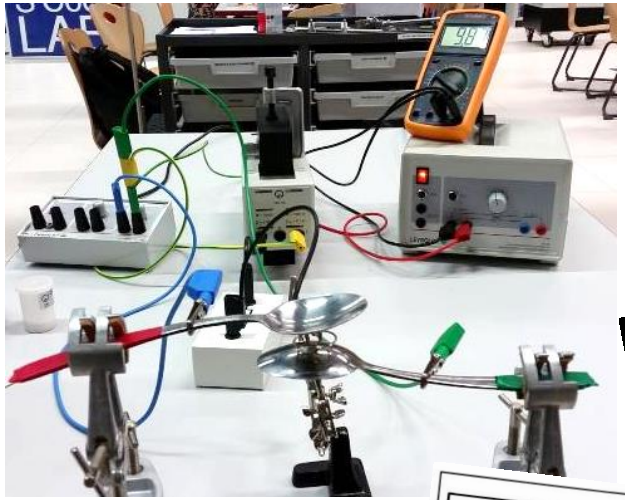
Electron tubes

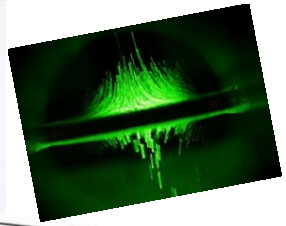
- Deflection of electrically charged particles in magnetic fields
- Dipole electromagnets
- Students‘ conceptions on electromagnetism

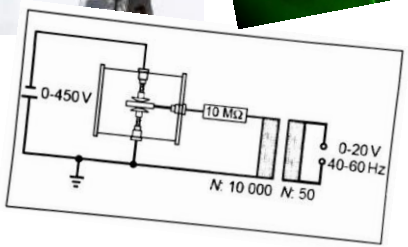
DIY ideas for the classroom

Paul trap

- Spoons
- Metal ring
- Transformer > 4 kV
- (Power supply 450 V DC)
- 10 MΩ resistor
- Cables







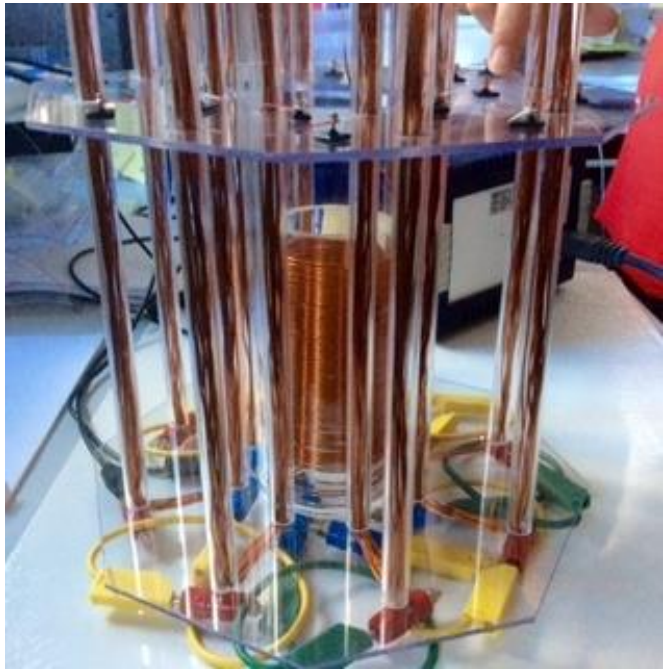
Manuals: www.newtonianlabs.com, HST15_final presentation, www.youtube.com/watch?v=PYpbKSmOnNc

