

Simulations for Forward Spectator Detector in CBM

Ruijia Yang

FSD Meeting | 21.07.2025

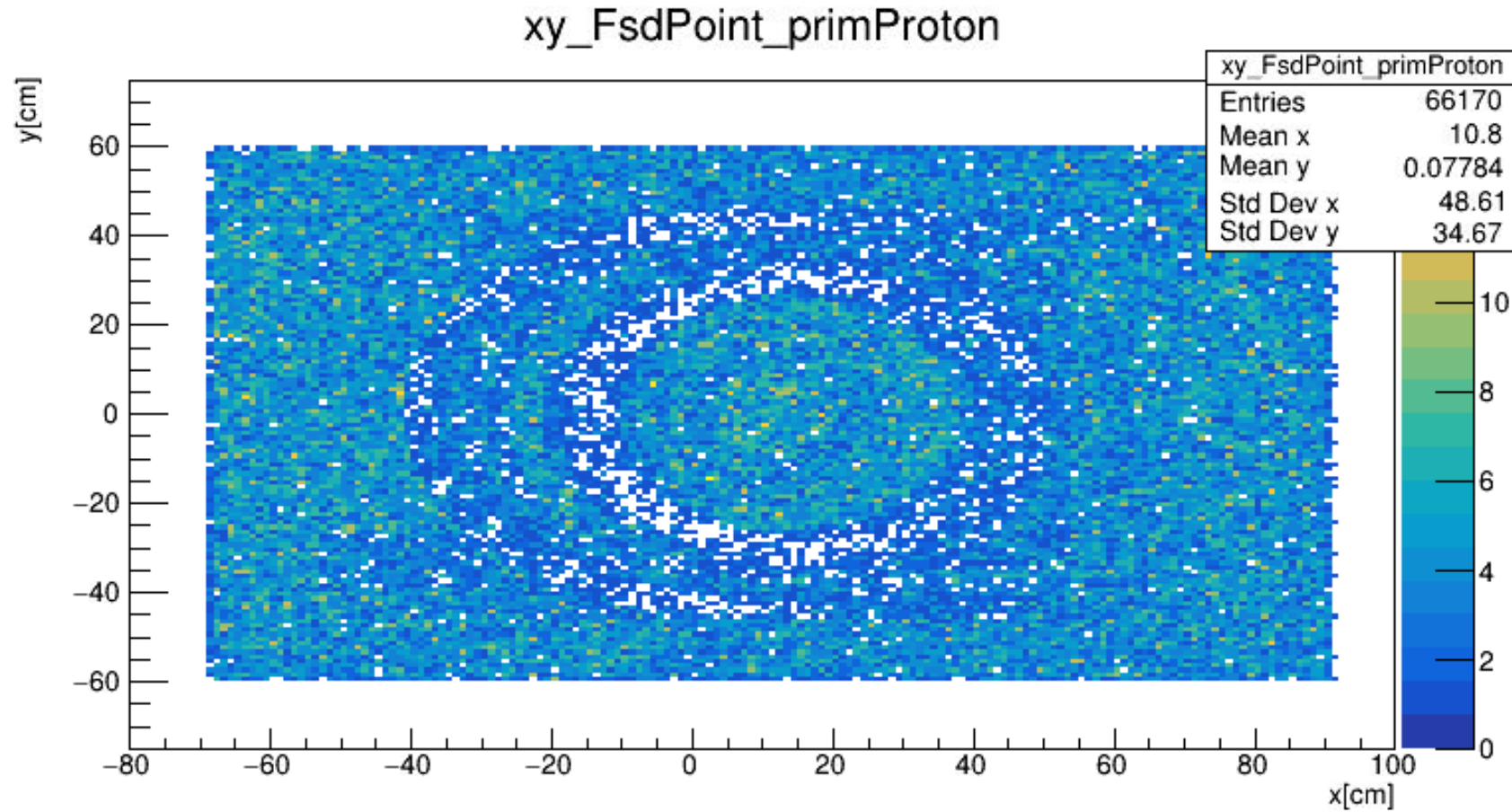
Simulation

- Beam: proton 12 GeV/c
- Events: 100,000

```
97     "subsystems": {
98         "magnet": "v22a",
99         "pipe": "v21d:v23a",
100        "mvd": "v20d_tr",
101        "sts": "v22d",
102        "rich": "v23a",
103        "trd": "v20b_1e",
104        "tof": "v21a_1e",
105        "psd": "",
106        "fsd": "v23a",
107        "platform": "v22b"
108    }
```

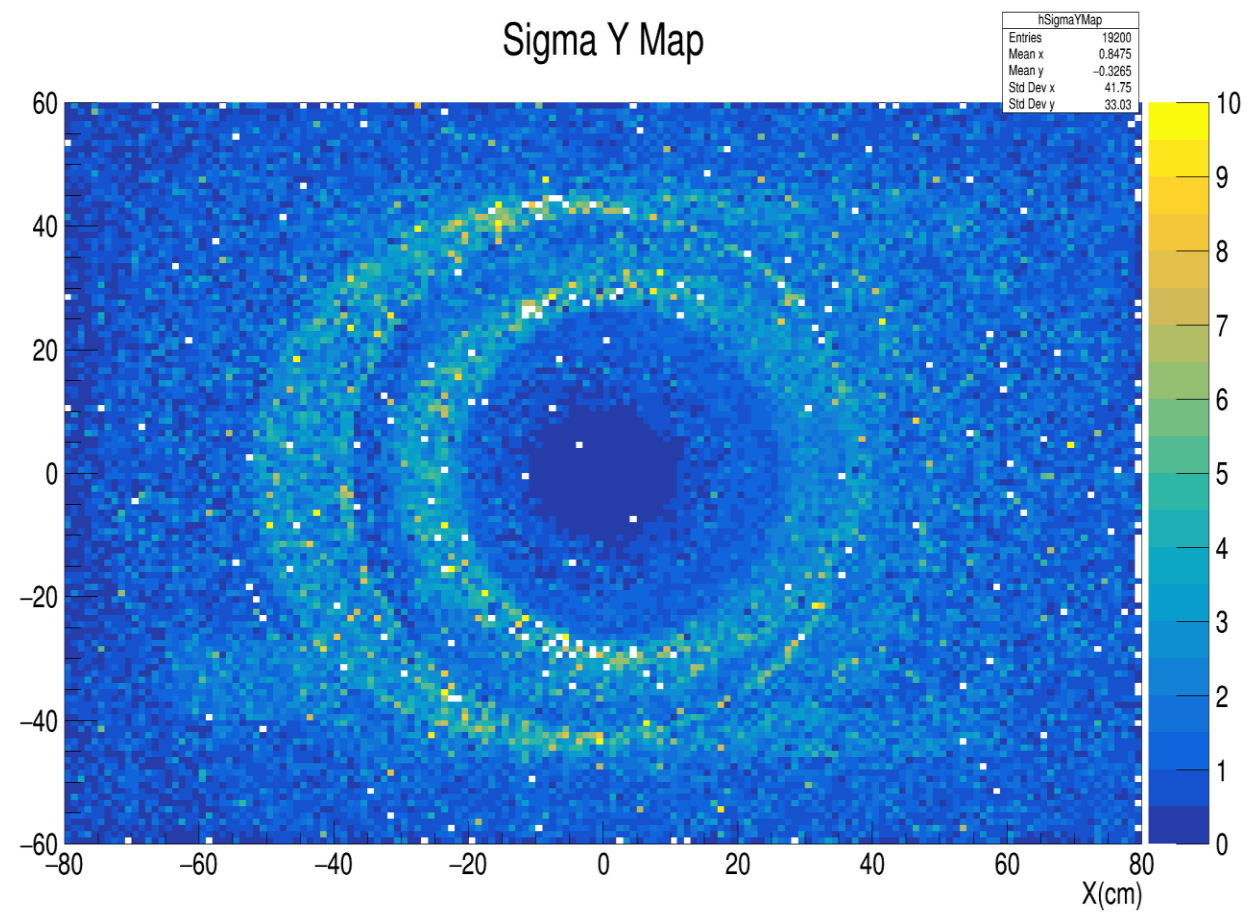
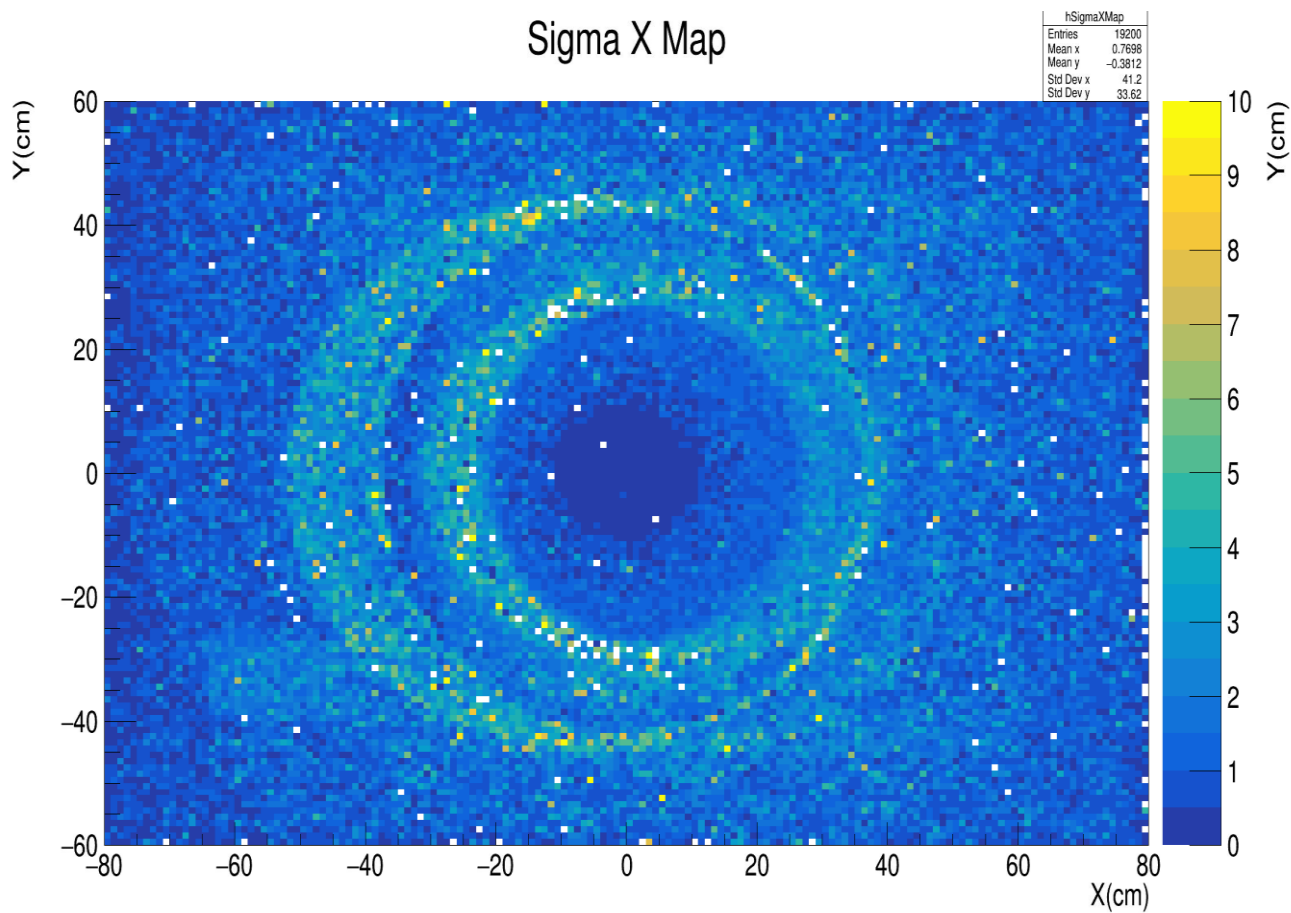
Simulation

