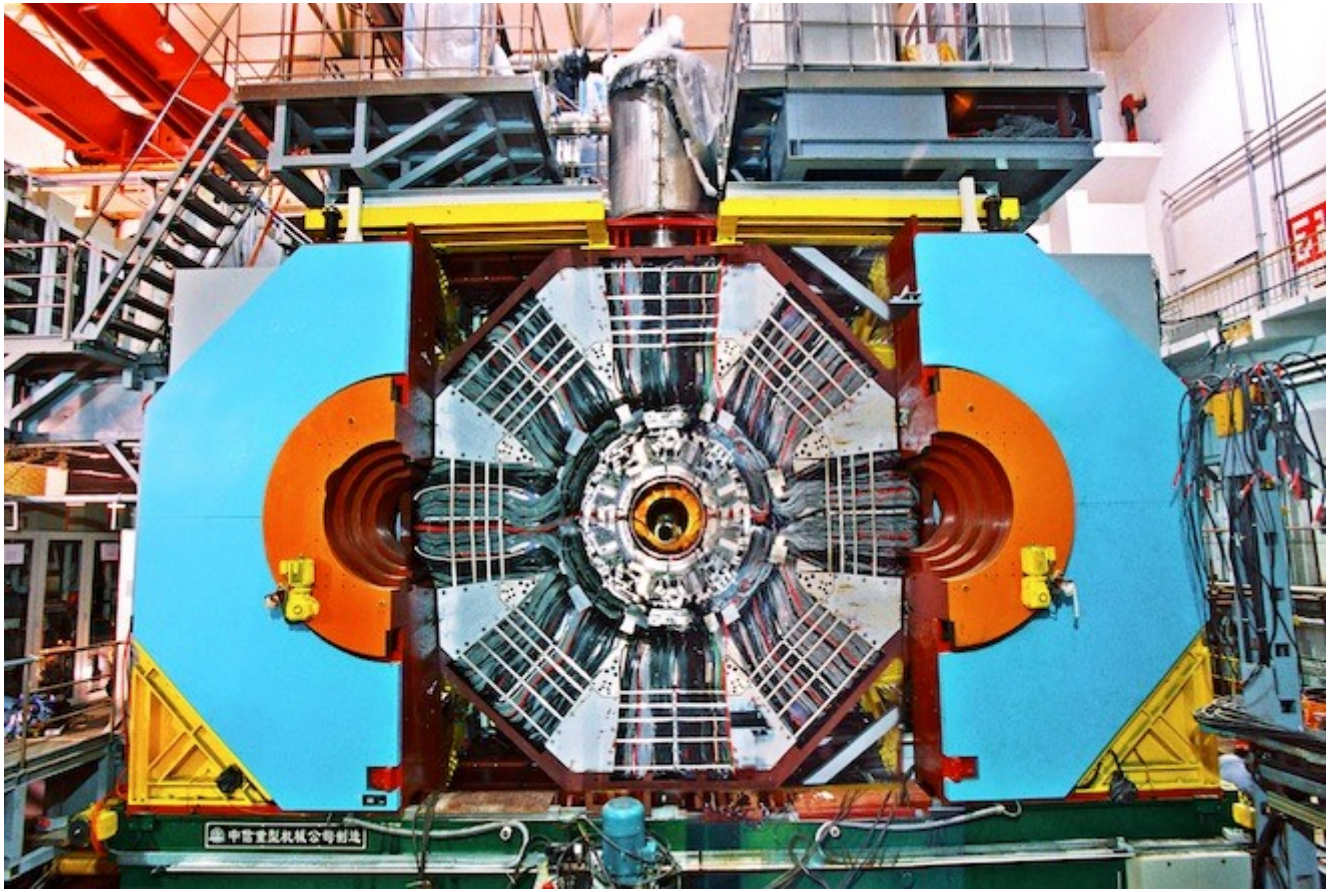
CGEM-IT simulation status

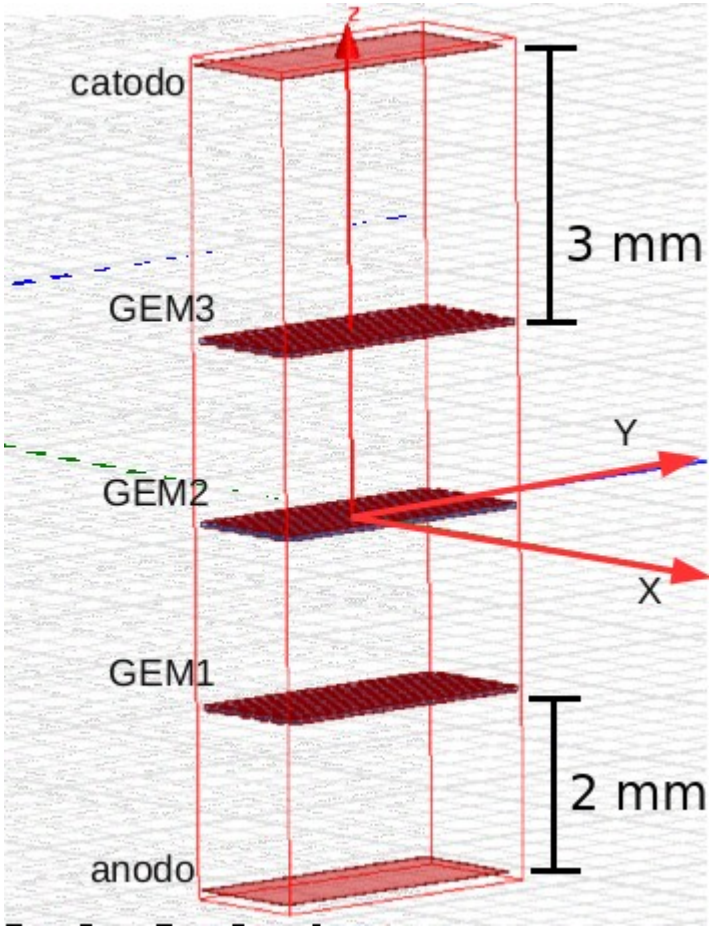


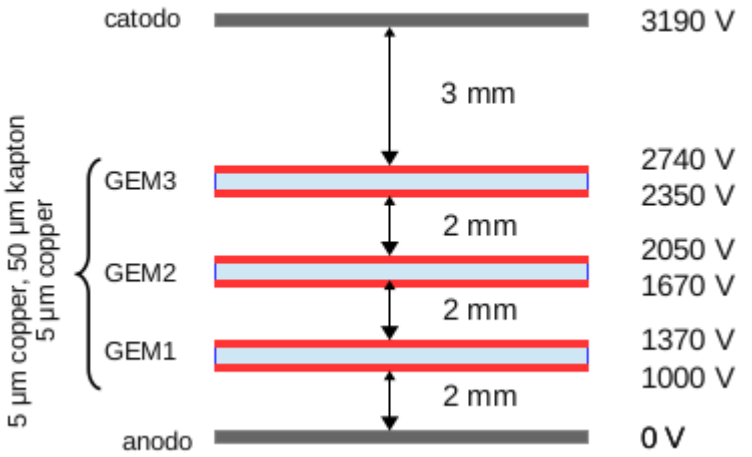
Riccardo Farinelli – 20.10.14

Outline

- Triple CGEM geometry
- Gas simulation
- Field and avalanche simulation

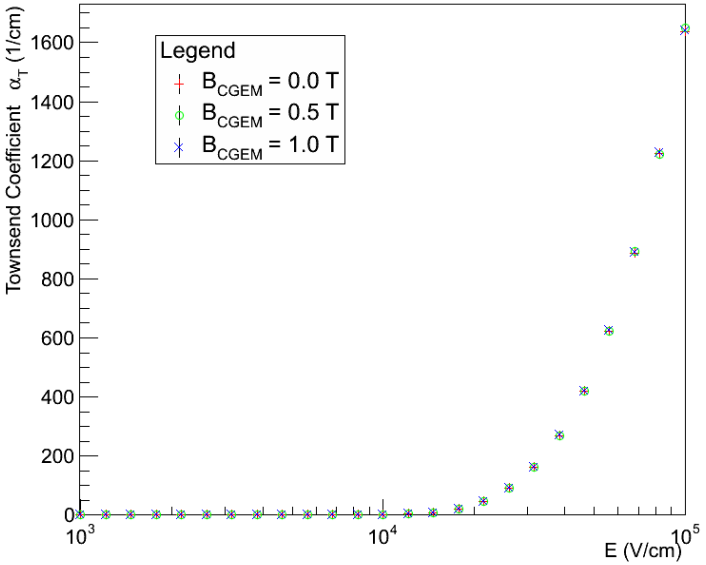
Geometry & Tension

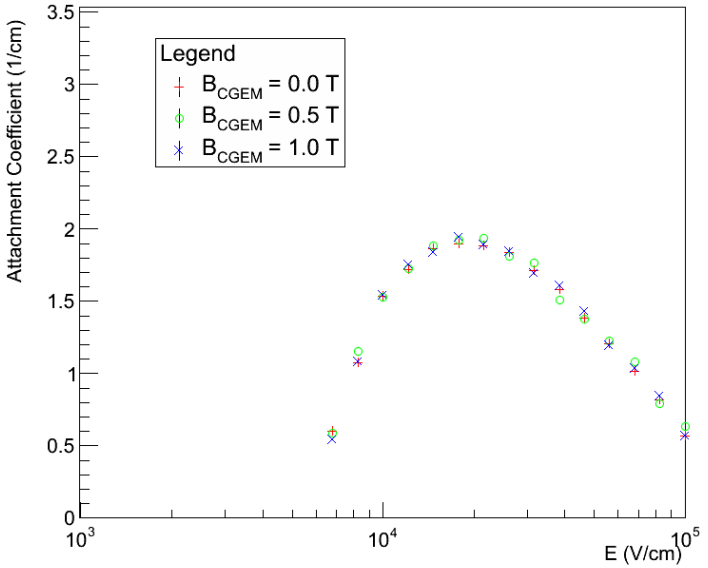




- Gas composition: Ar 70% Co2 30%
- 1,5 kV/cm between G1-G2 and G2-G3
- 50 kV/cm inside the GEMs
- 5,0 kV/cm between G3-anode

