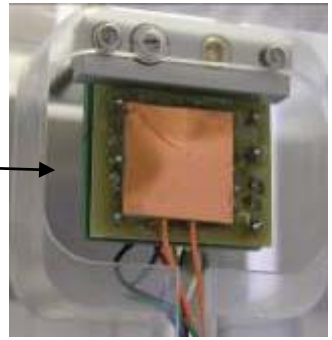
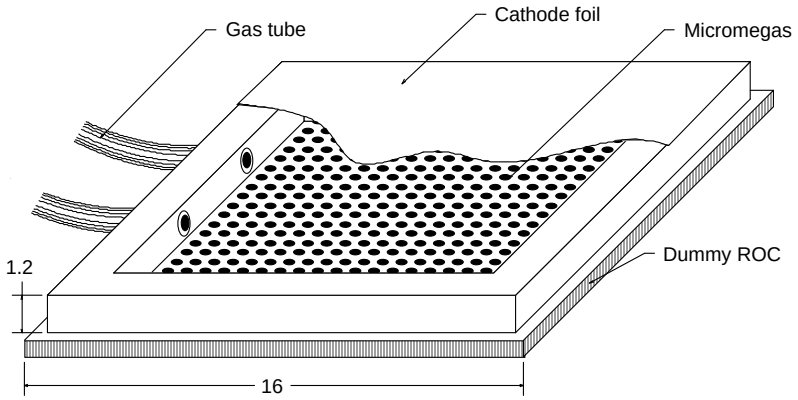
Nikhef irradiation facility

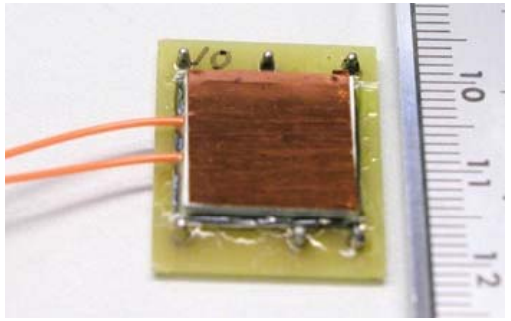
- Using ^{90}Sr source 5 GBq
  - 1 – 2 MeV electrons (mips)
- Set-up in H038a operational
  - 2 channel gas flow control
  - 2 channel remote controlled HV
  - Remote controlled irradiation stage
    - Moving in or out
  - DAQ hardware and software (Labview) operating