- Beam: proton 12 GeV/c
- Events: 100,000*10



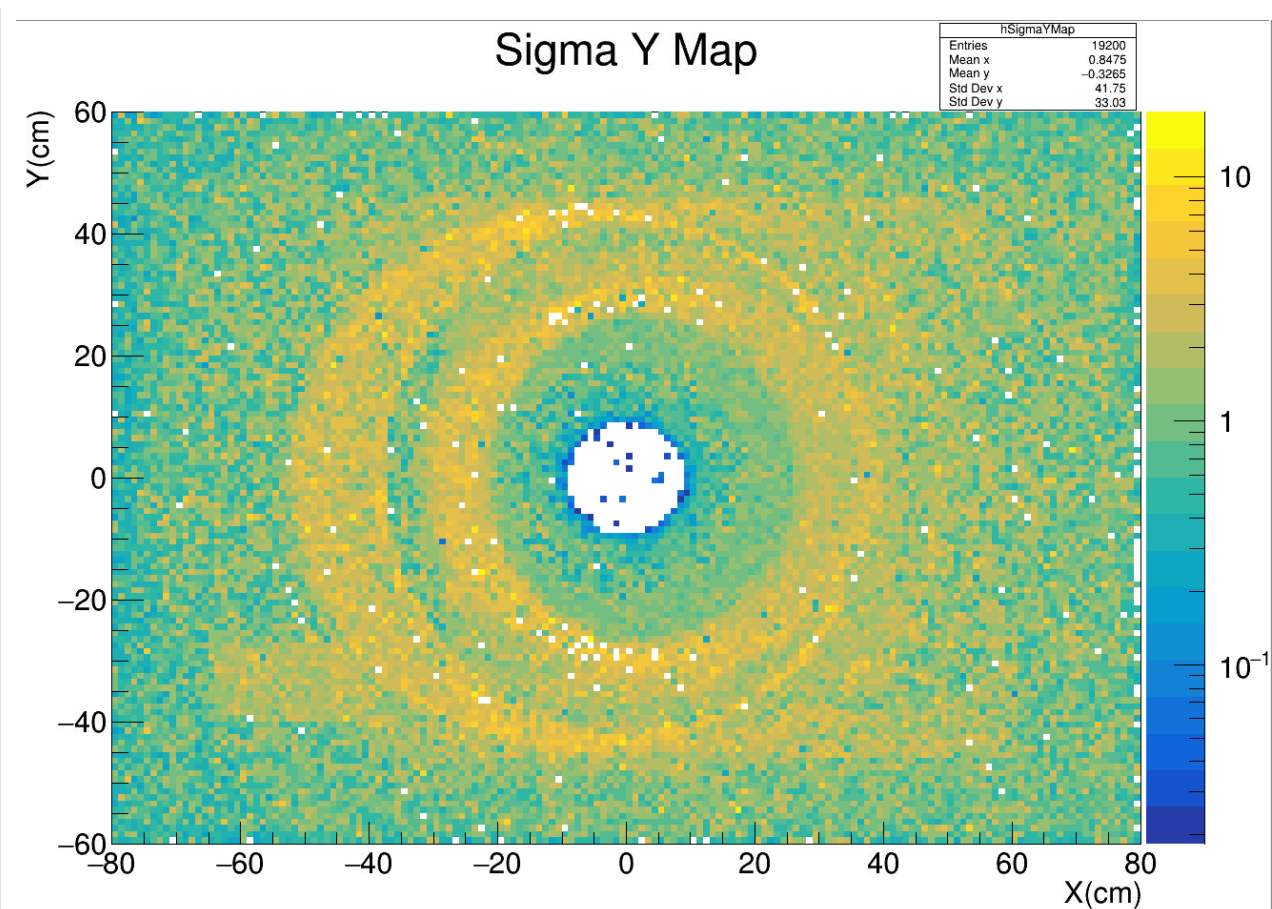
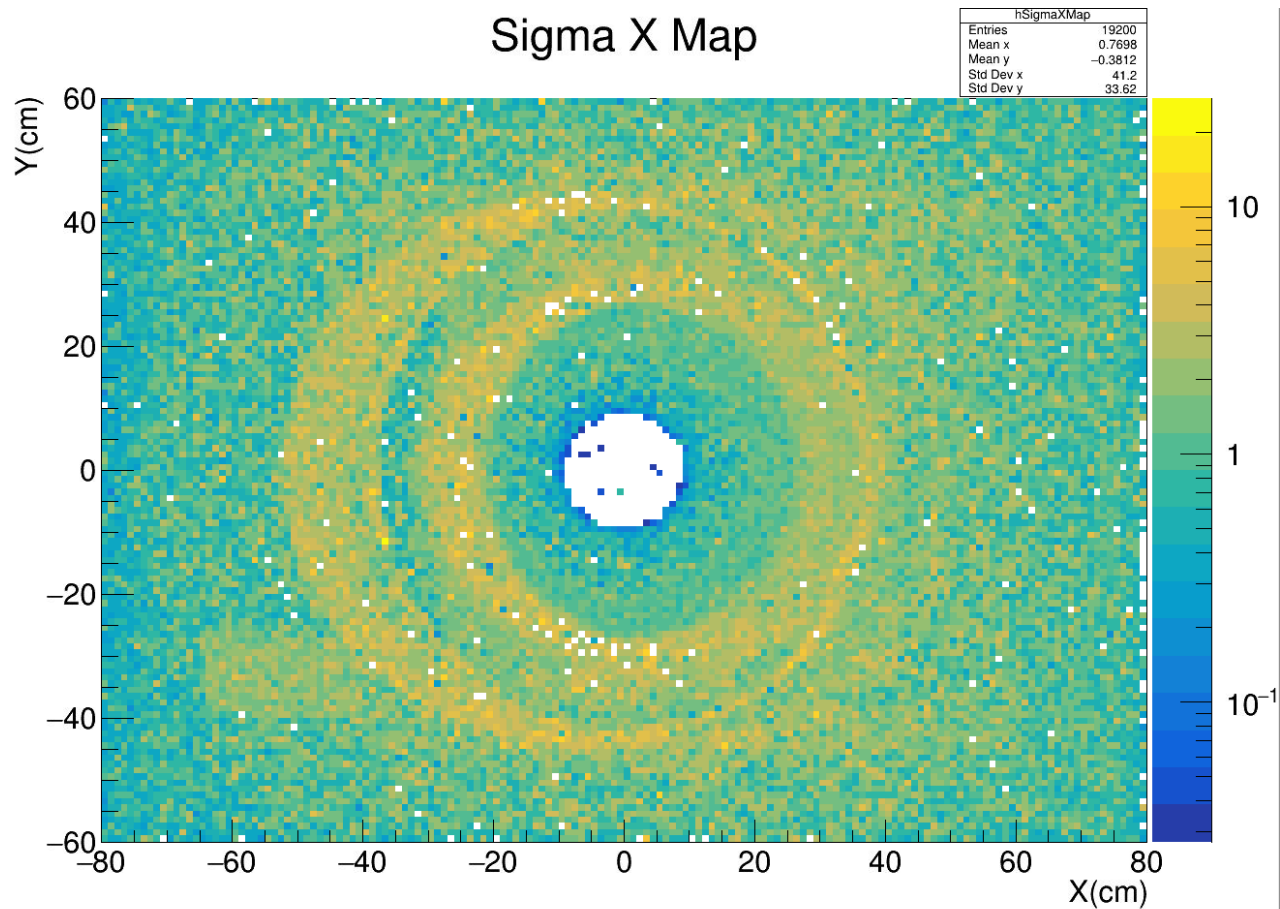
Simulation – 1cm x 1cm