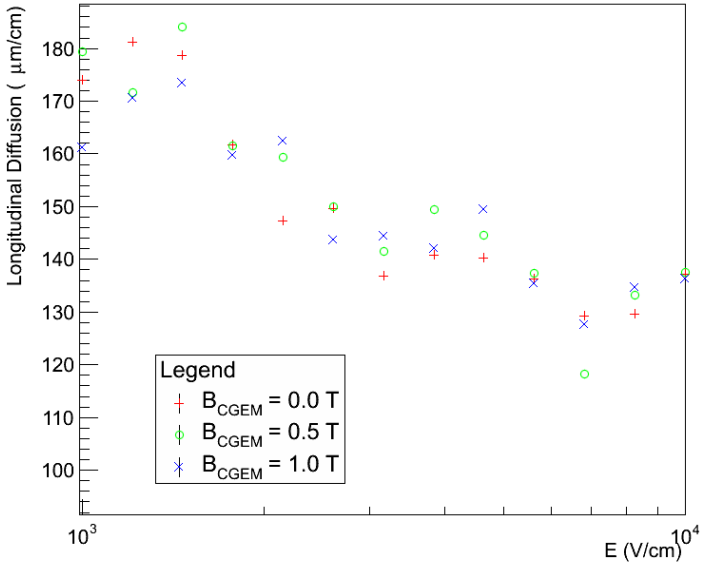
Ar-Co2 behaviour

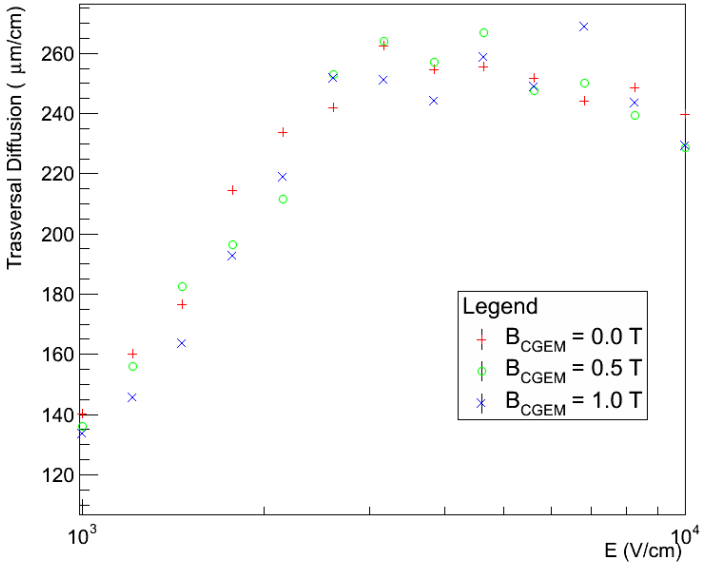


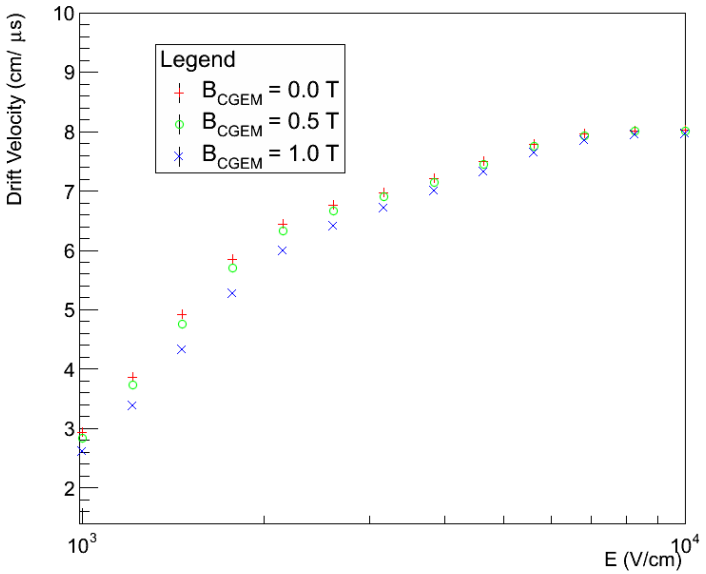


- Gas composition: Ar 70% Co2 30%
- 1,5 kV/cm between G1-G2 and G2-G3
- 50 kV/cm inside the GEMs
- 5,0 kV/cm between G3-anode

Ar-Co2 behaviour

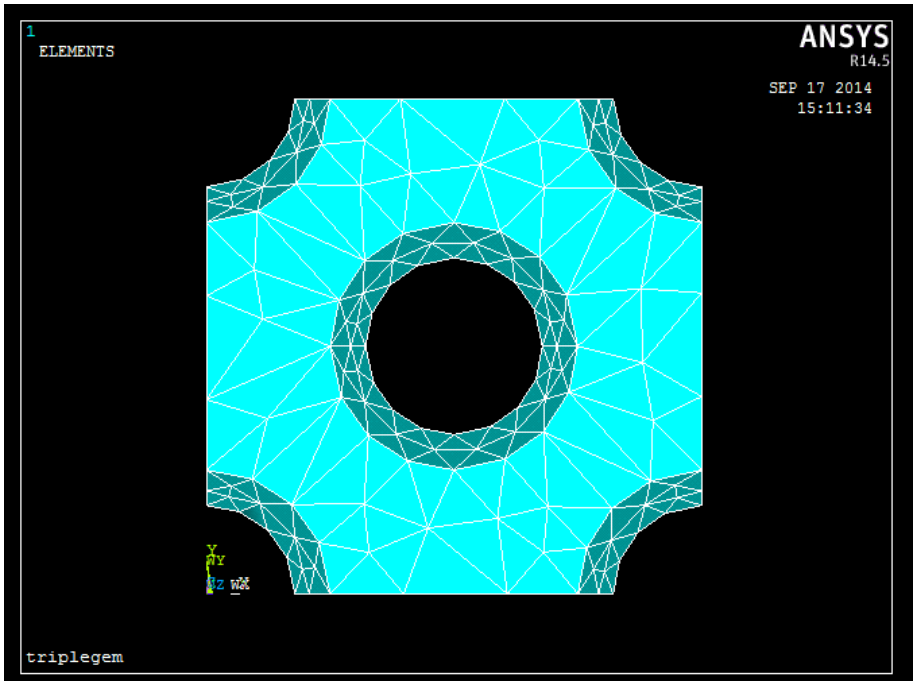


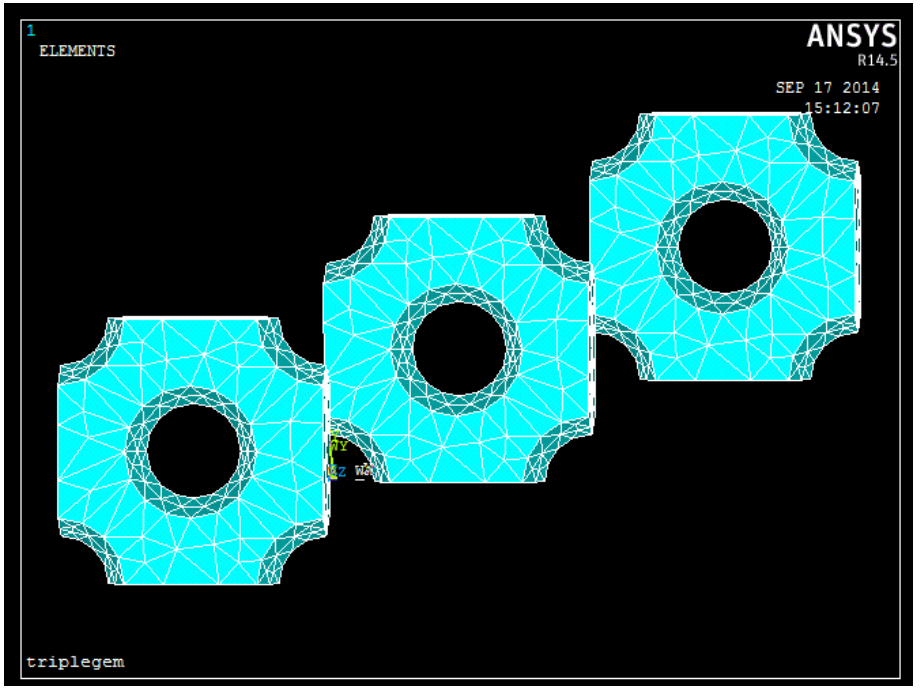




- Gas composition: Ar 70% Co2 30%
- 1,5 kV/cm between G1-G2 and G2-G3
- 50 kV/cm inside the GEMs
- 5,0 kV/cm between G3-anode

