2016 test beam plans

ideas

1. Verify the tab bonding (or other candidates is ready)
2. Add more W layers
3. Use of a tracker in front of lumical to identify electron/photon

Tab bonding

- The fourth sensor is half wire bonded
- special fan out ready at TAU

We will bond half of the fourth sensor with the special fan out

If another fan out is ready (like gold bumped foil), we can equip a sensor and add it

Add more layers

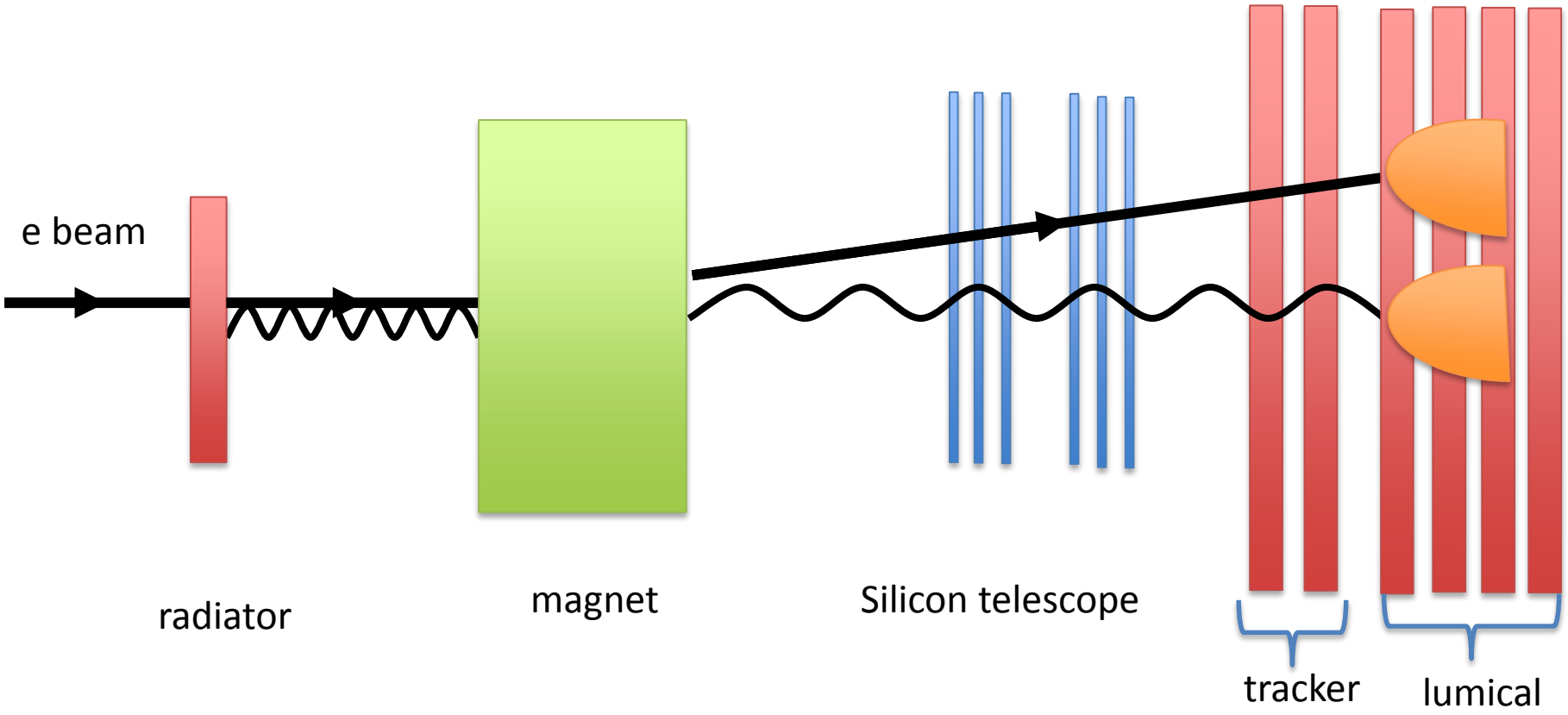
- Need to produce envelope
- Need to glue, bond new sensors