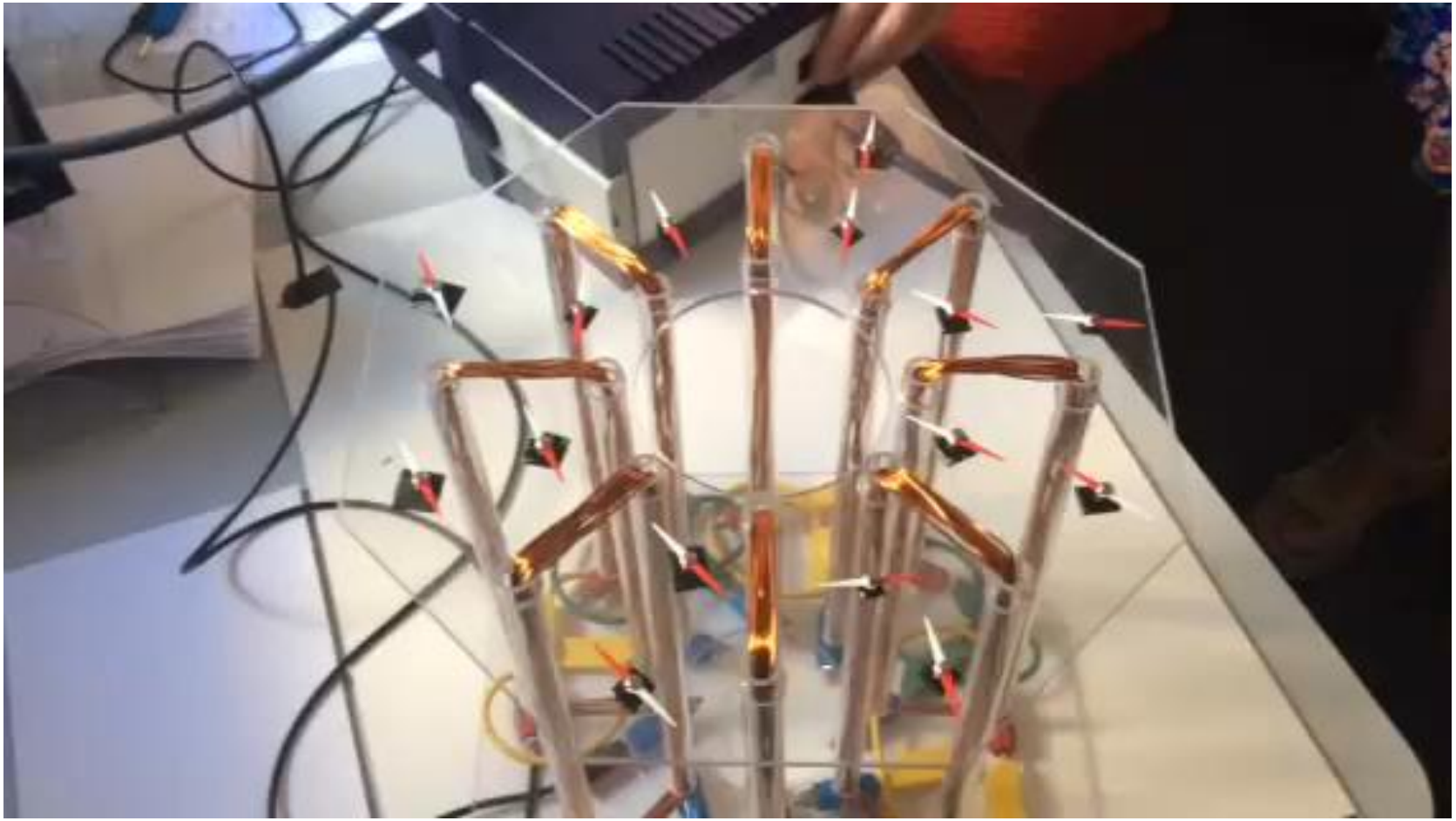
DIY ideas for the classroom

1:100 model of the Atlas magnet system

- Copper wire
- Plexiglass cutouts
- 16 plexiglass tubes (1x25 cm)
- 1 plexiglass tube (7.5x25 cm)
- 1 plexiglasstube (6x15 cm)
- Compass needles
- Cables
- Power supply
- Connectors

Manuals: HST15 final presentation





Questions & Discussion