- Beam: proton 12 GeV/c
- Events: 100,000*10
- Plots: RMS



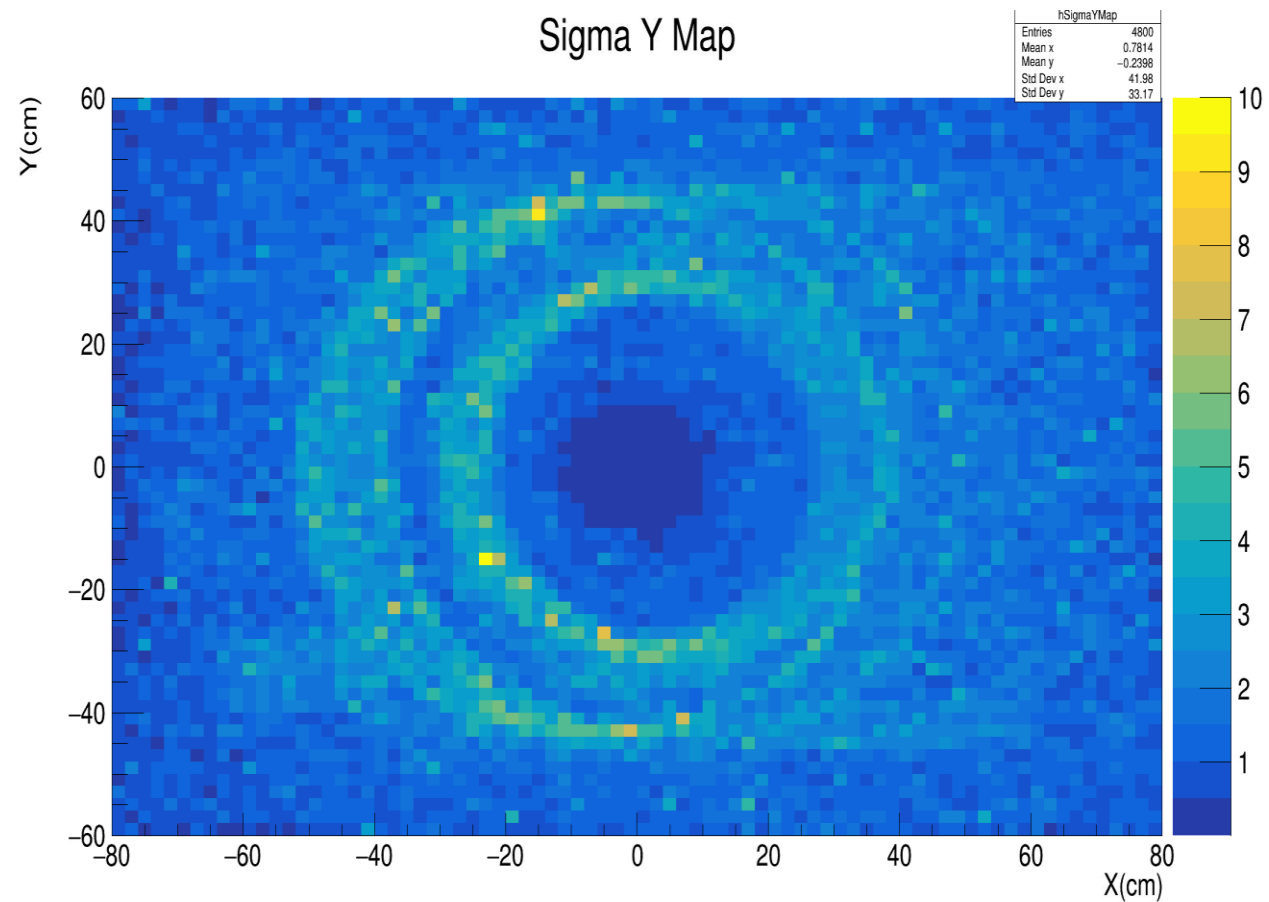
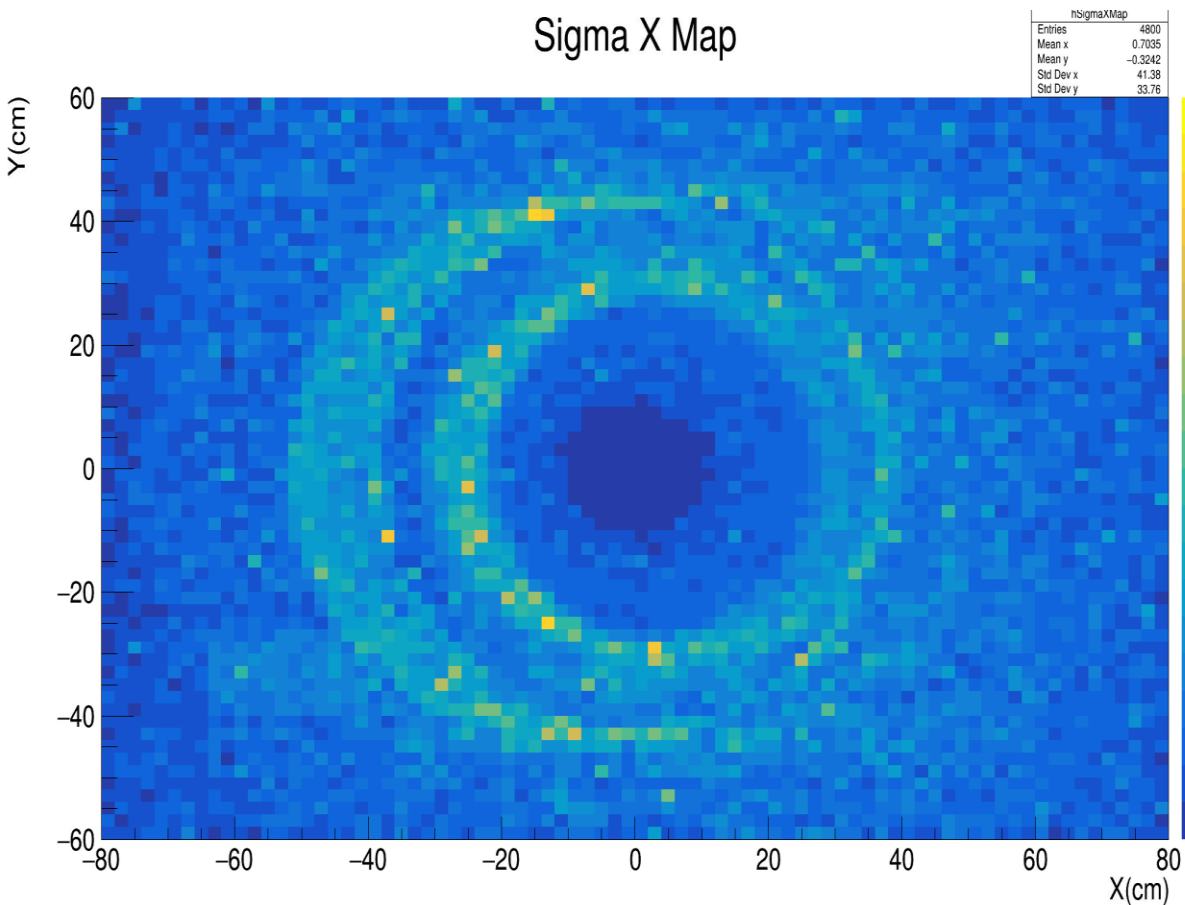
Simulation – 1cm x 1cm

