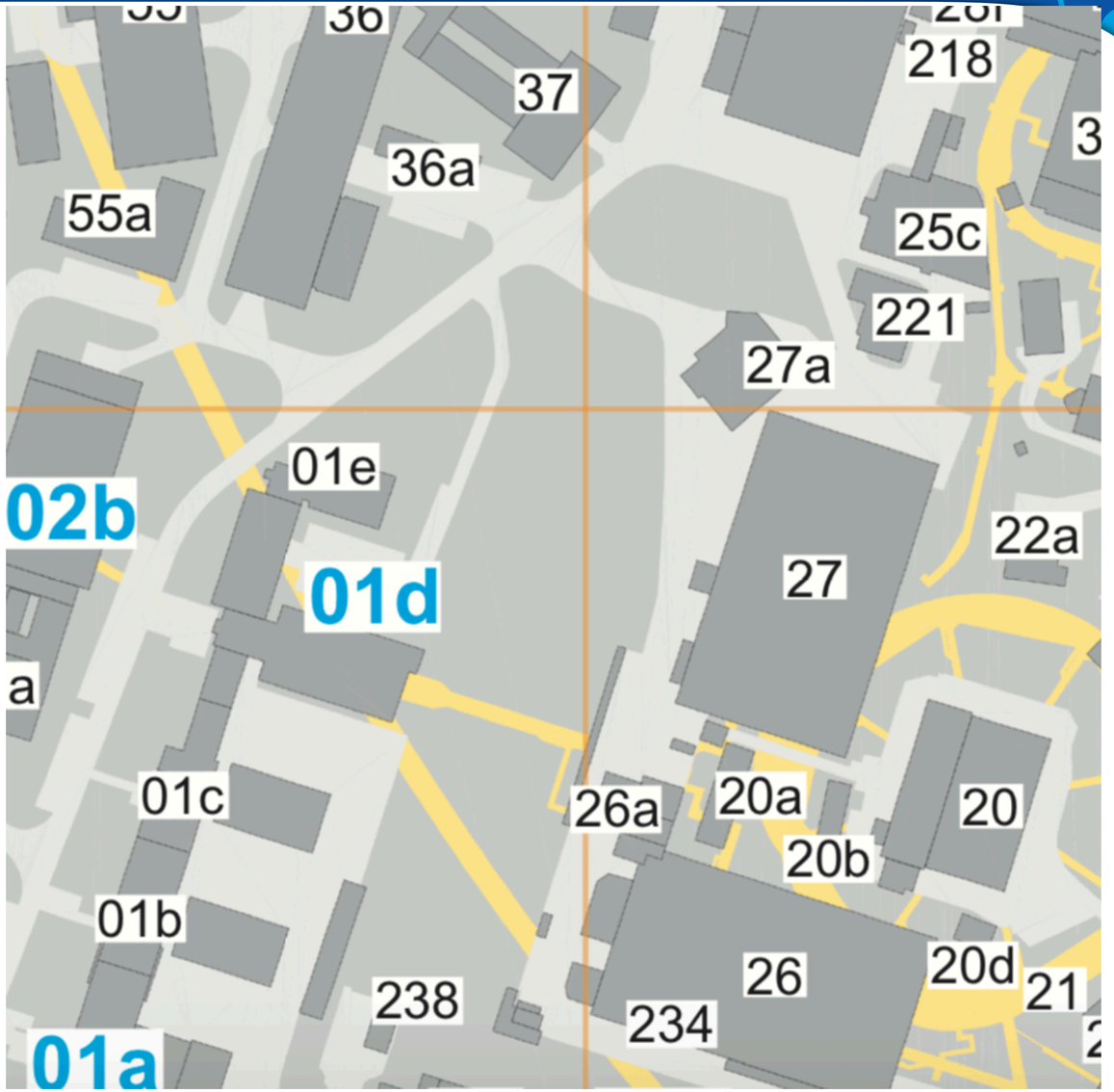
Track 1

	Description	Location
Task 1	IV/CV characteristics	25c **walk to another building**
Task 2	Simulation with Weigthfield2	Seminar room 3a **bring your laptop!**
Task 3	Energy loss (ALiBaVa)	e-lab
Task 4	Charge mobility	e-lab

