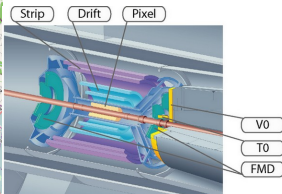


Piece of work for ALICE

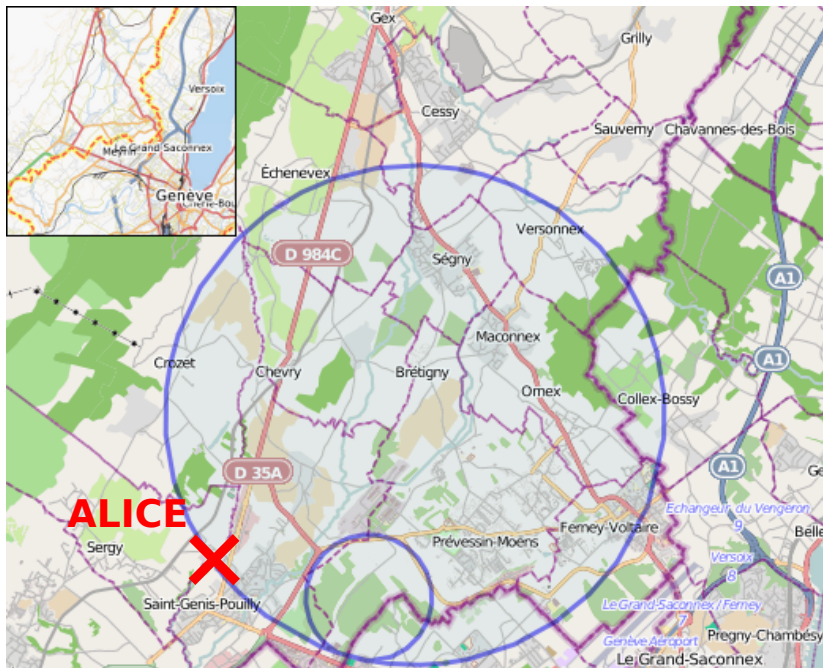
Antti Karjalainen

August 14, 2013



- Where my work is located at CERN
& motivation
- My work

Where my work is located?



Where my work is located?



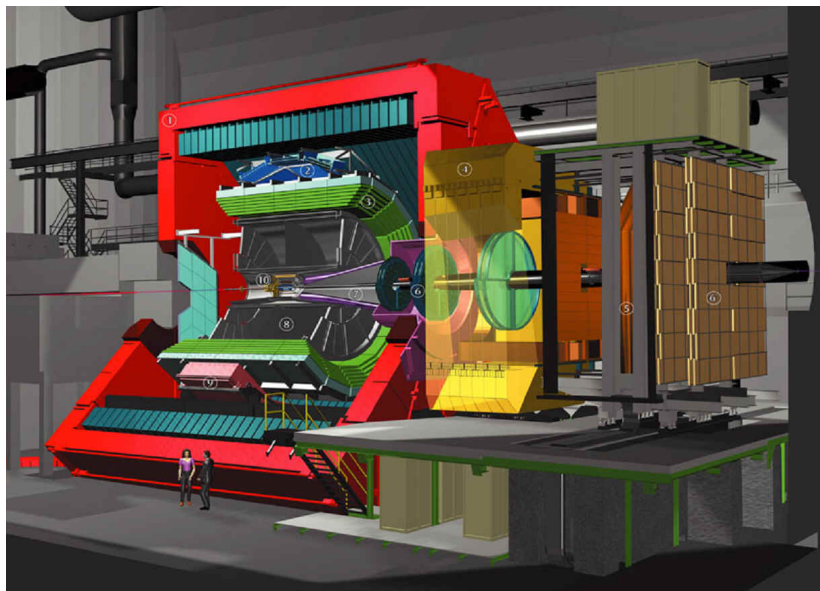
Where my work is located?