No real showstopper ; only a lot of work

Identification e/γ

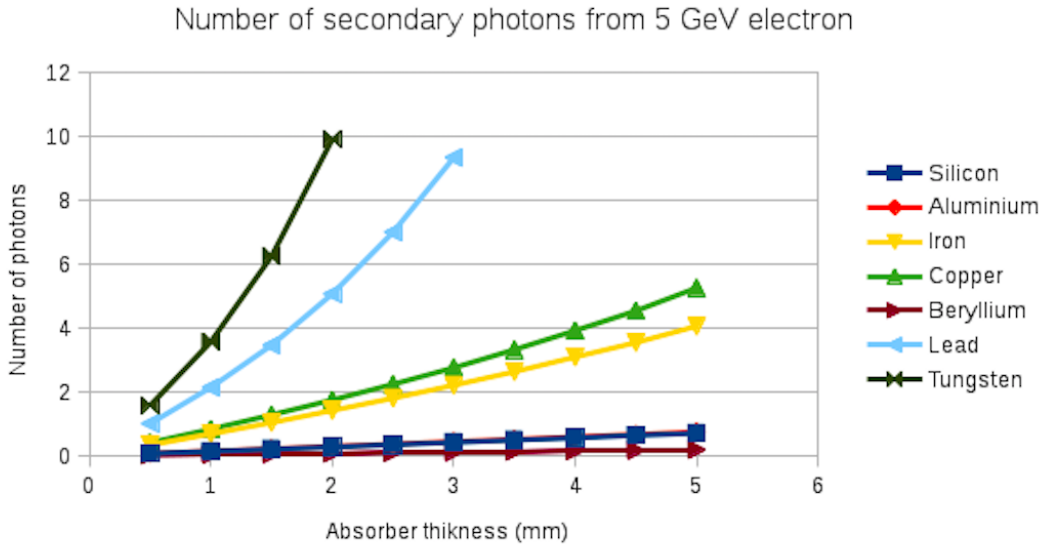
- Need to create e/γ
- Need to curve the e trajectory
- Need to have both of them in the silicon telescope
- Need to have a silicon tracker in front of the lumical detector and both e and γ inside