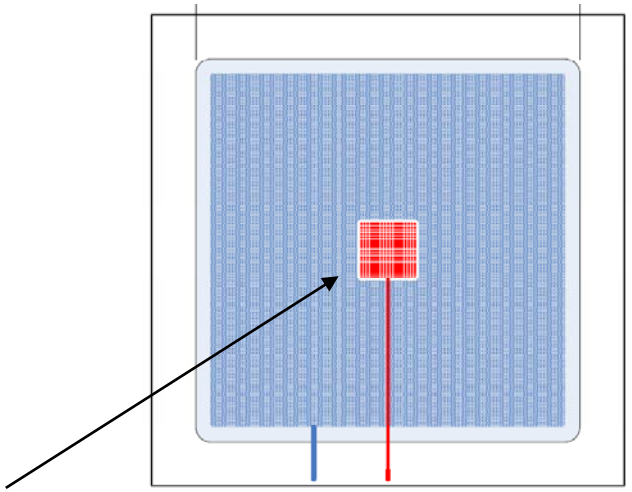
DAQ interface

Detector: GOSSIP 20 chamber





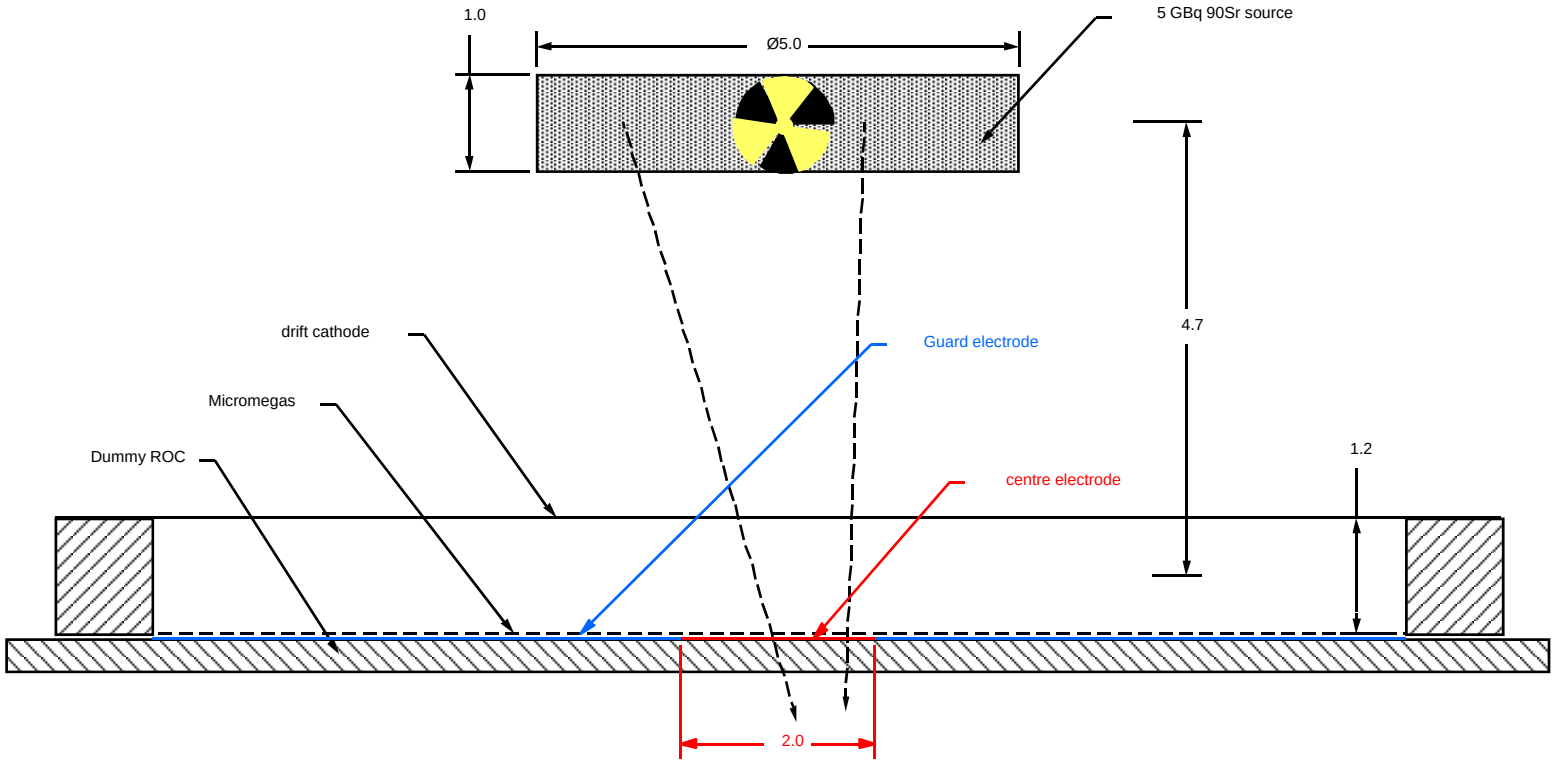
- Drift volume 13 x 13 mm, 1.24 +/- 0.01 mm high
- Short charge collection path
- Signal electrode: 2 x 2 mm structure of 1089 pads (red)
- Micromegas has circular pads on 60 µm pitch
- Closed gas volume of 210 µl



Signal electrode

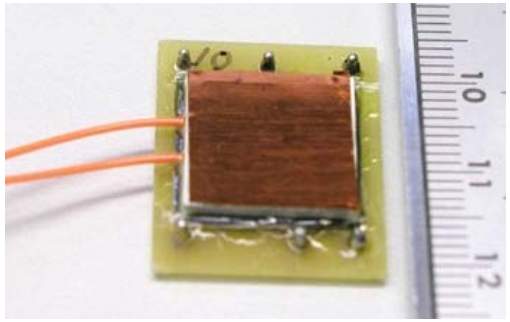
Geometry

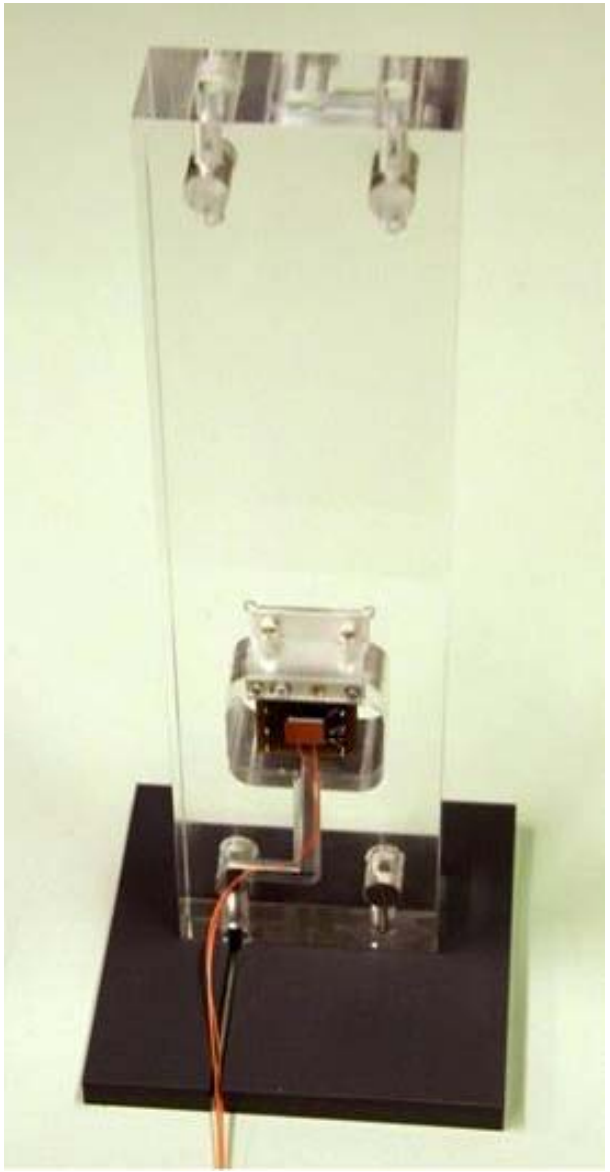
- Minimal distance sample – source is now 3.95 mm