- Beam: proton 12 GeV/c
- Events: 100,000*10



Simulation – 2cm x 2cm

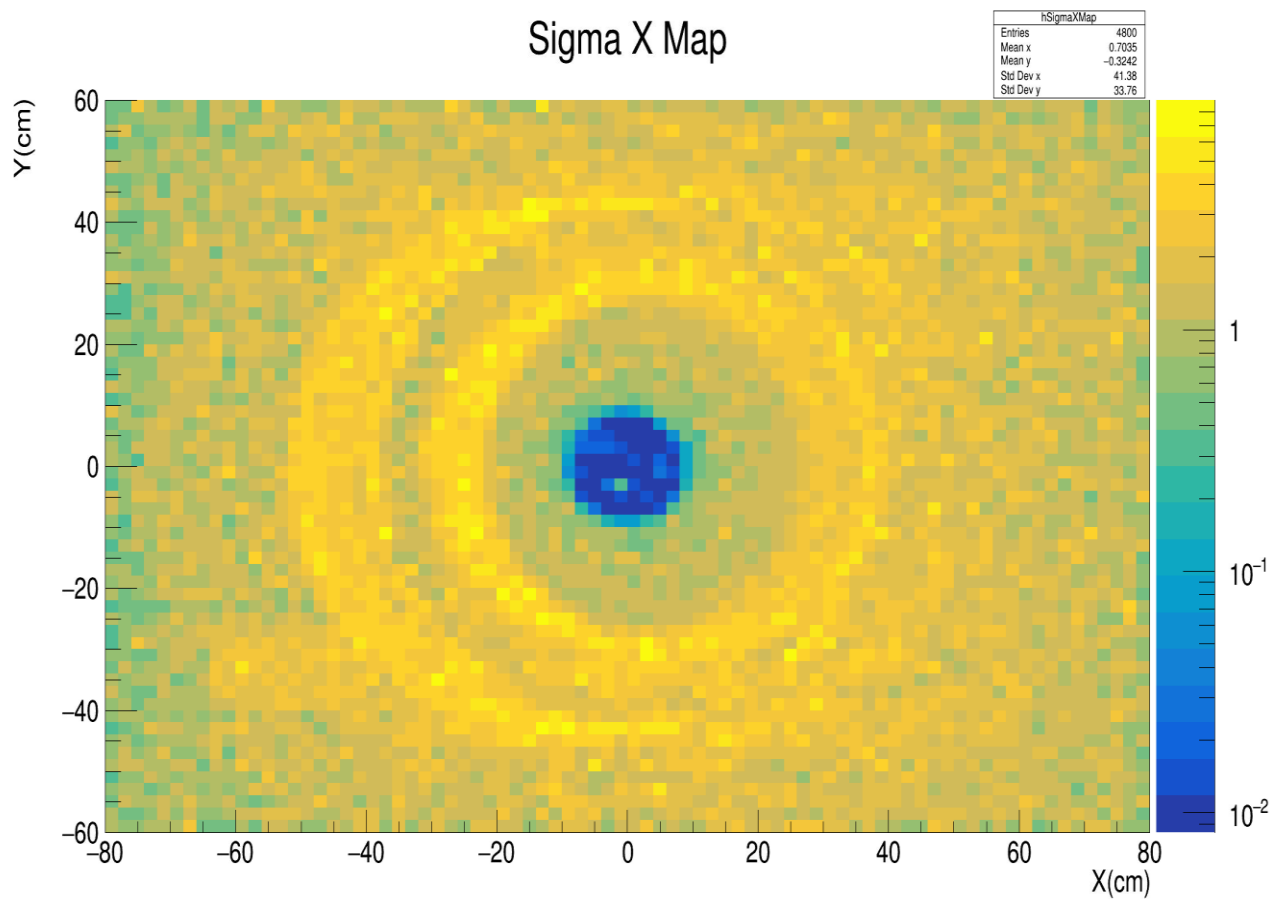
- Beam: proton 12 GeV/c
- Events: 100,000*10