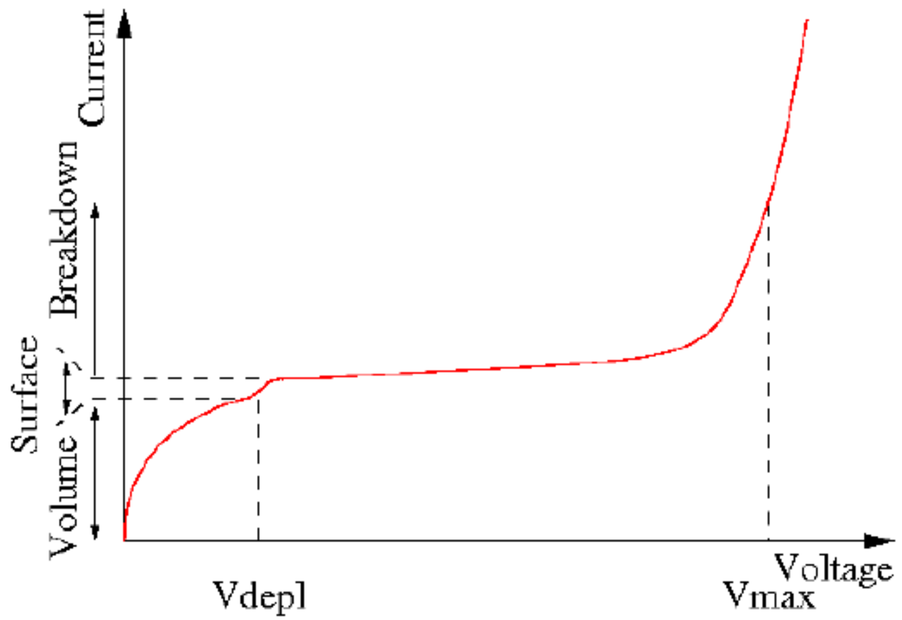


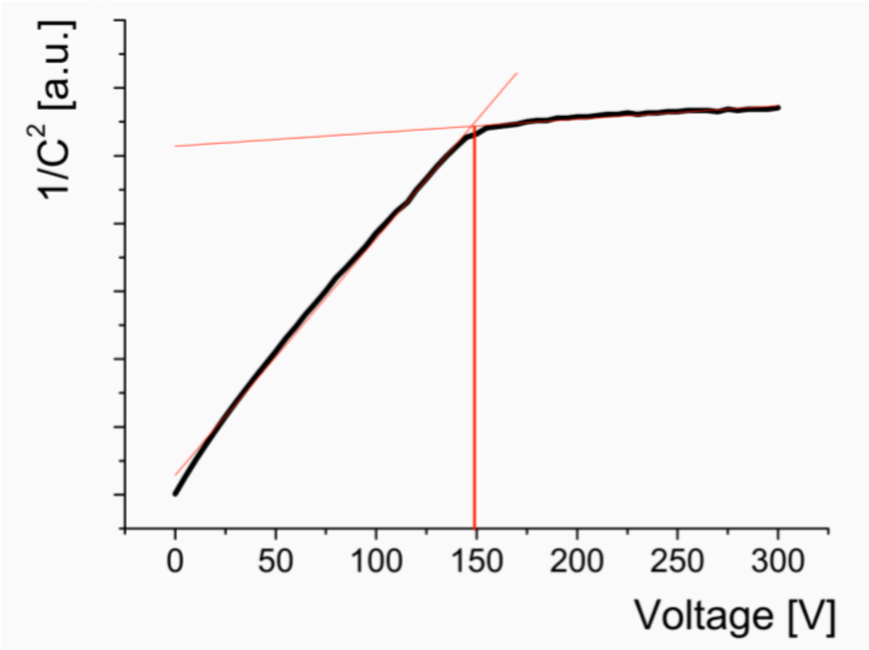
you will be picked up here and walk with task-supervisor to the venue

Task 1: CV/IV measurement in clean room

This task is about

- the clean room (you get an introduction what we do there and why)
- handling of silicon test structures
- probe station
- simple characterisation of test structures