Stage with Gossip sample

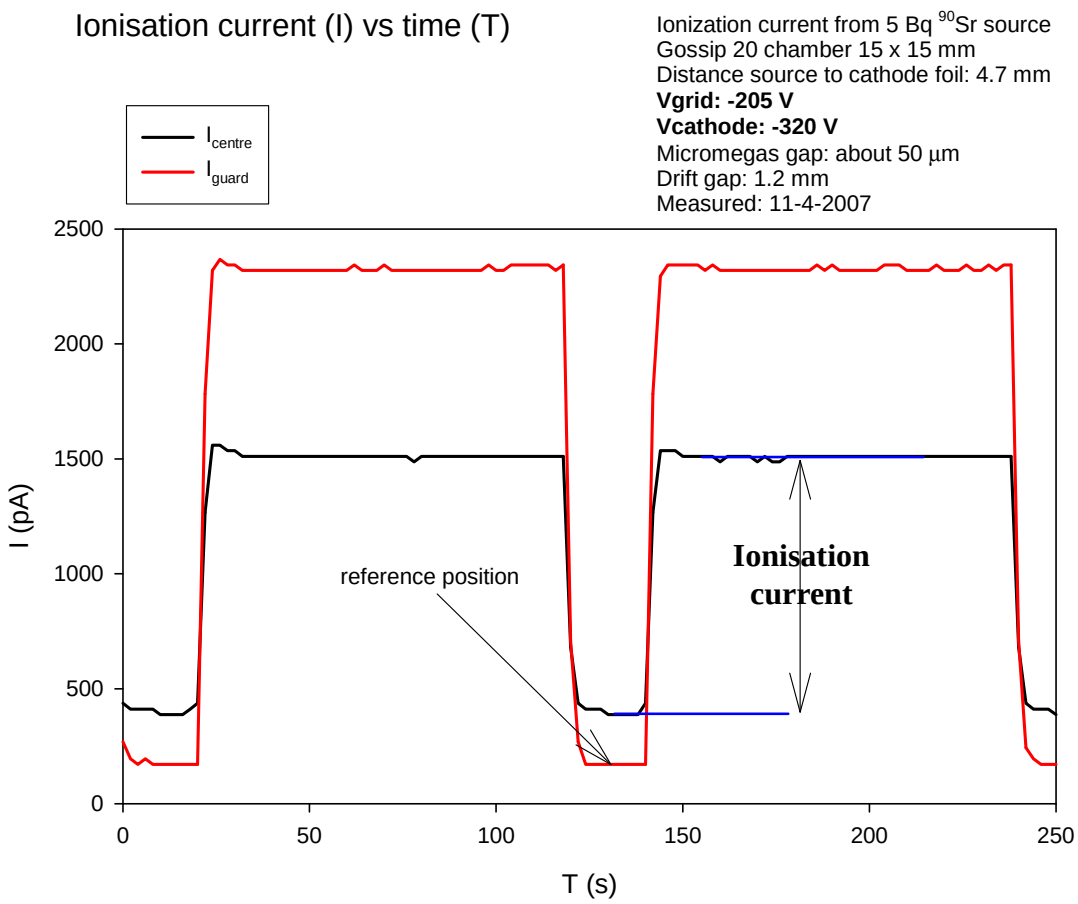
- Detector should be mounted on a ‘sample board’ (25.4 x 20.3 mm)
- 6 electrical connections
  1. Grid voltage
  2. Field voltage
  3. GND
  4. Centre current
  5. Guard current
  6. Thermistor
- Registration of barometric pressure and sample temperature
- Gas IO (two 0.8 mm Peek tubings)
- Periodical background measurement by moving the sample from the source





Typical raw data

- Ionisation current calculated off-line by subtracting baseline current



Actual irradiation rate

- Calculated using ionization chamber
- Minimal workable distance: 3.95 mm (distance source to centre sample)
  - => 2.3 *10^9 mips/cm^2/s
  - => 1.4 X 10^{15} mips/cm^2/week