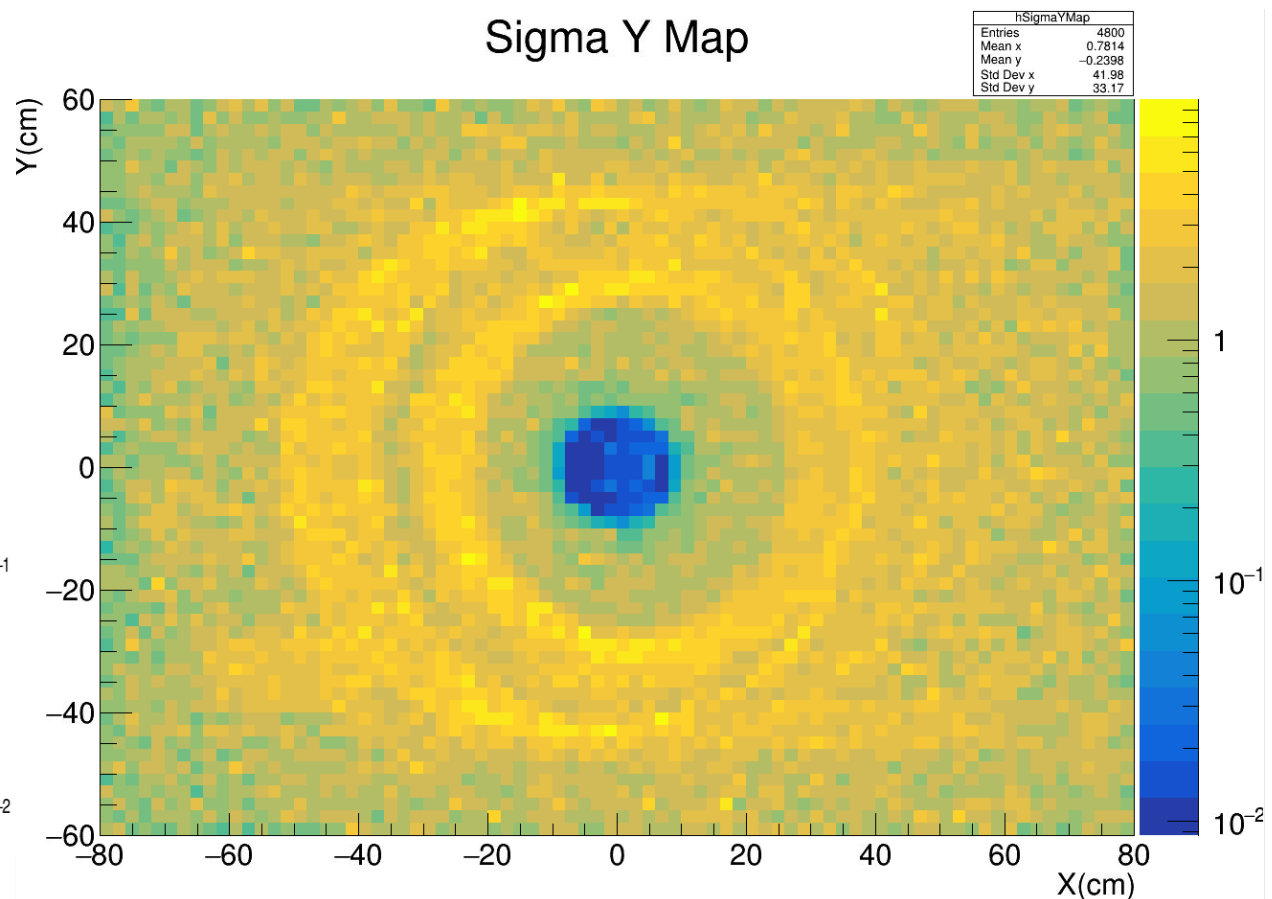
Simulation – 2cm x 2cm

- Beam: proton 12 GeV/c
- Events: 100,000*10

Sigma X Map

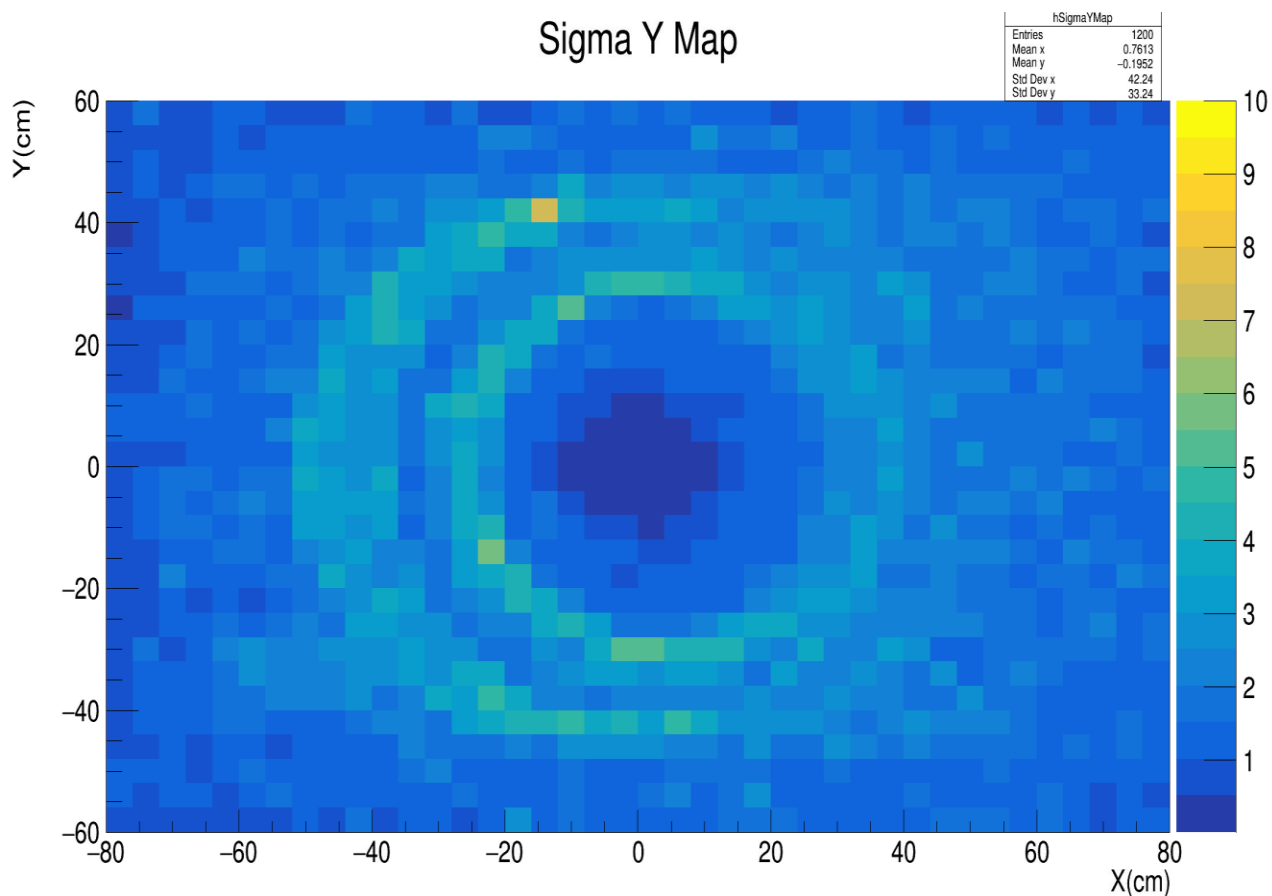
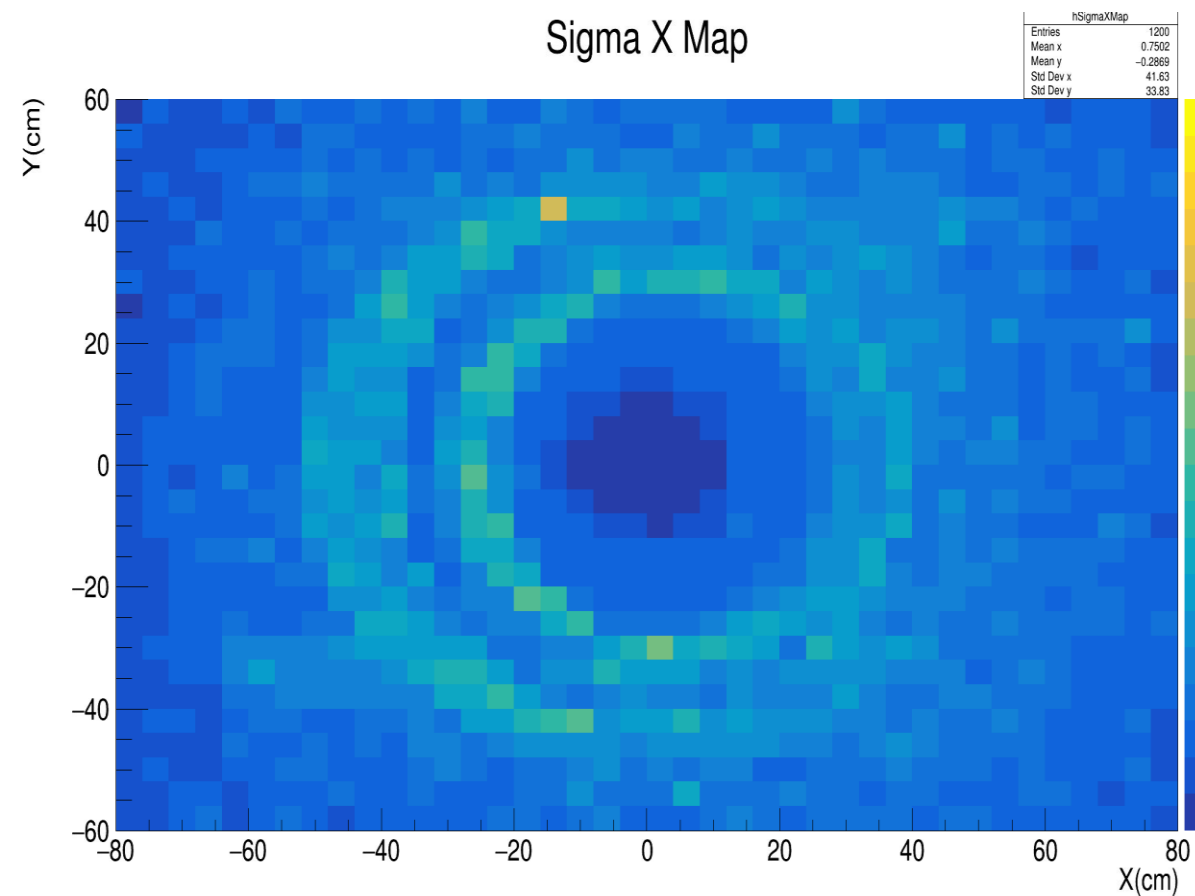


Sigma Y Map



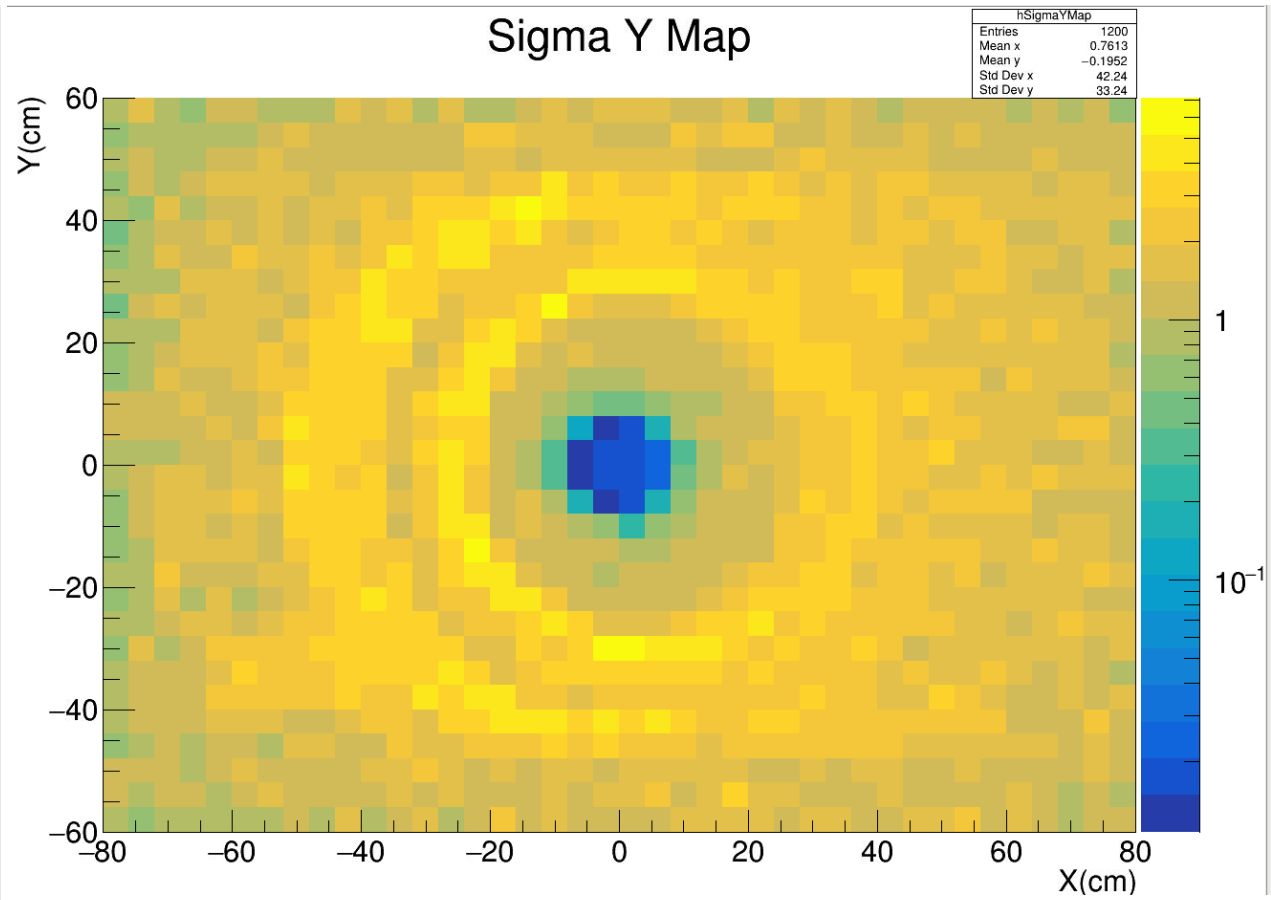
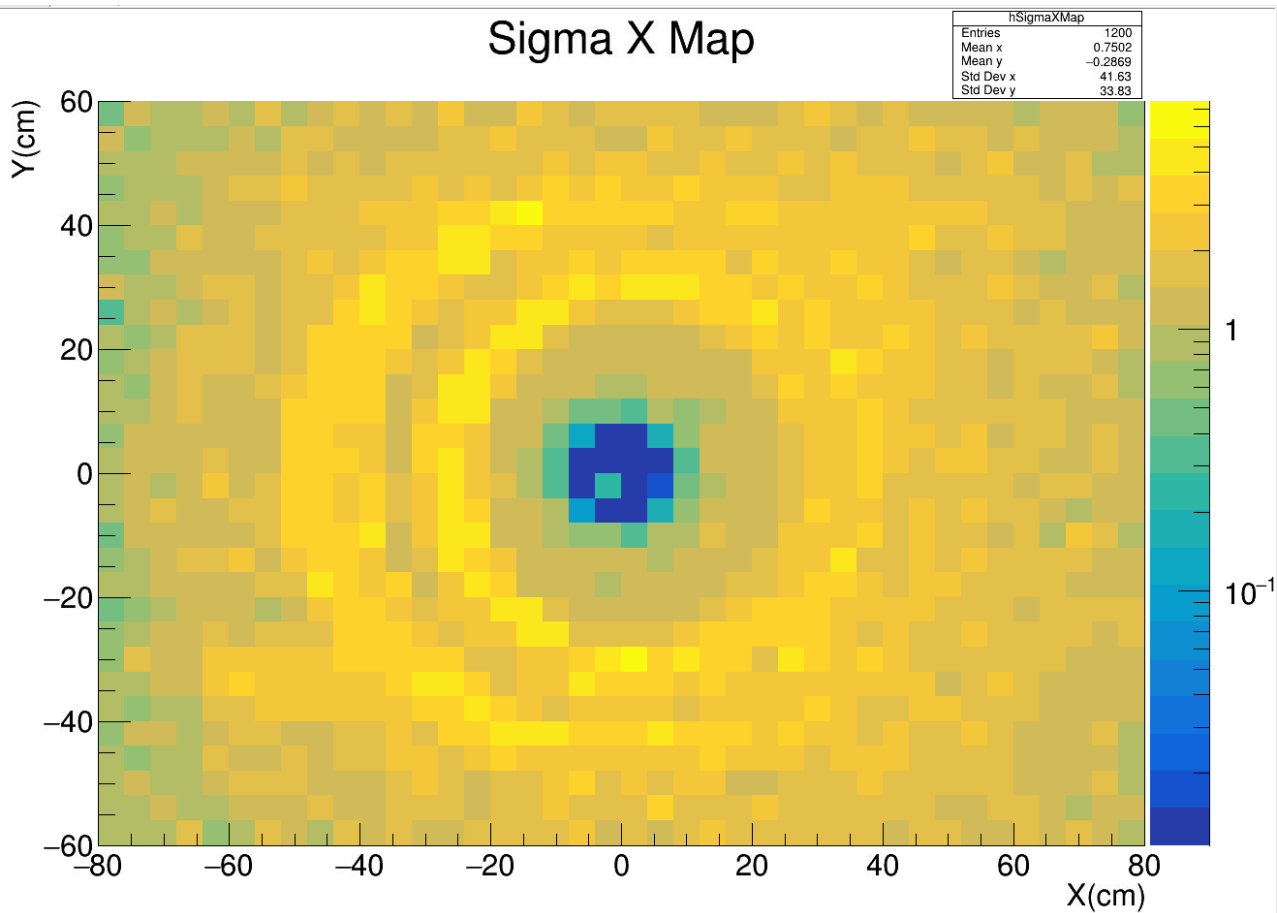
Simulation – 4cm x 4cm