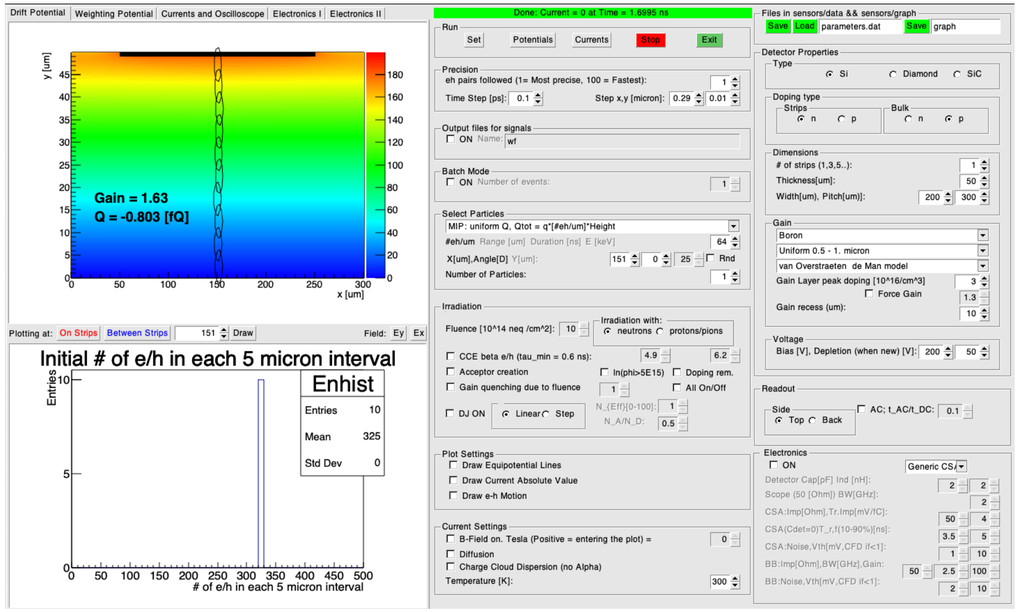


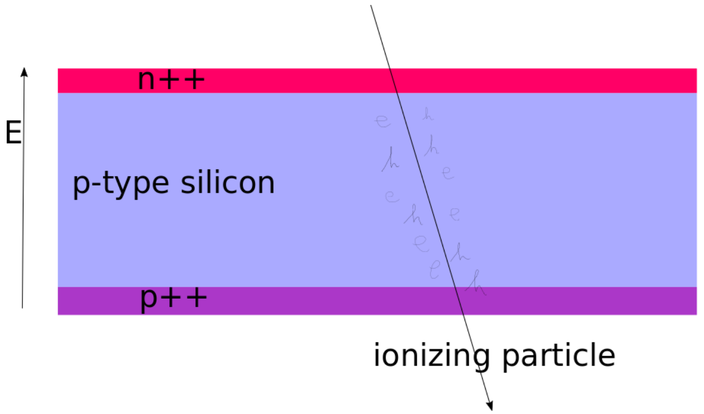


Task 2: Simulation with wakefield 2

- This task will simulate the behaviour of the silicon detectors with the weightfield simulation software. This software design silicon pads or strips and calculate the weight field for having the electrical field. After that, it can simulate the transient of particles such as MIPs, laser or alpha particles.
- The task will try to take a deep insight of the behaviour of silicon detectors using this software.