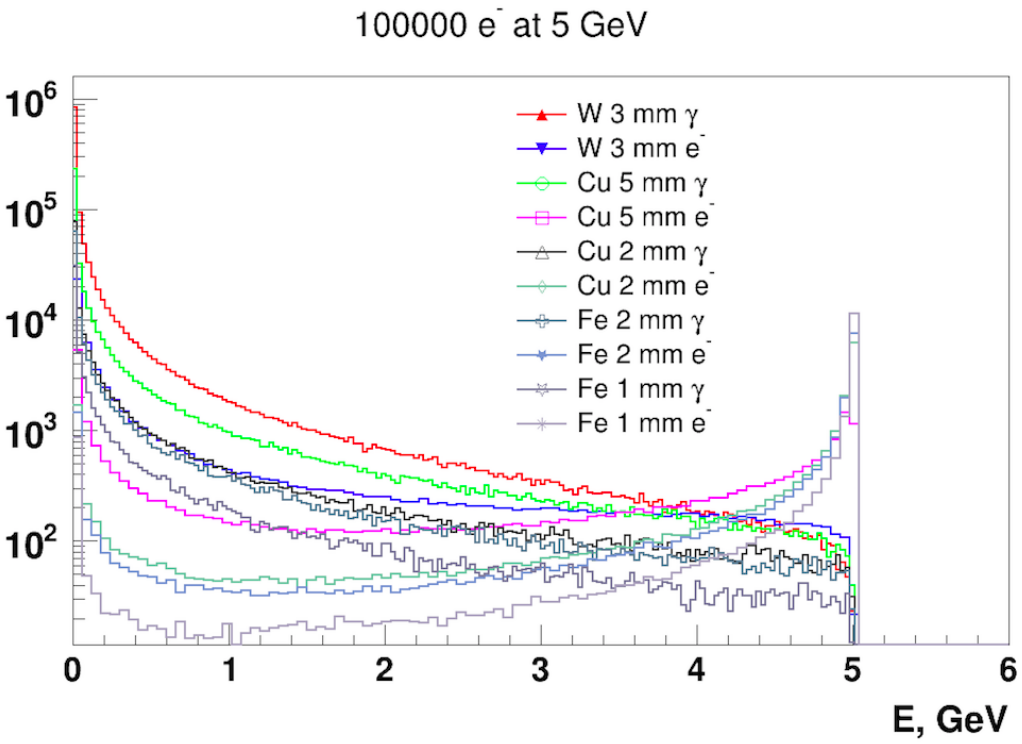
Identification e/γ: proposition



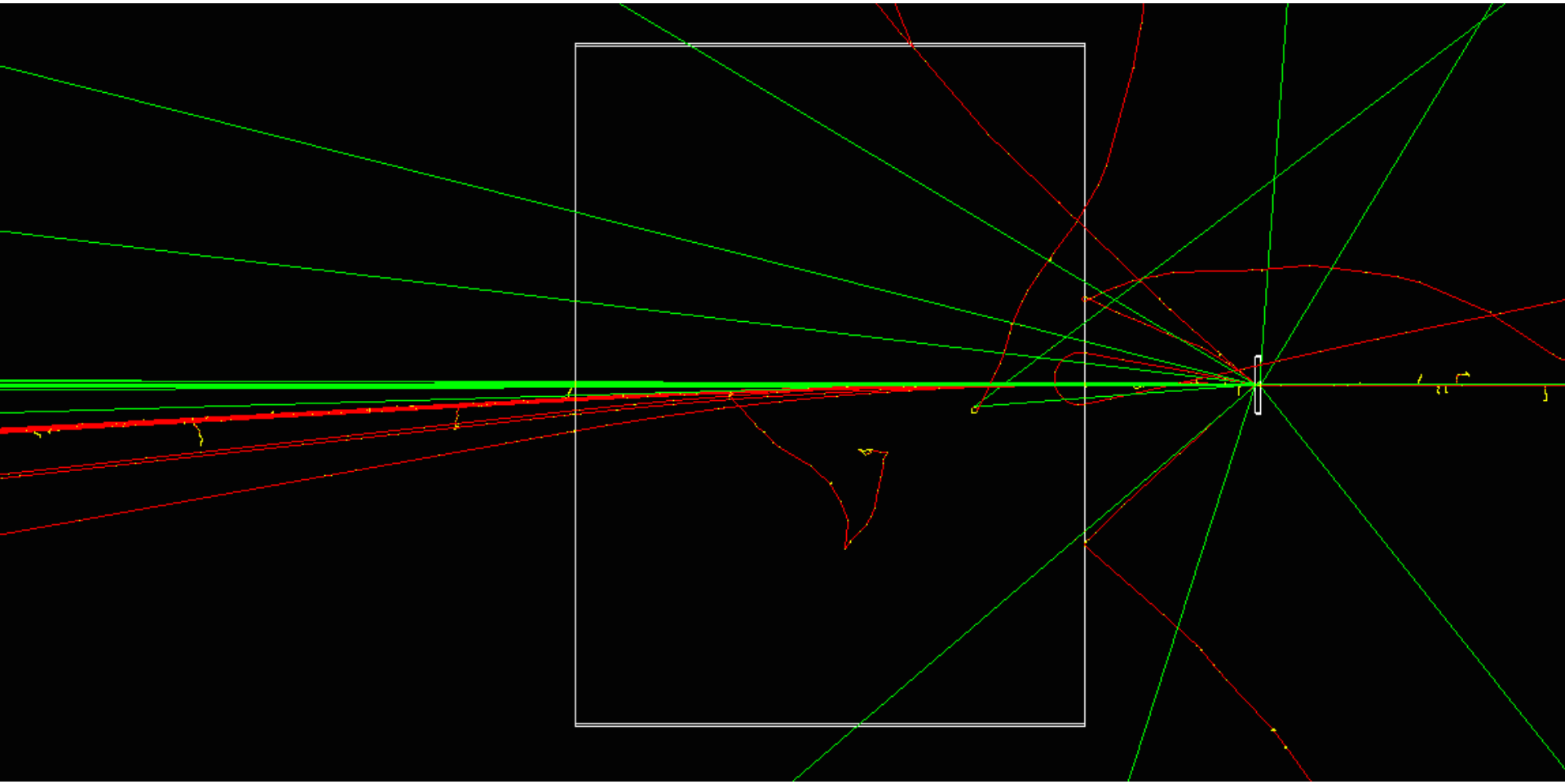
Radiator

Simulation started