- Beam: proton 12 GeV/c
- Events: 100,000*10



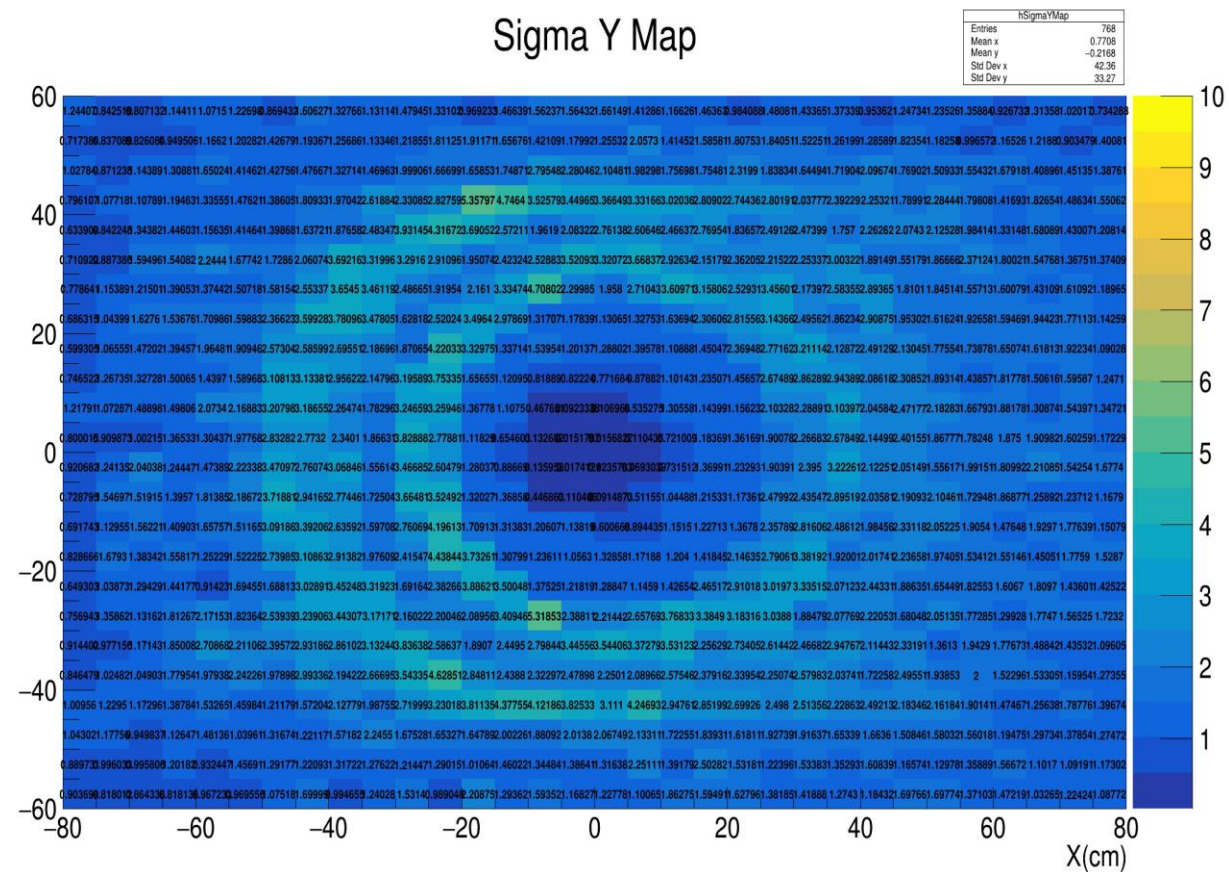
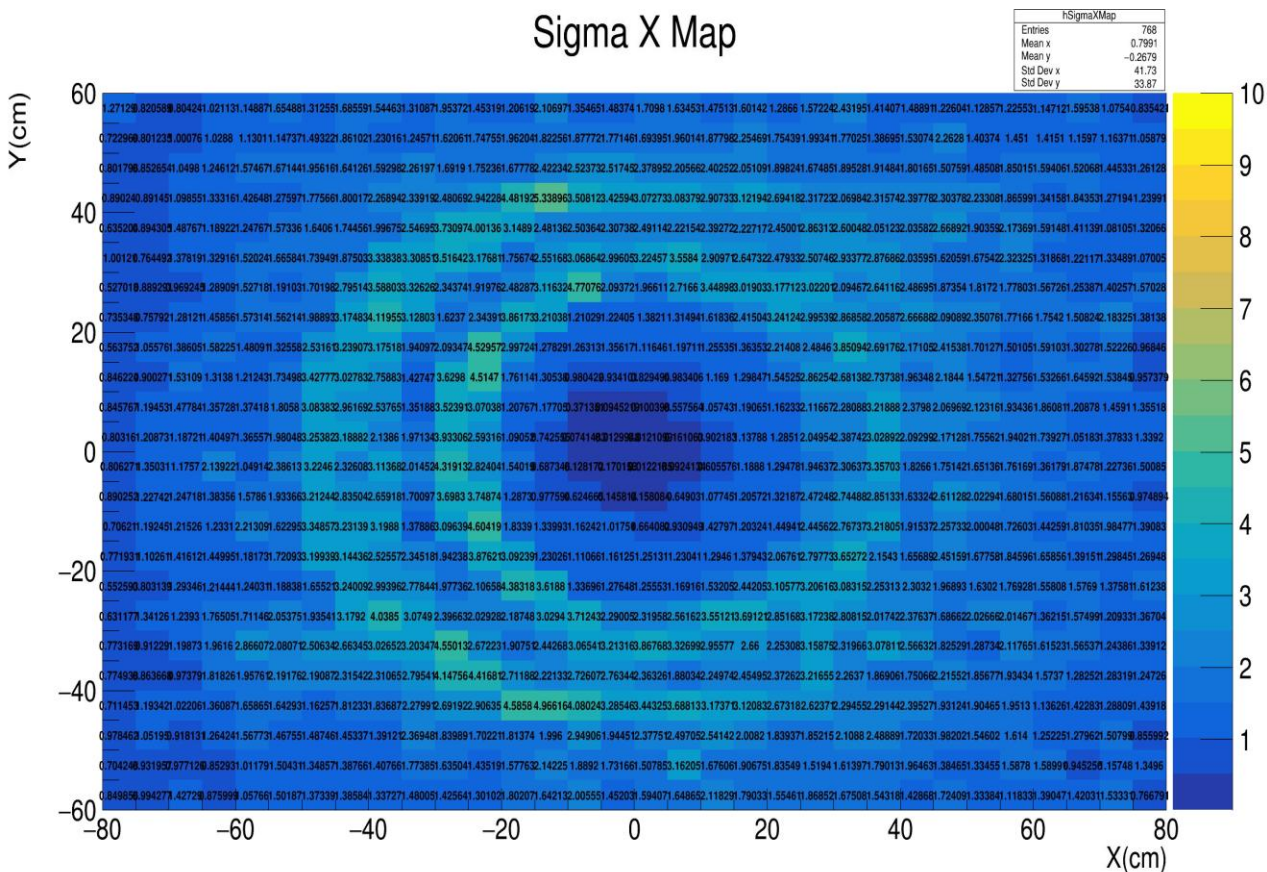
Simulation – 4cm x 4cm