It shows a cross section of the detector

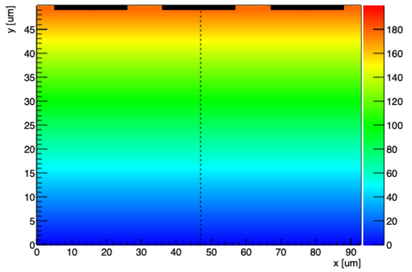




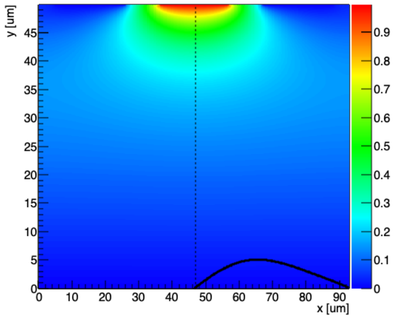
wakefield 2

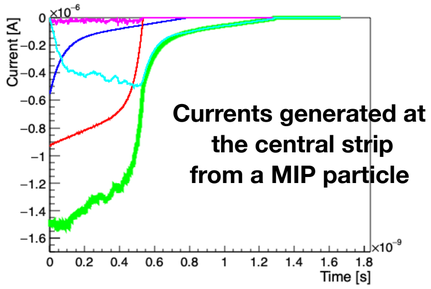
- Weight field was a tool designed by Ramo to calculate the electric field for a complex structures. What the Ramo theorem does, is to evaluate the induced current for a given electrode:
  - $i = \overrightarrow{E_v} \cdot q \cdot \overrightarrow{v}$
- the induced charge is $Q = q \cdot \Delta\phi_0$
- To find the weighting potential one should solve Laplace equation
  - $\nabla^2\phi = 0$
- Under the conditions:
  - 1. a chosen electrode is at V=1V
  - 2. The remaining electrodes are at V=0V
  - 3. The trapping state of charge is not taken into account

Three strips simulation



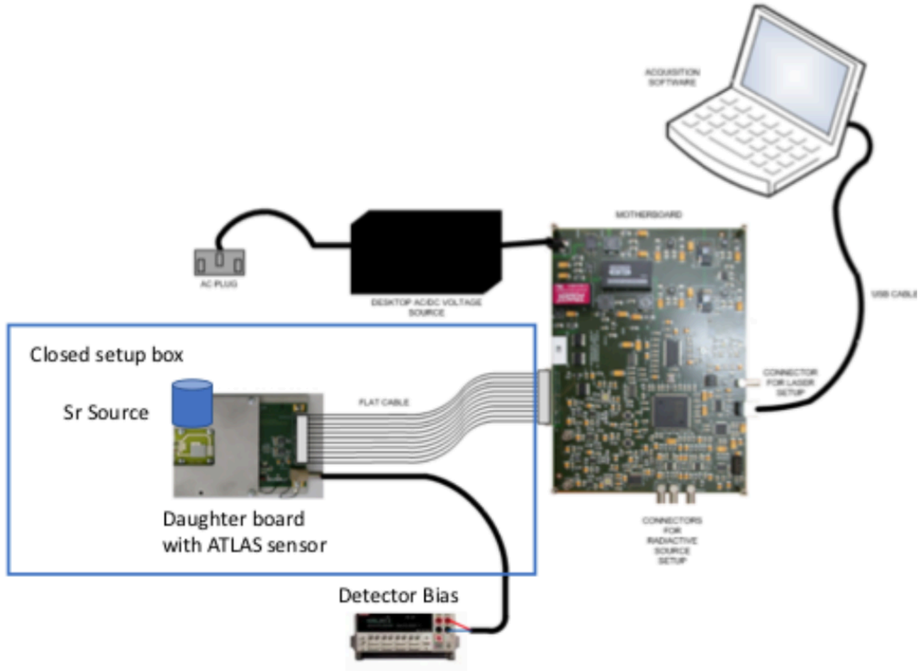
Weight field simulation, the central strip has 1V, the other electrodes 0V