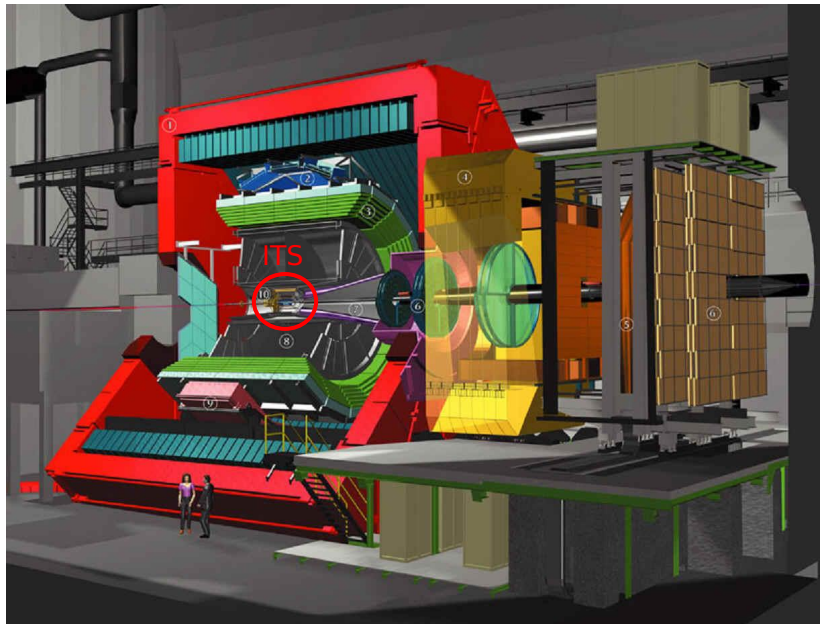
Where my work is located?



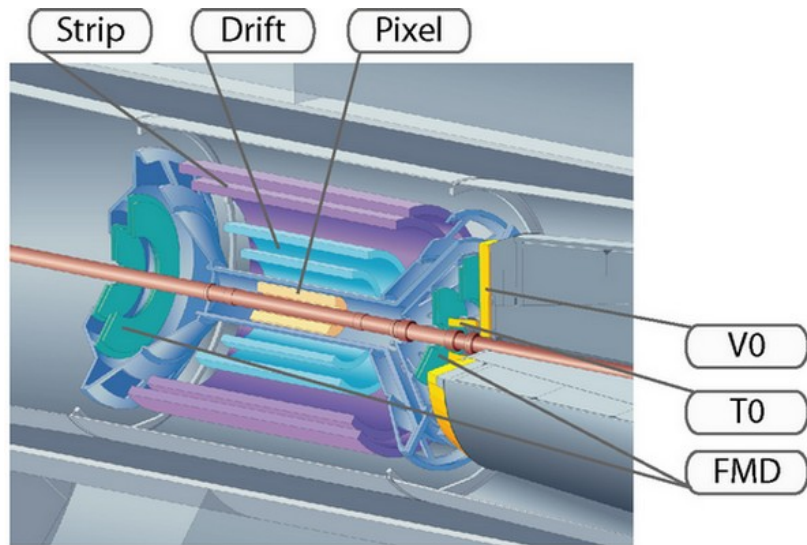
Where my work is located?



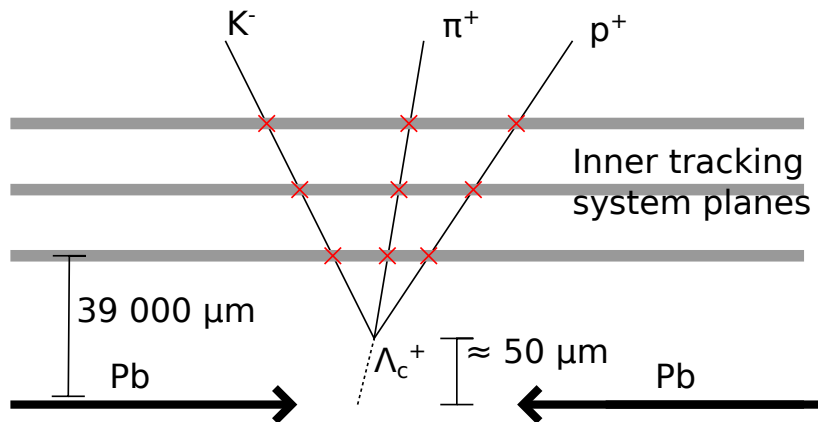
Where my work is located?