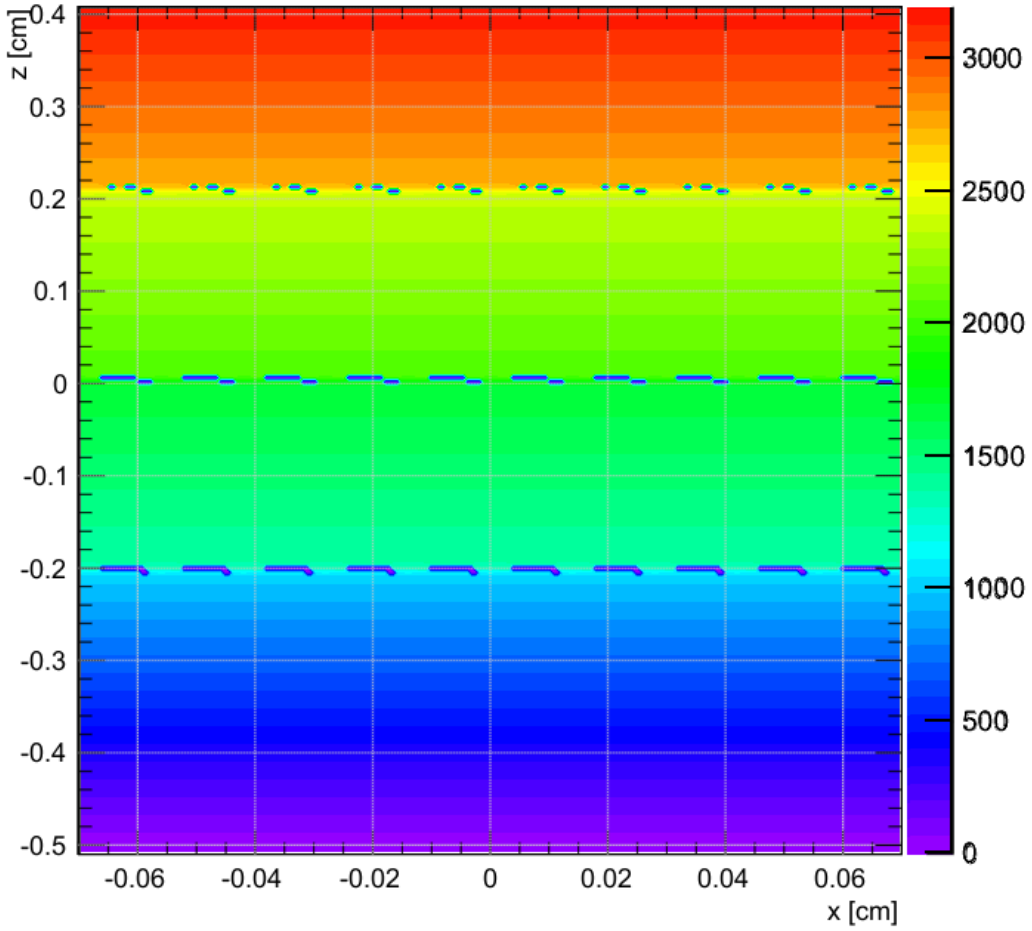
ANSYS simulation

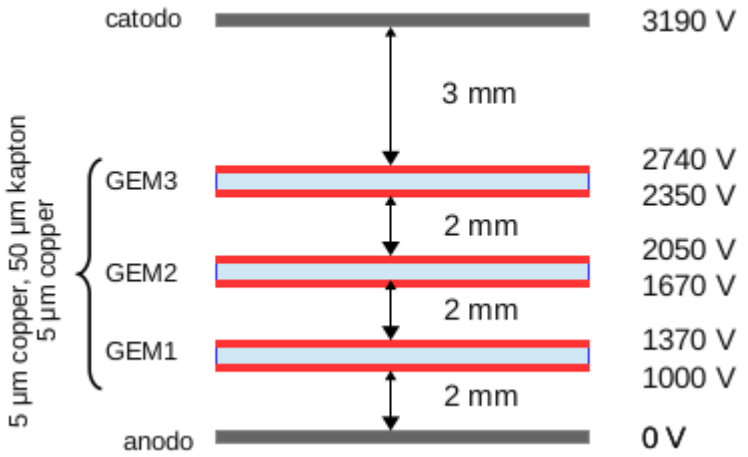




- 5 µm copper / 50 µm kapton / 5 µm copper
- Inner hole = 55 µ**m**
- Pitch = 140 µm
- Distance between layers = 2 mm

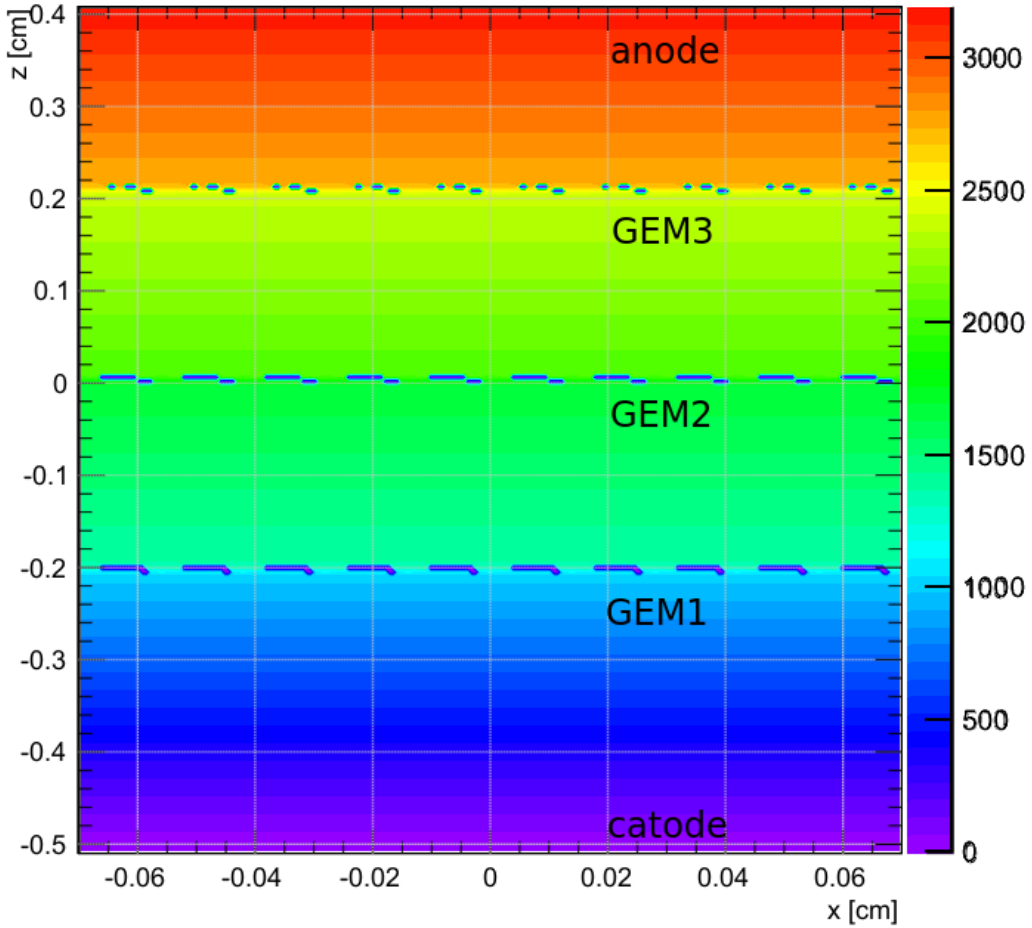
Garfield simulation

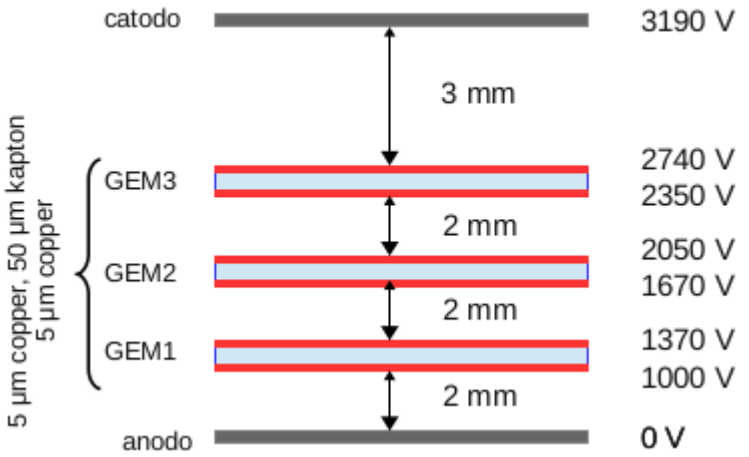




- 5 µm copper / 50 µm kapton / 5 µm copper
- Inner hole = 55 µ**m**
- Pitch = 140 µm
- Distance between layers = 2 mm