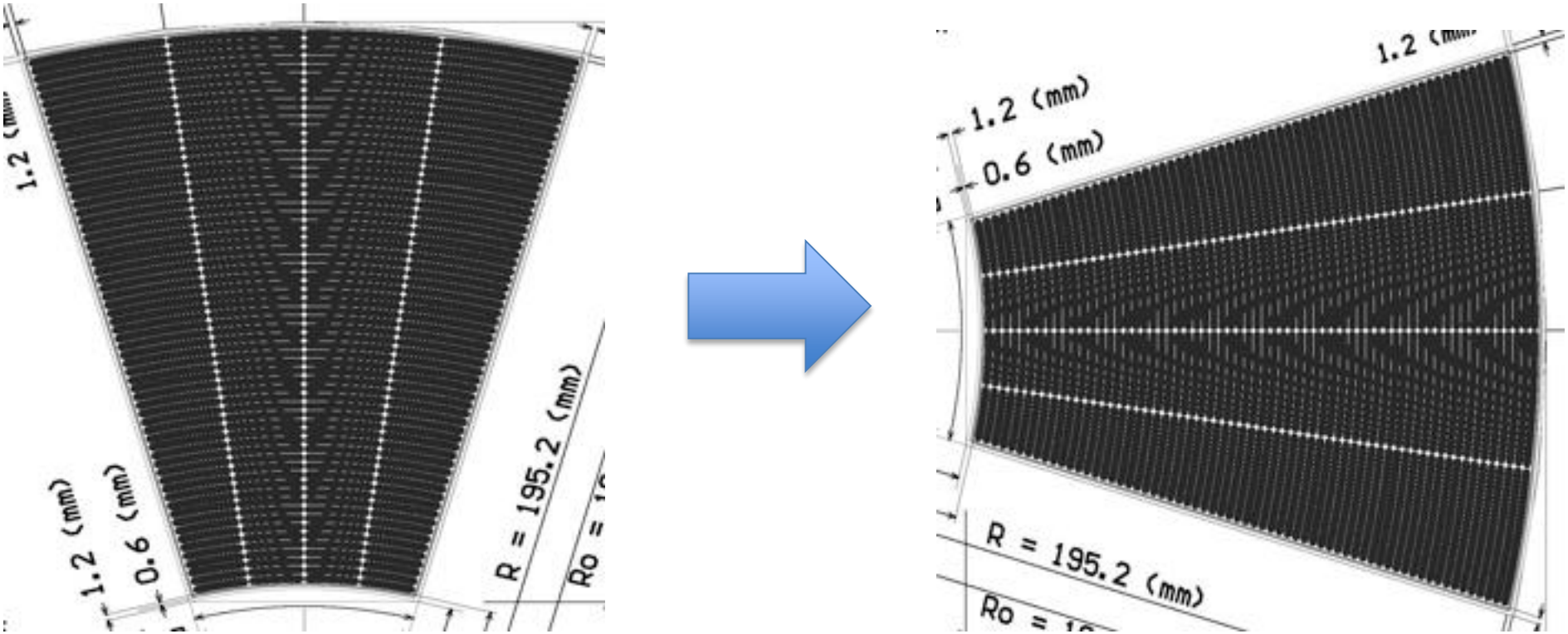
Radiator and magnet



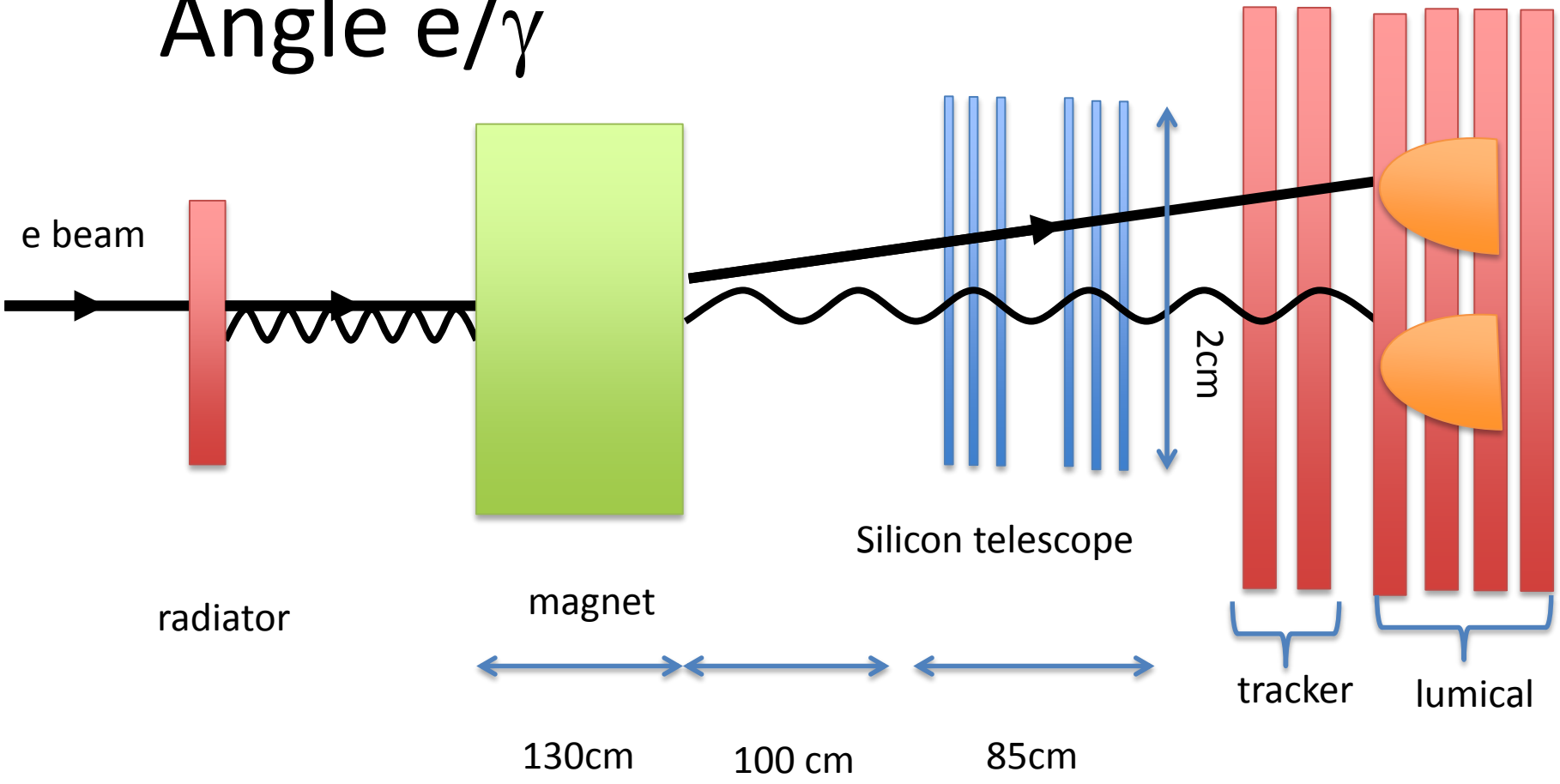
Simulation of 20 events at 5 Gev

Tracker and lumical detector

The idea is to use two lumical sensors in front of the lumical detector and turn 90 degrees the whole system : Wolfgang already modified the mainframe