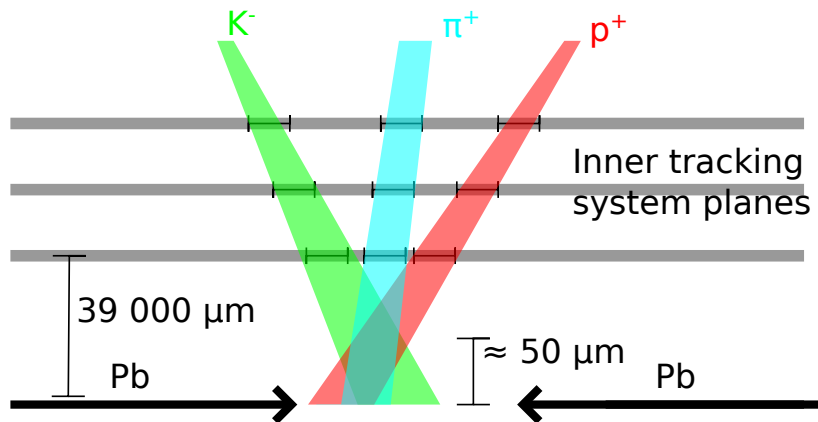
Where my work is located?



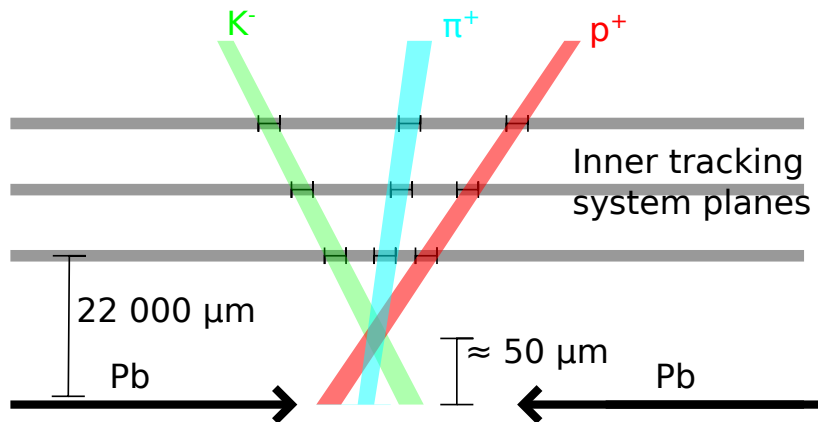
What ITS does?



Current ITS

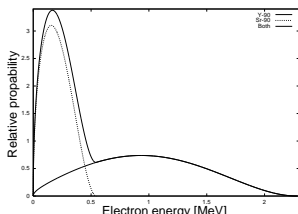


Upgrade at 2018

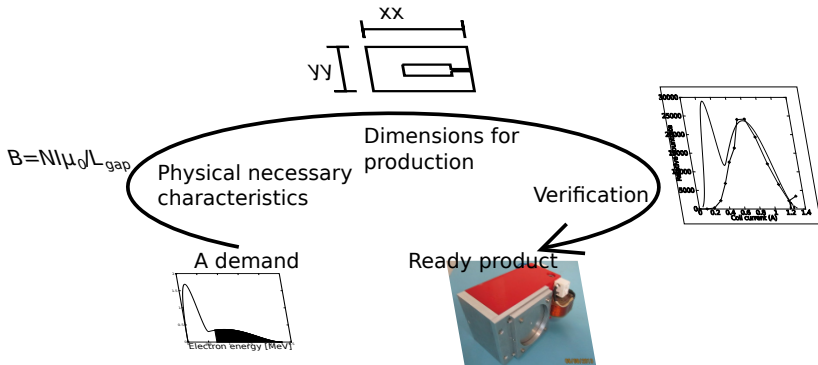


Motivation for my work

- To obtain necessary secondary vertex resolution accuracy of the ITS detectors must be improved.
- test prototypes with Minimum Ionizing Particles (MIP) → go to test beam or have one in lab
- Sr-90 beta decay
 - also non-MIP electrons
 - me to design a electron energy selector