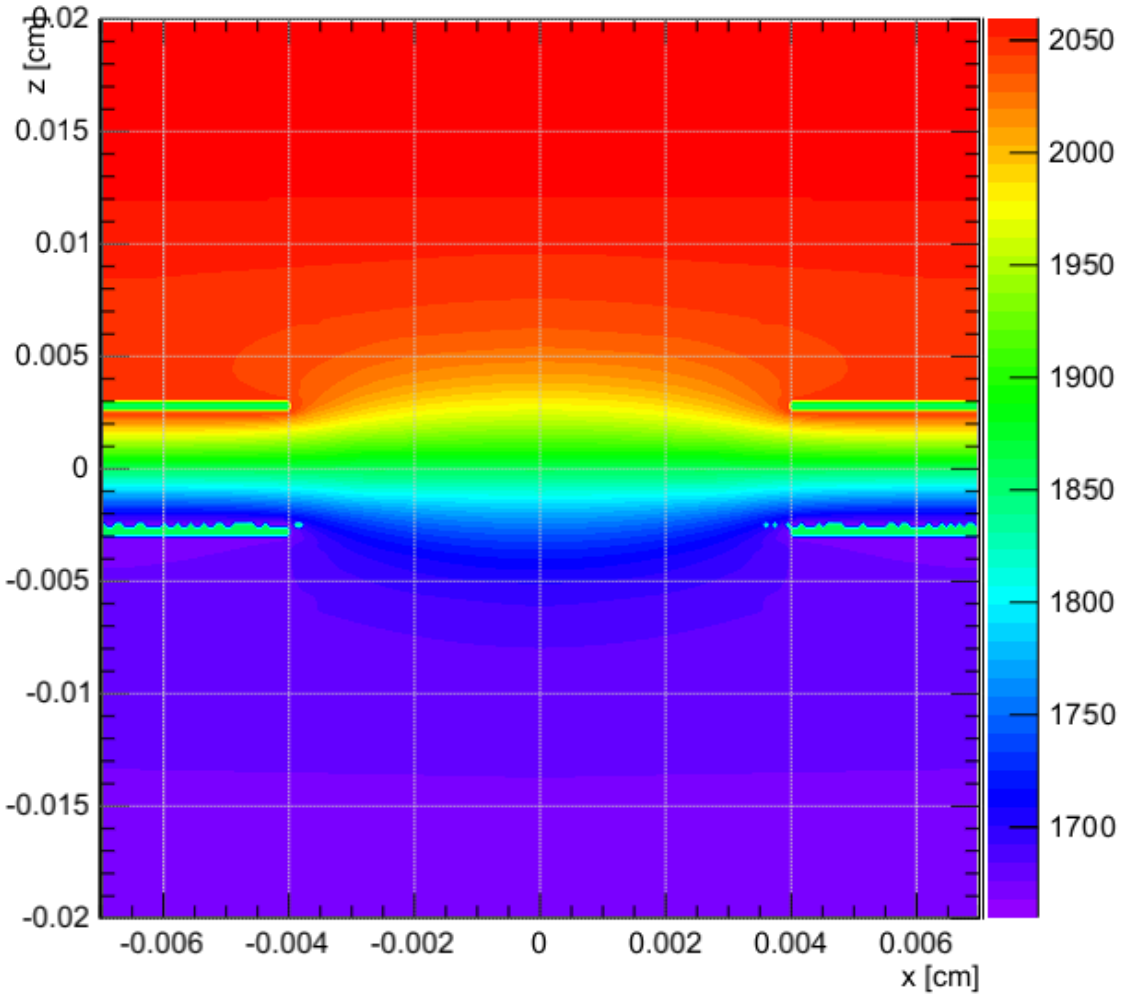
Garfield simulation

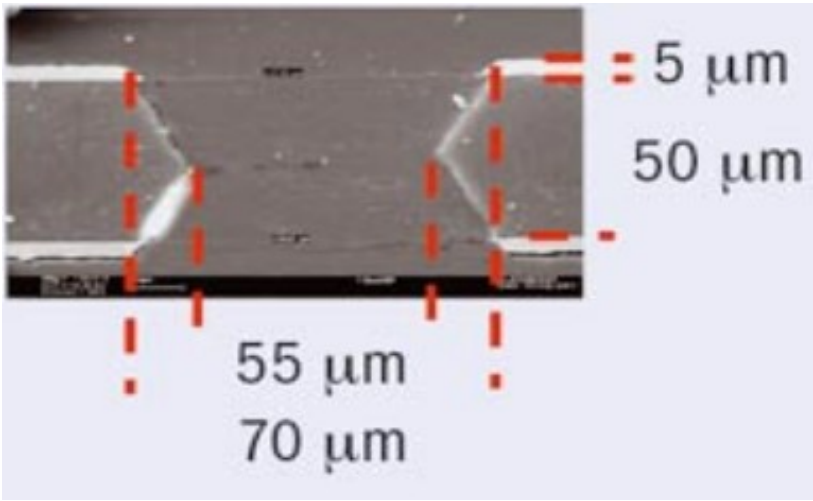




- 5 µm copper / 50 µm kapton / 5 µm copper
- Inner hole = 55 µ**m**
- Pitch = 140 µm
- Distance between layers = 2 mm