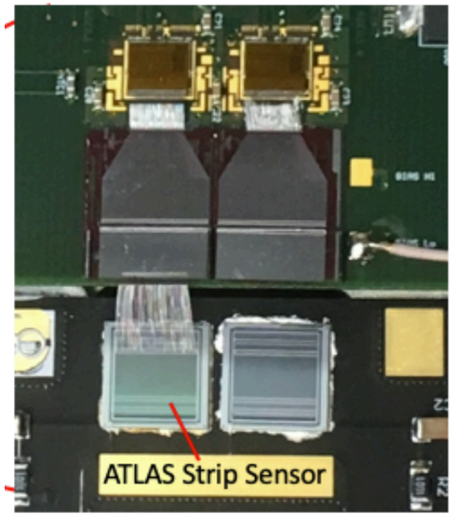


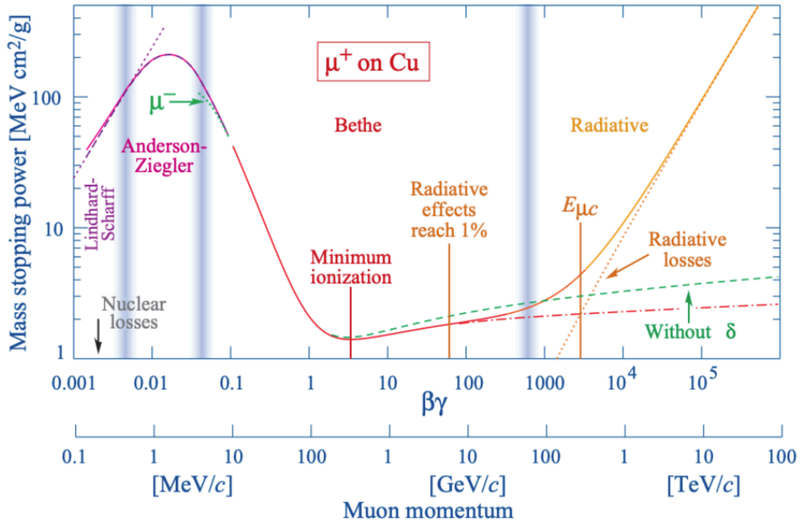


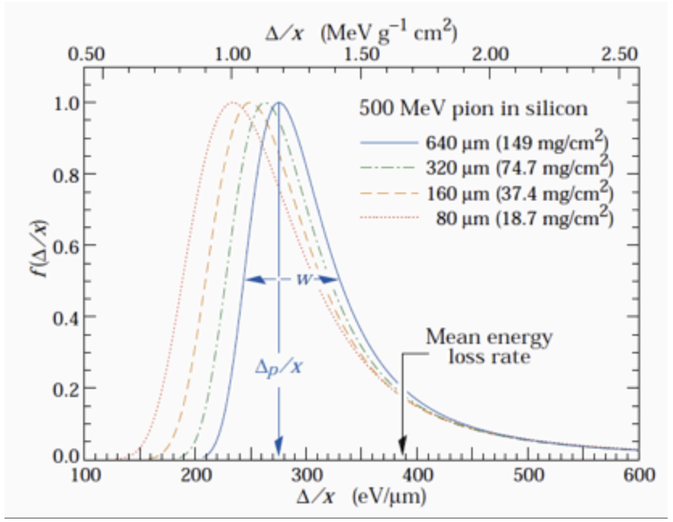
Task 3: Energy loss (Alibava)

Measurement if energy loss in silicon using a setup with analogue readout and measuring betas from a radioactive source (Sr90)