- Beam: proton 12 GeV/c
- Events: 100,000*10



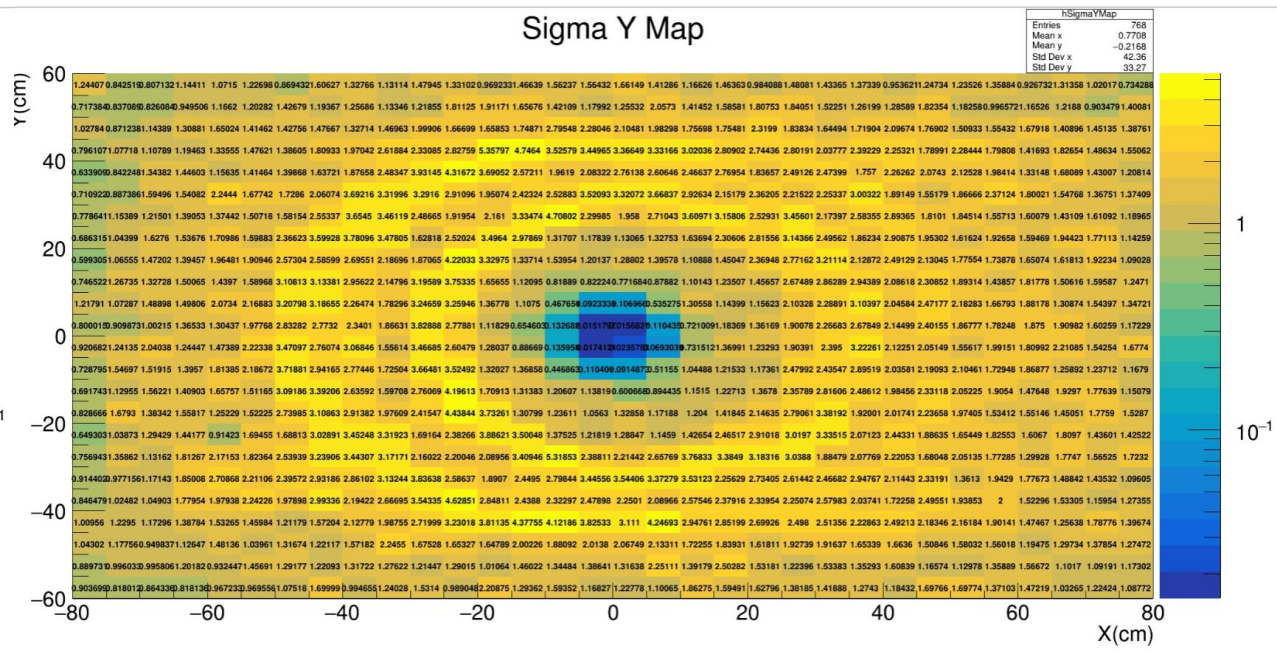
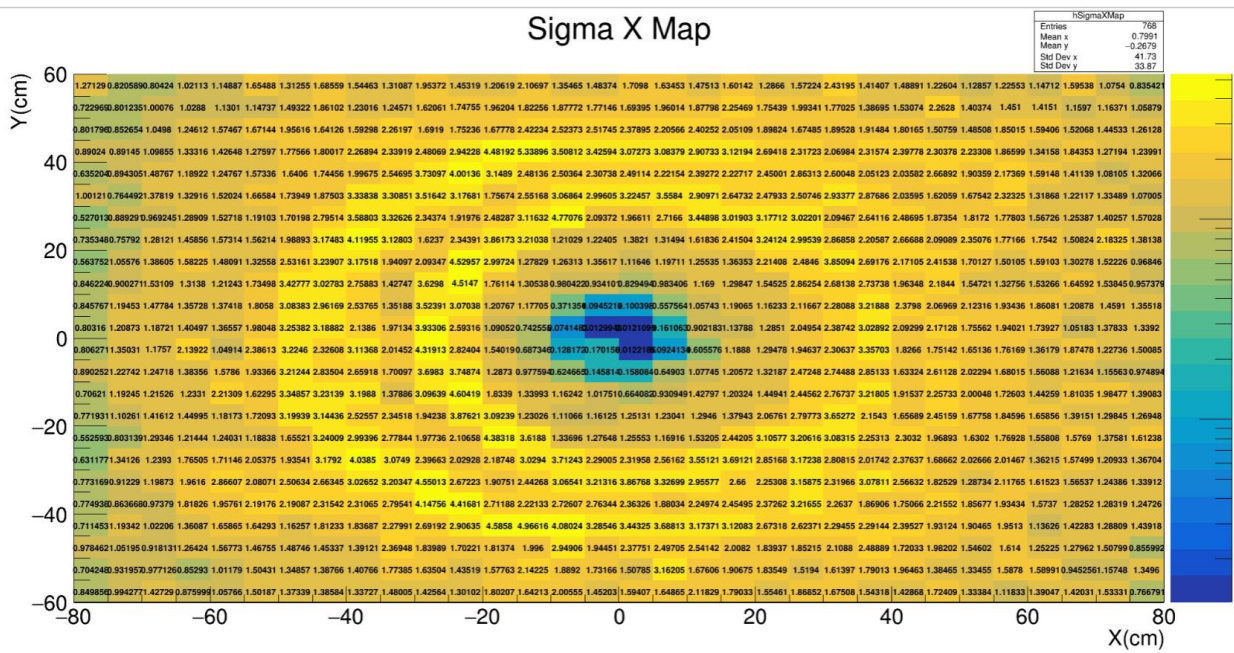
Simulation – 5cm x 5cm