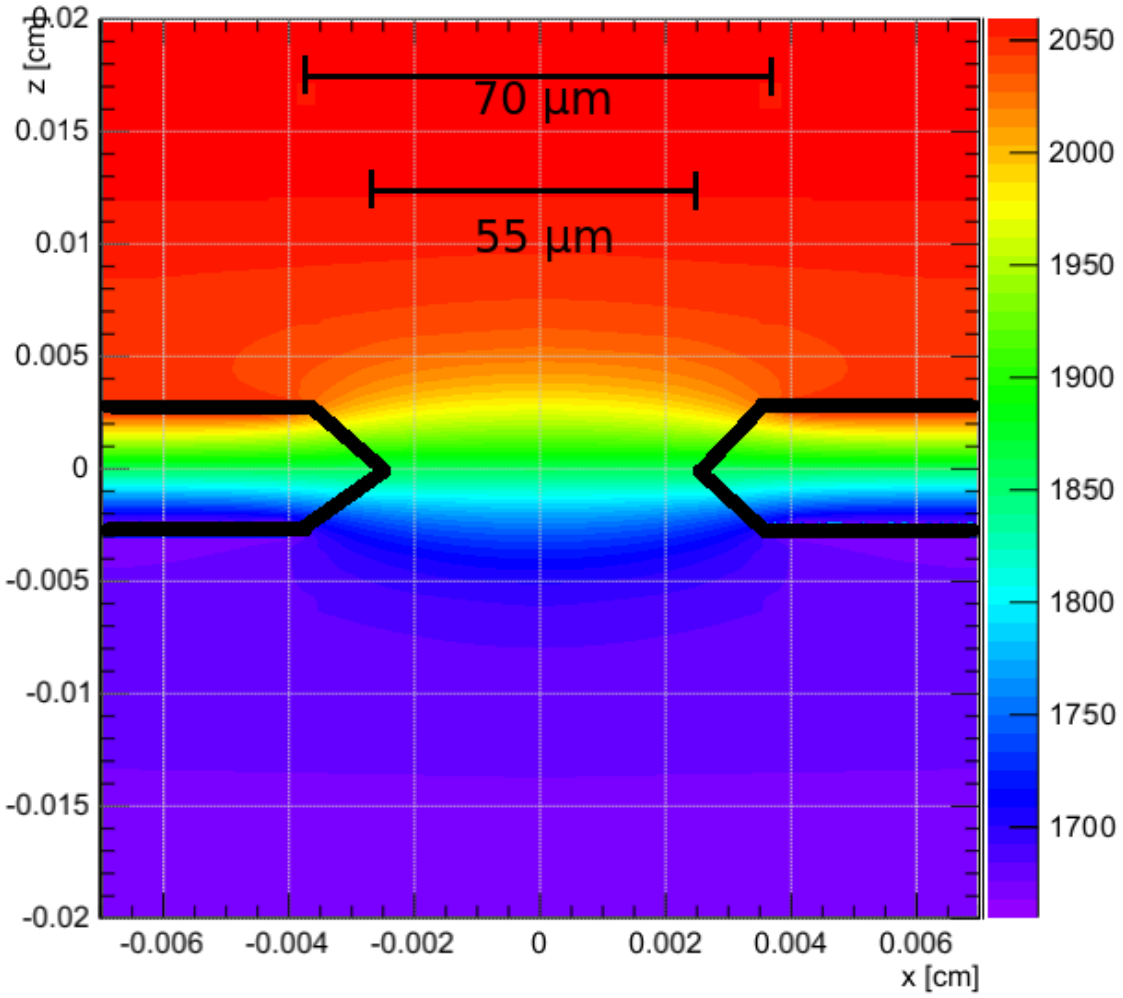
Garfield simulation

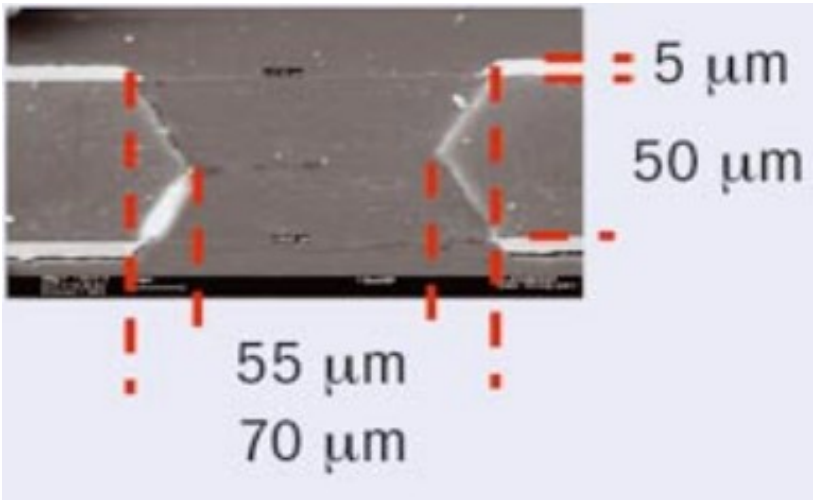




- 5 µm copper / 50 µm kapton / 5 µm copper
- Inner hole = 55 µ**m**
- Pitch = 140 µm
- Distance between layers = 2 mm