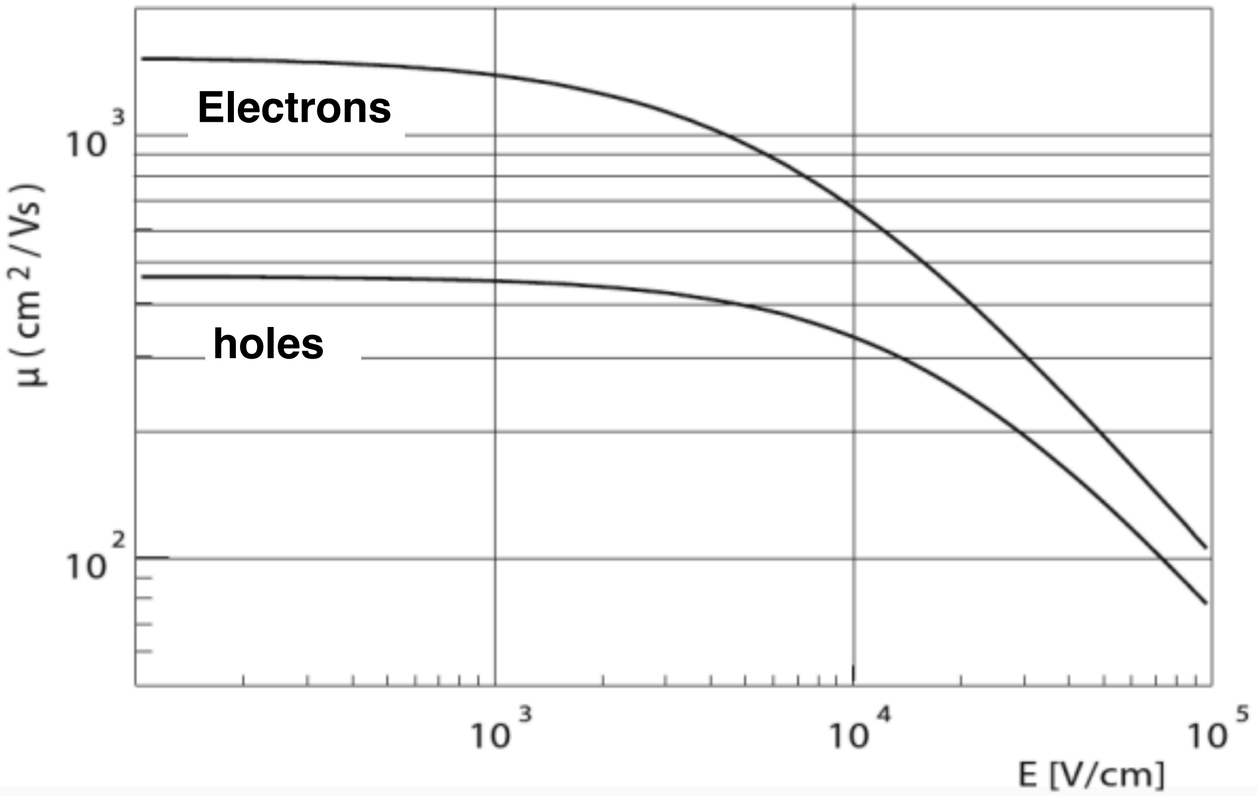


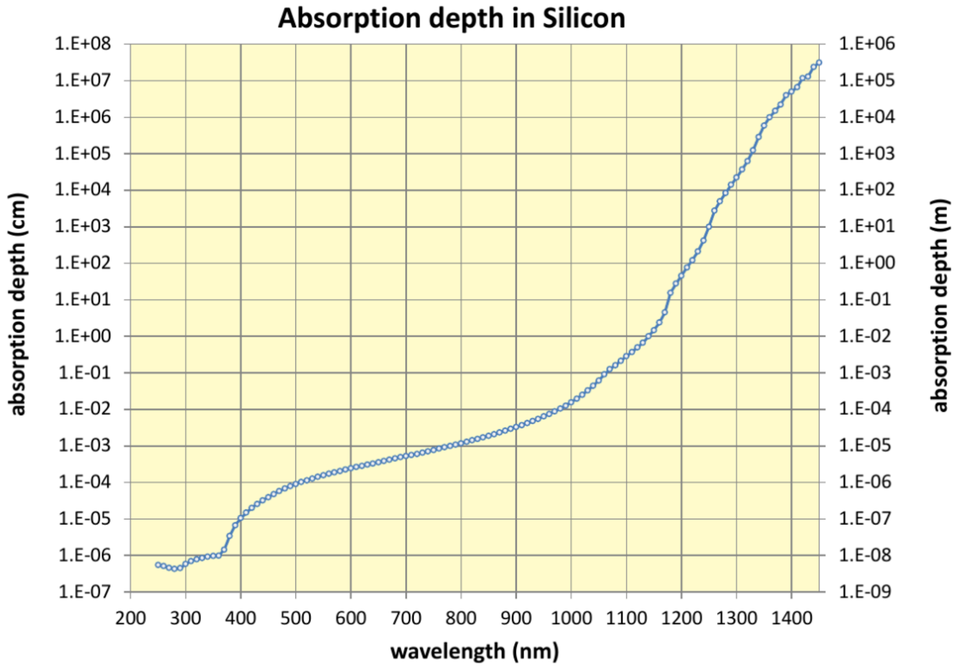




Task 4: Charge Mobility

- Lasers will be used to inject charge carriers in silicon sensors
- A TCT setup will be used to record the induced signals
- electron/ hole collection, mobility, penetration depth of light in Si,…





Enjoy!

…and do it yourself!