My work

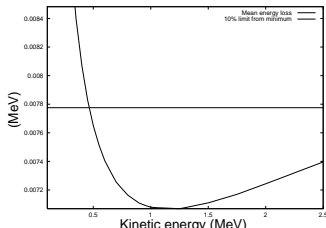


Snapshots: Physical demands

weeks

1-3 theoretical demands

- Electron behaviour fluctuation $< 10\%$
→ ok kinetic energy: > 0.5 MeV



Snapshots: Energy selection

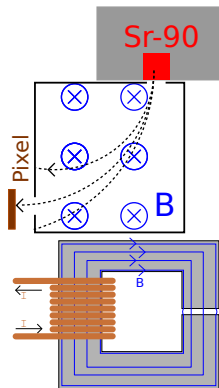
weeks

1-3 theoretical demands

- $r = \frac{p}{Be}$

- toroid with air gap:

$$B \approx \frac{NI\mu_0}{L_{gap}}$$

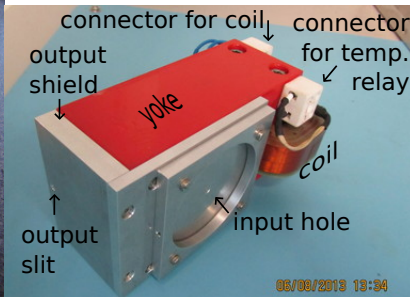
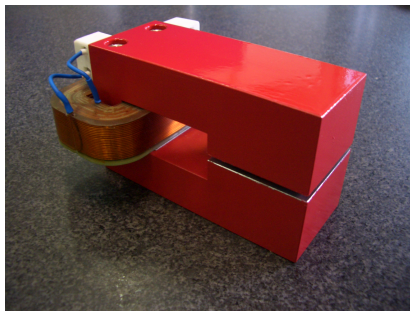


Snapshots: Ready monochromator

weeks

10

Verification

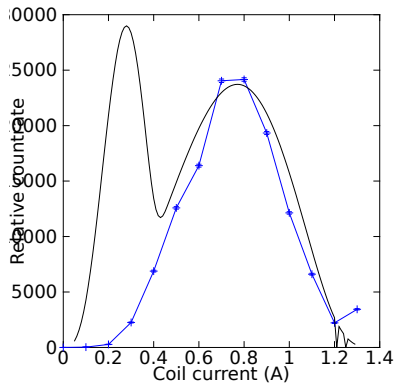


Snapshots: Very first data

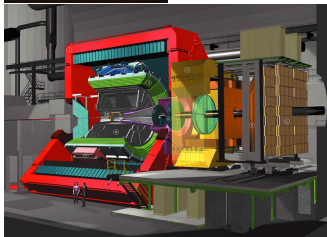
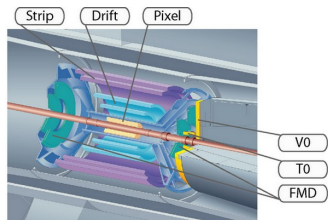
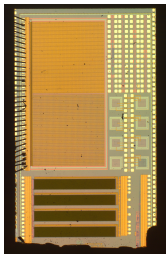
weeks

10

Verification



Summary



And they lived happily ever after...



LHC map, cited 13.8.2013,

http://upload.wikimedia.org/wikipedia/commons/0/06/Location_Large_Hadron_Collider.PNG



ALICE detector picture, cited 13.8.2013,

<http://alice-detector-facilities.web.cern.ch/Alice-Detector-Facilities/>



ITS picture, cited 13.8.2013,

http://alicematters.web.cern.ch/?q=ALICE_currentITS



Conceptual Design Report (CDR) of ALICE ITS upgrade, cited 13.8.2013,

<http://aliceinfo.cern.ch/ITSUpgrade/sites/aliceinfo.cern.ch.ITSUpgrade/files/documents/AliceITSUpgrade-CDR.pdf>