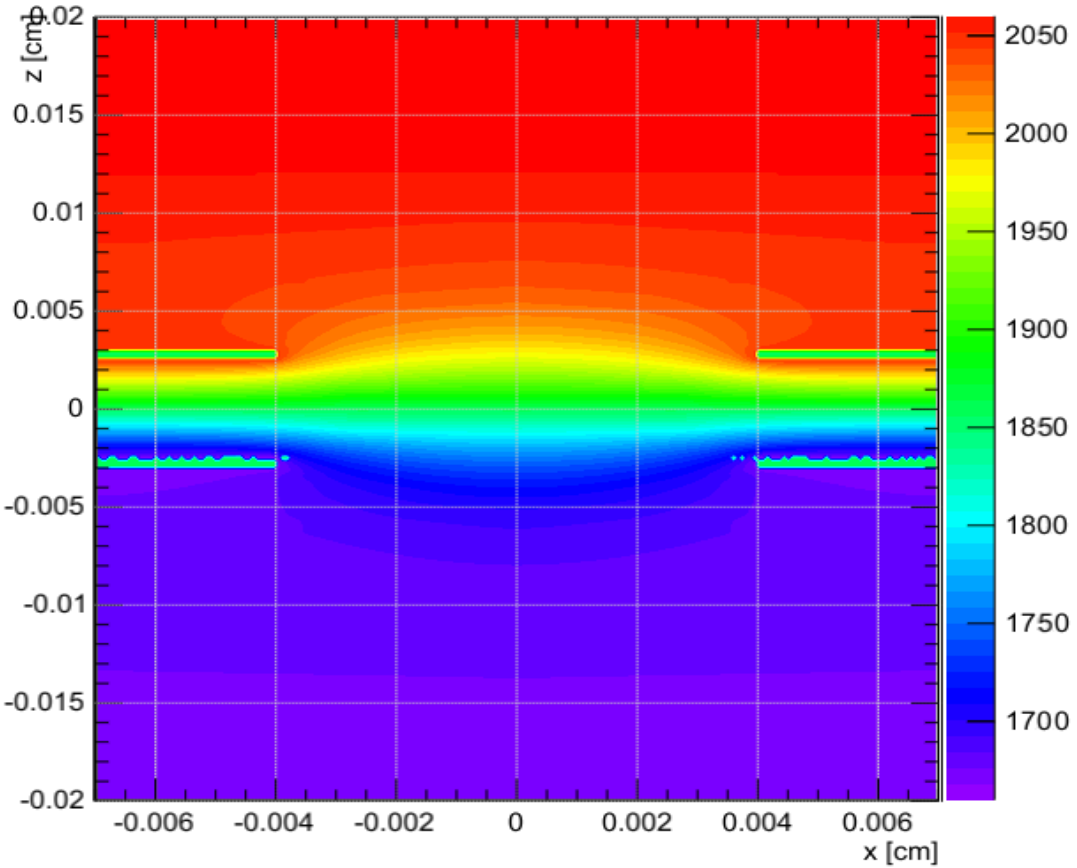
Garfield simulation

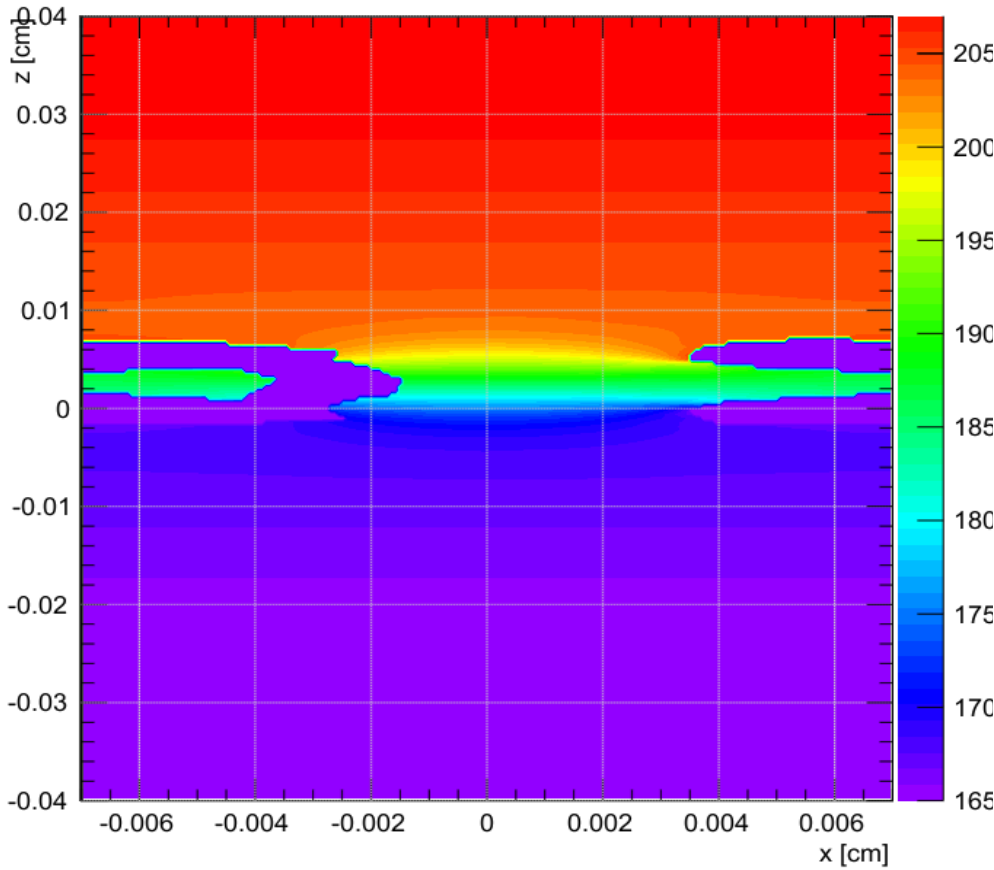




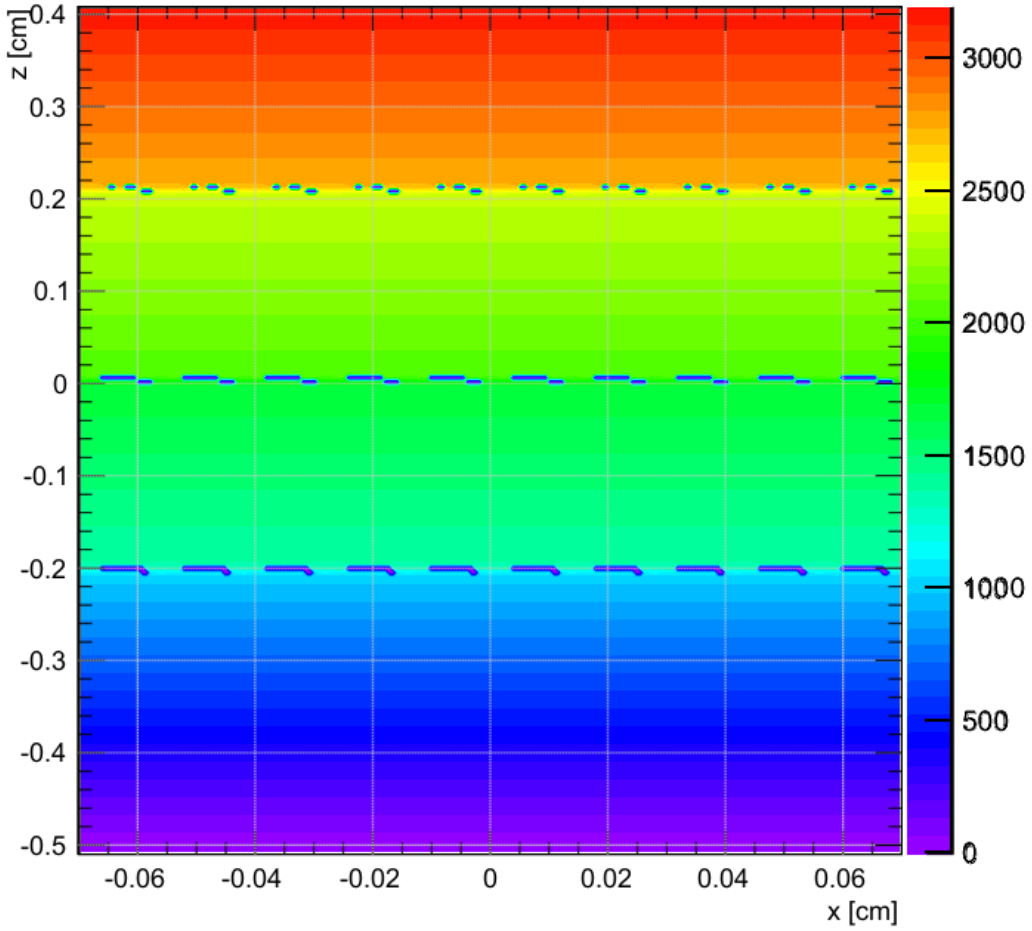
- 5 µm copper / 50 µm kapton / 5 µm copper
- Inner hole = 55 µ**m**
- Pitch = 140 µm
- Distance between layers = 2 mm