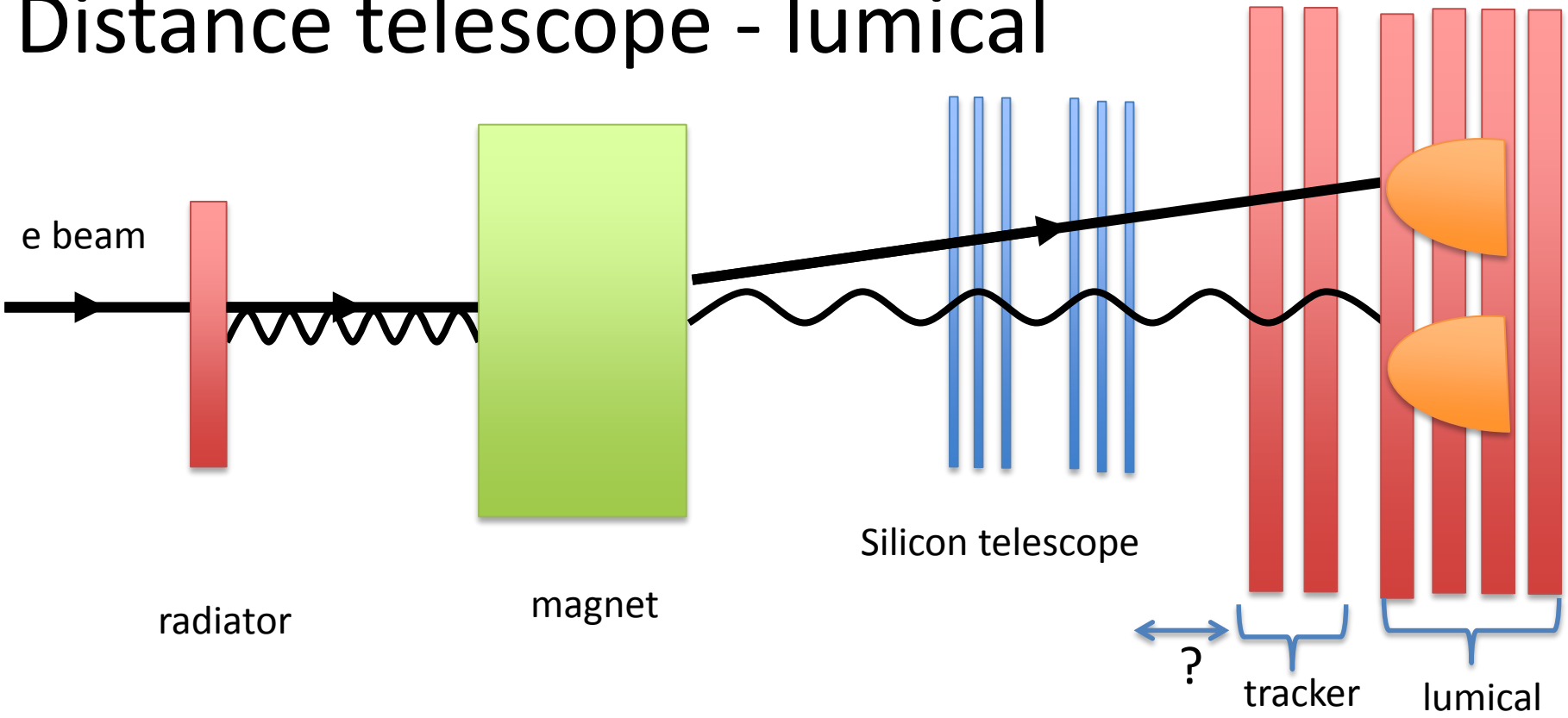
Angle e/γ



If we want both photon and e inside the telescope :

$\tan \theta = 2/(130+100+85) = 6$ mrad = 0.4 degrees

Distance telescope - lumical



If we want electon and photon separated by 5 cm :

5/(315+x)= 6 mrad → X=472 cm

Looks too long! Can we reduce distance magnet telescope ?

conclusion

- Tab bonding : no real problem
- Add new W layers : no real problem
- Identification e/g : no major problems but a lot of work :
  - Simulation of the whole system,
  - magnetic field calculation
  - Radiator tests
  - Mechanical tests

August is not that far…