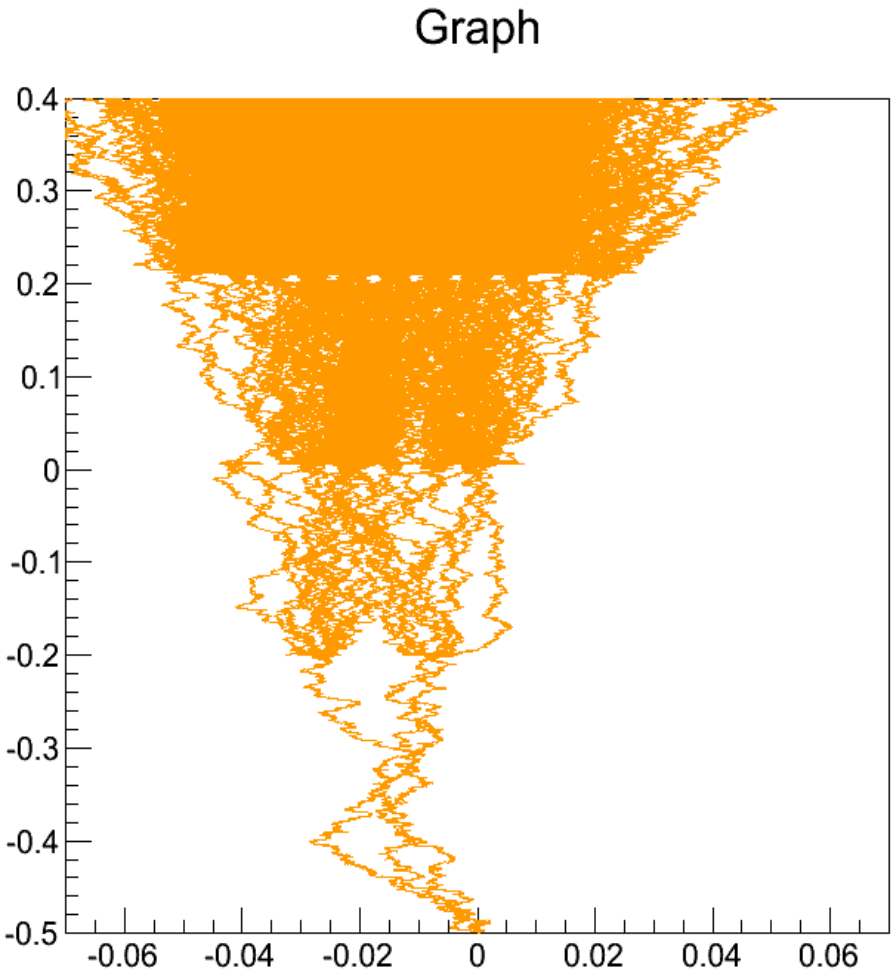
Garfield simulation





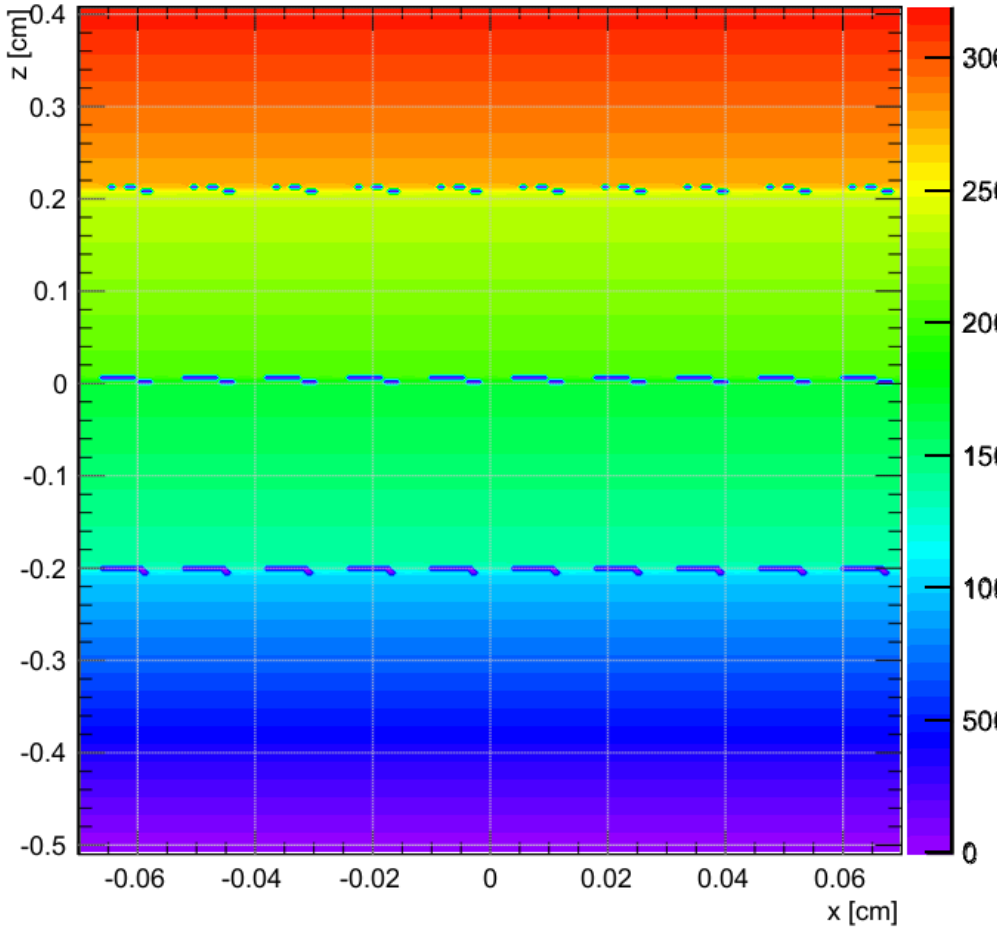
Avalanche simulation

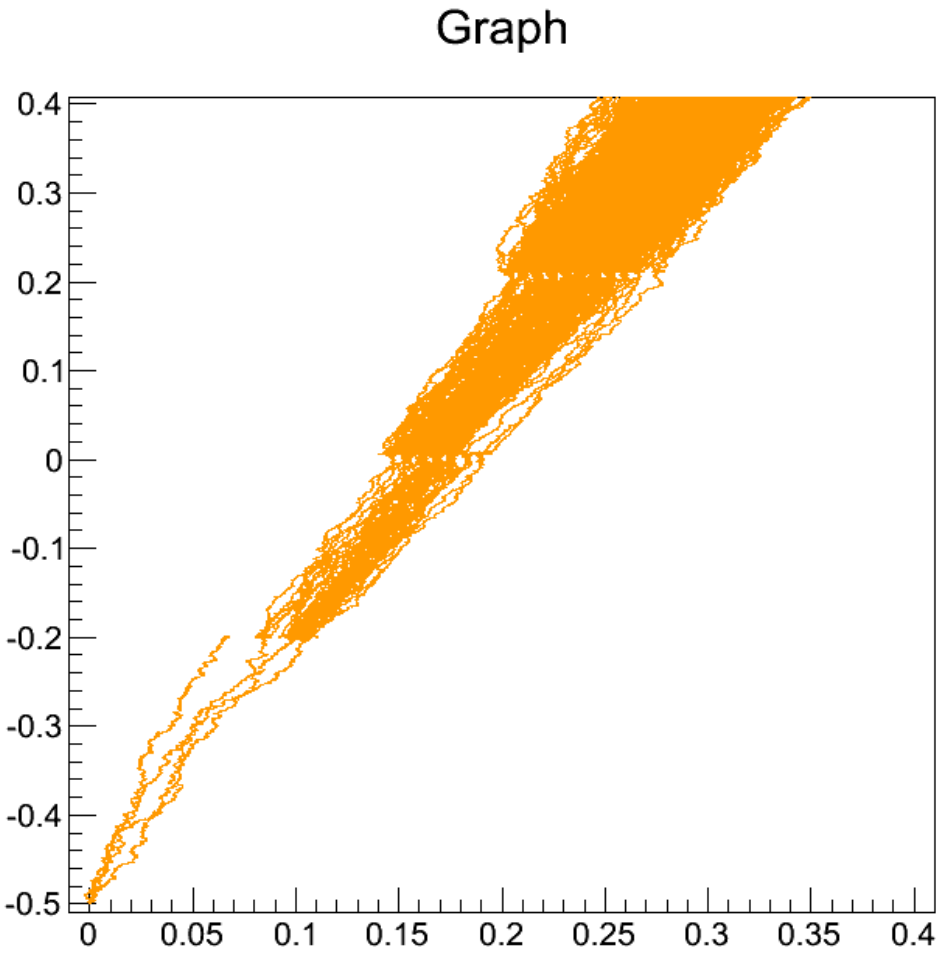




B = 0.0 T

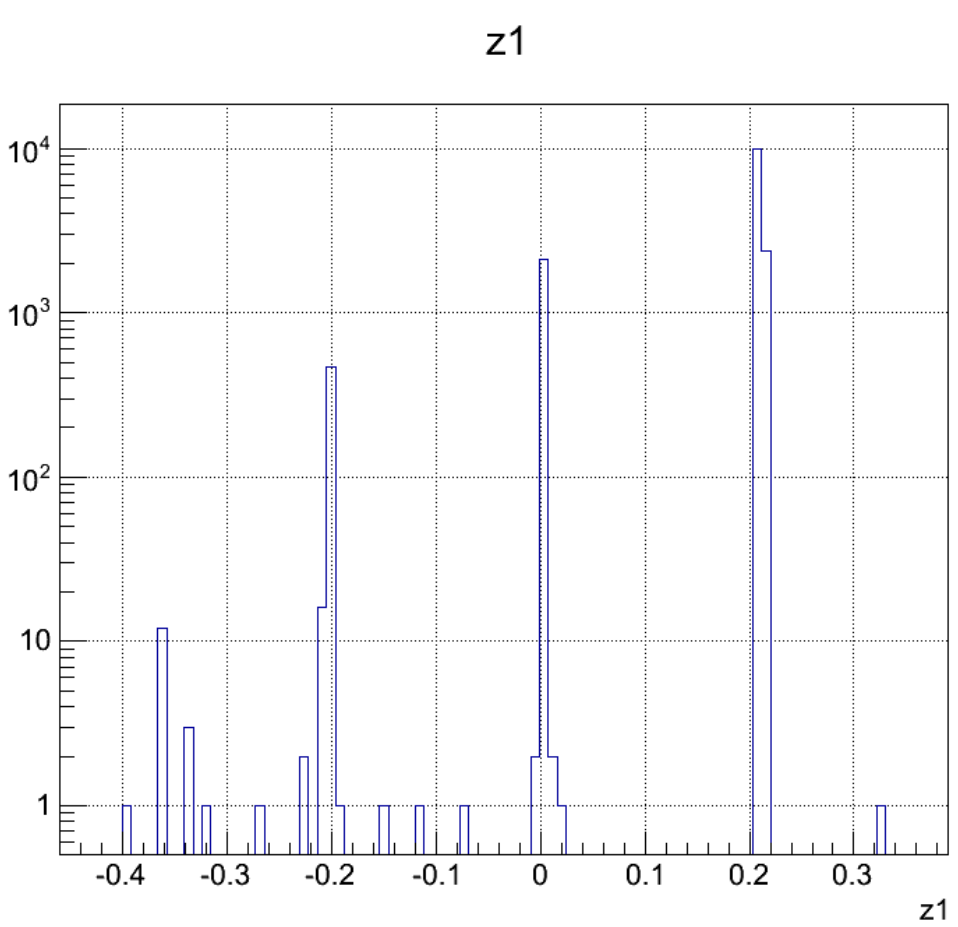
Avalanche simulation



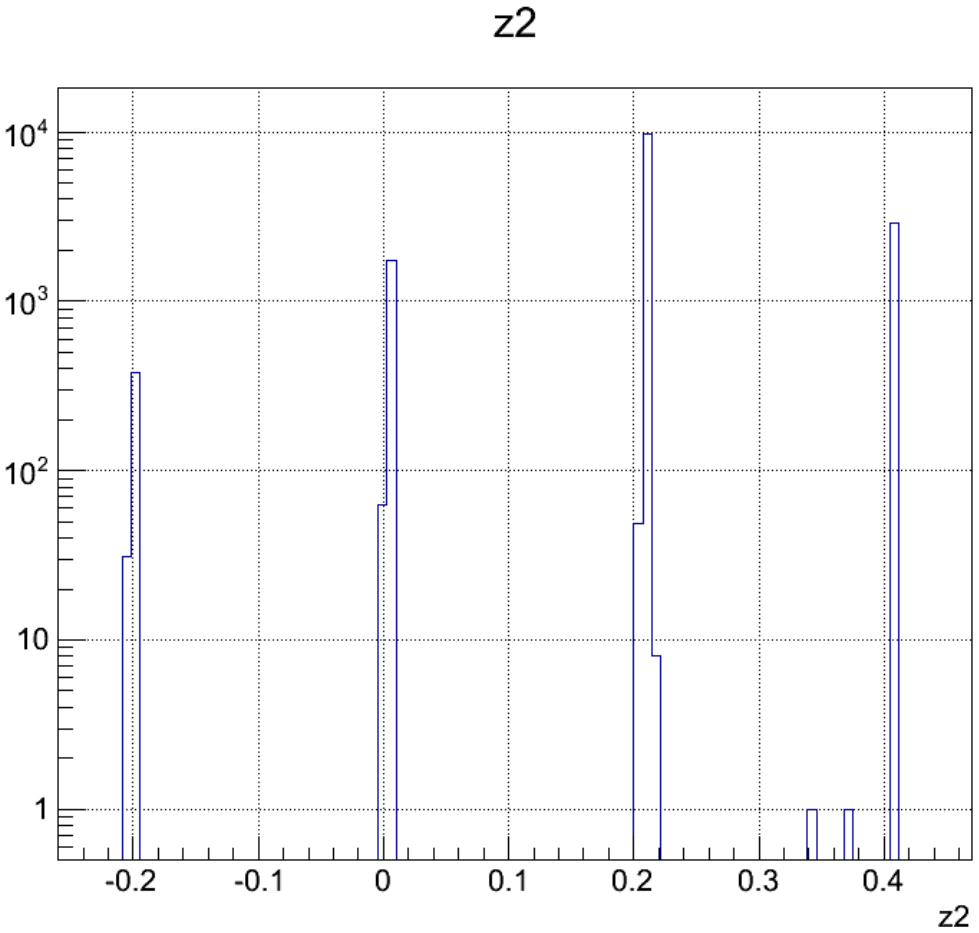


B = 1.0 T

Electron multiplication B=1T

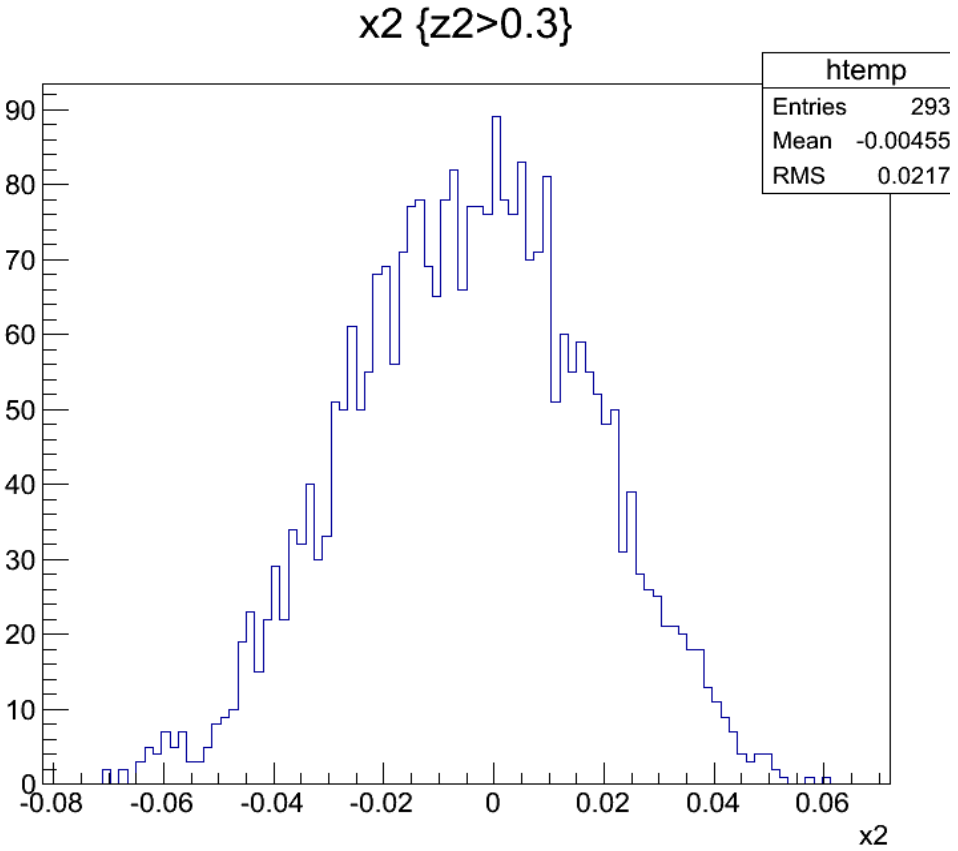


Z coordinate of generated electrons

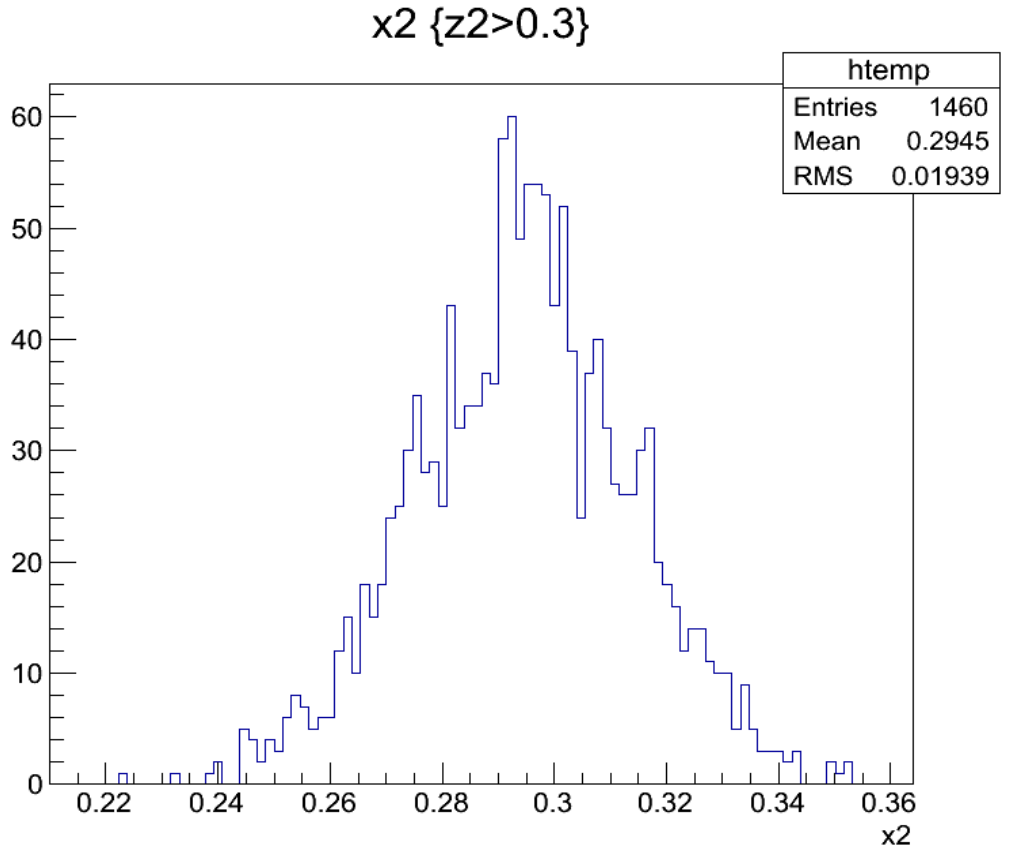


Z coordinate of stopped electrons

Avalanche: spatial distribution @ anode

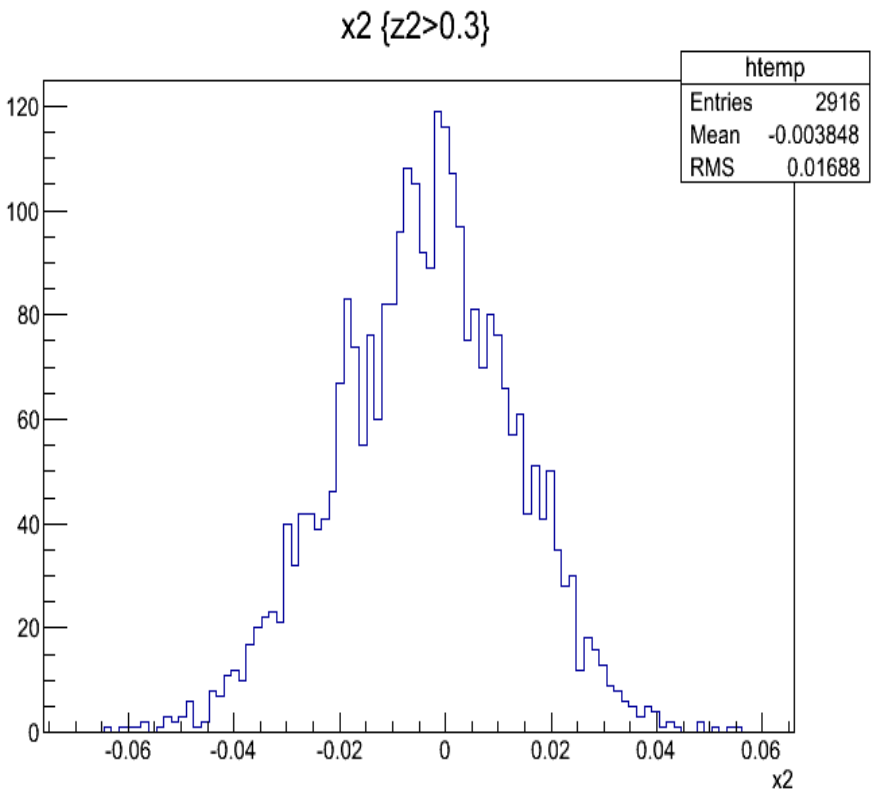


B = 0.0 T

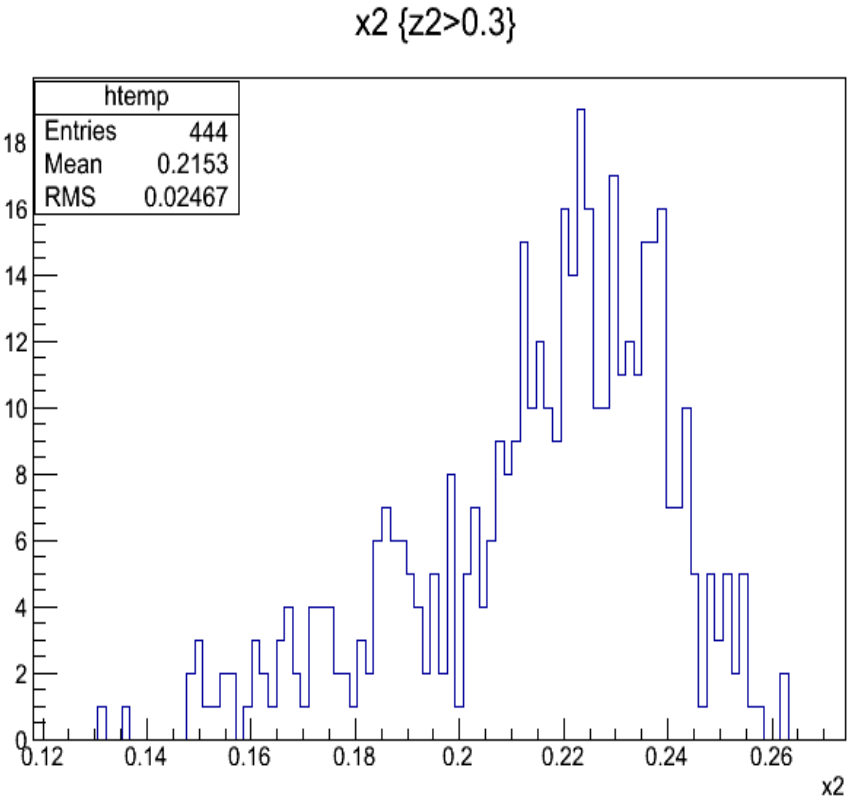


B = 1.0 T

Pion:
spatial distribution @ anode



B = 0.0 T



B = 1.0 T


Thanks