- Beam: proton 12 GeV/c
- Events: 100,000*10



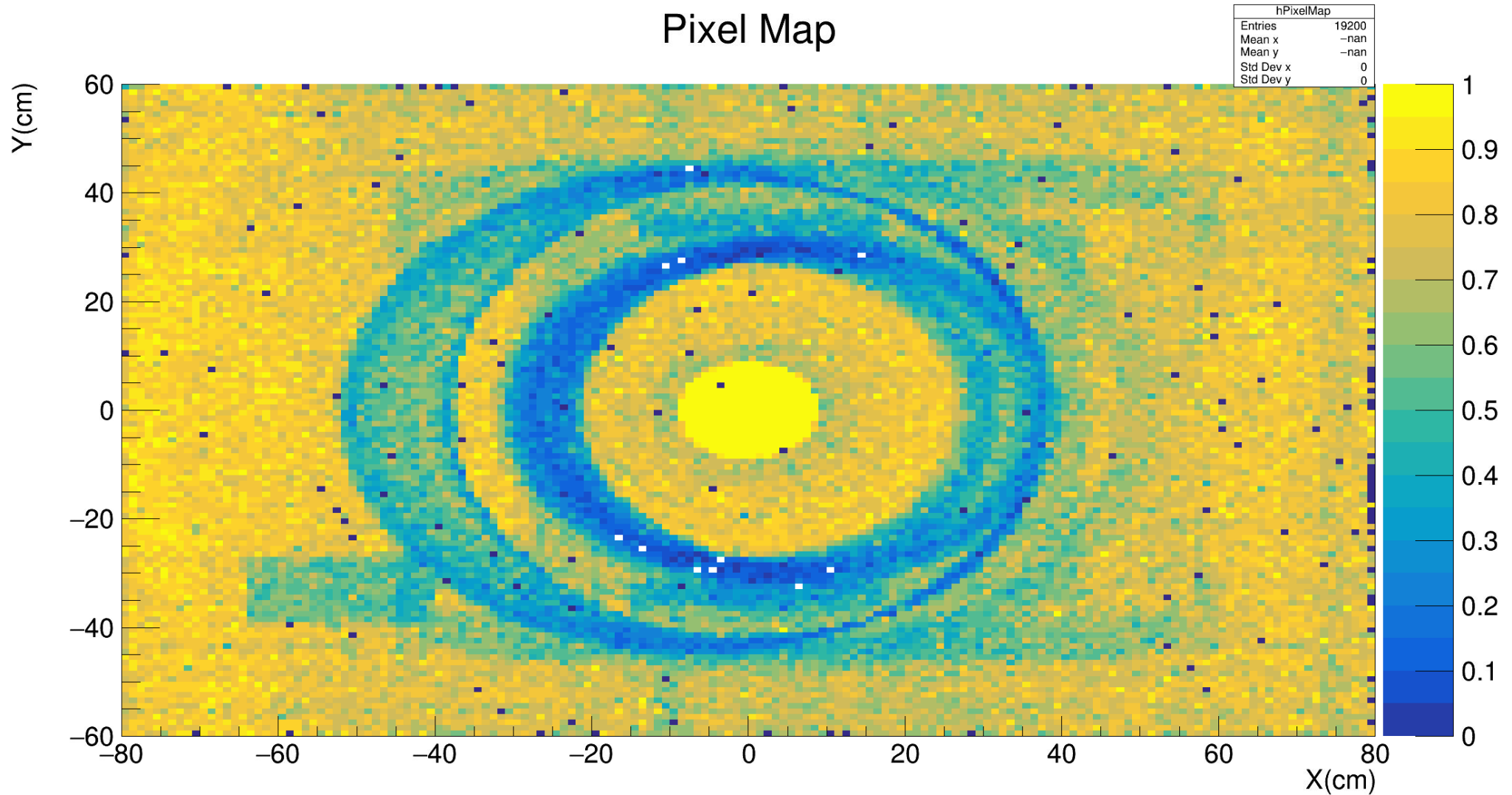
Simulation – 5cm x 5cm

- Beam: proton 12 GeV/c
- Events: 100,000*10



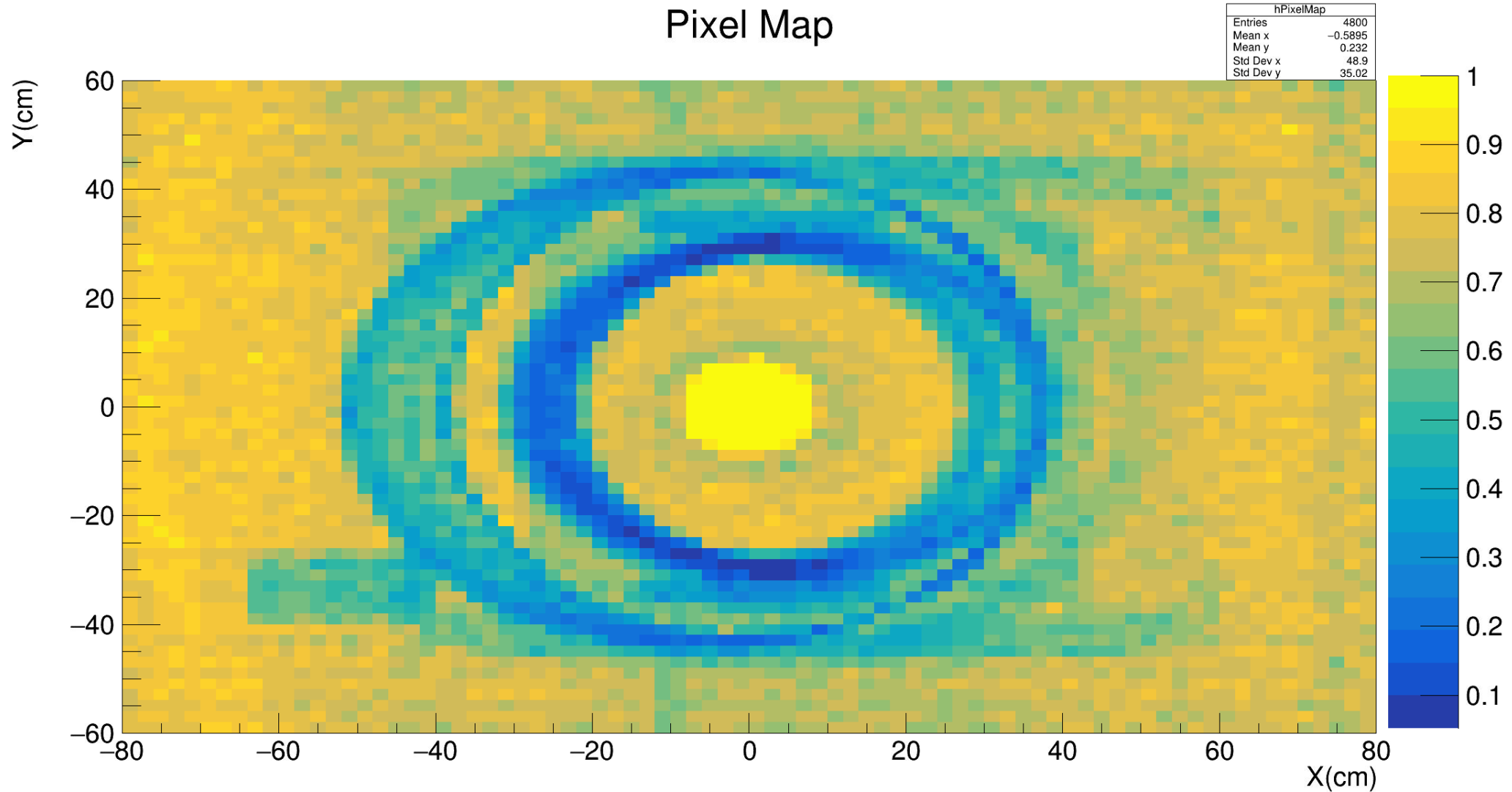
Simulation – Efficiency 1cm x 1cm

- Beam: proton 12 GeV/c
- Events: 100,000*10



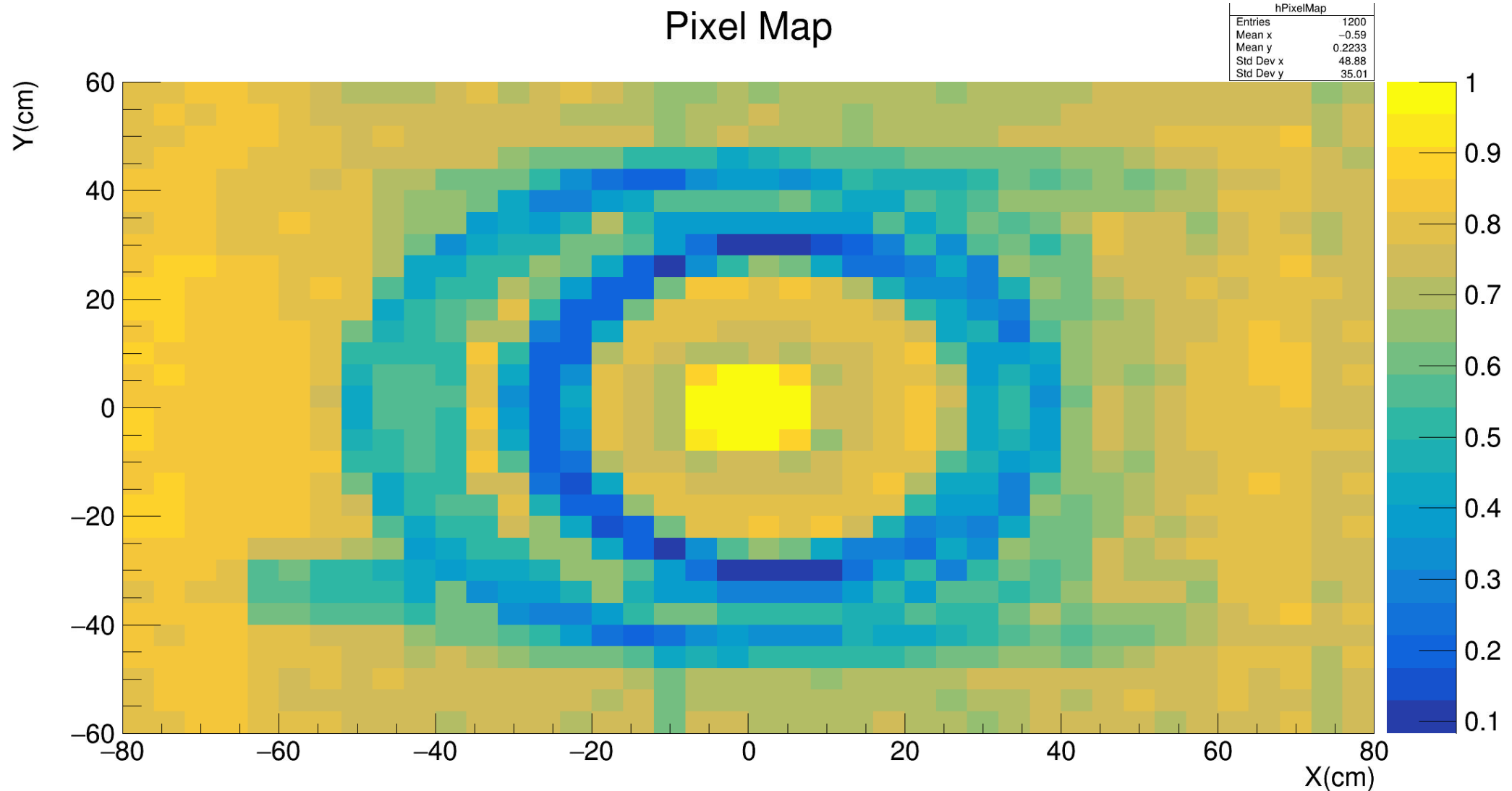
Simulation – Efficiency 2cm x 2cm

- Beam: proton 12 GeV/c
- Events: 100,000*10



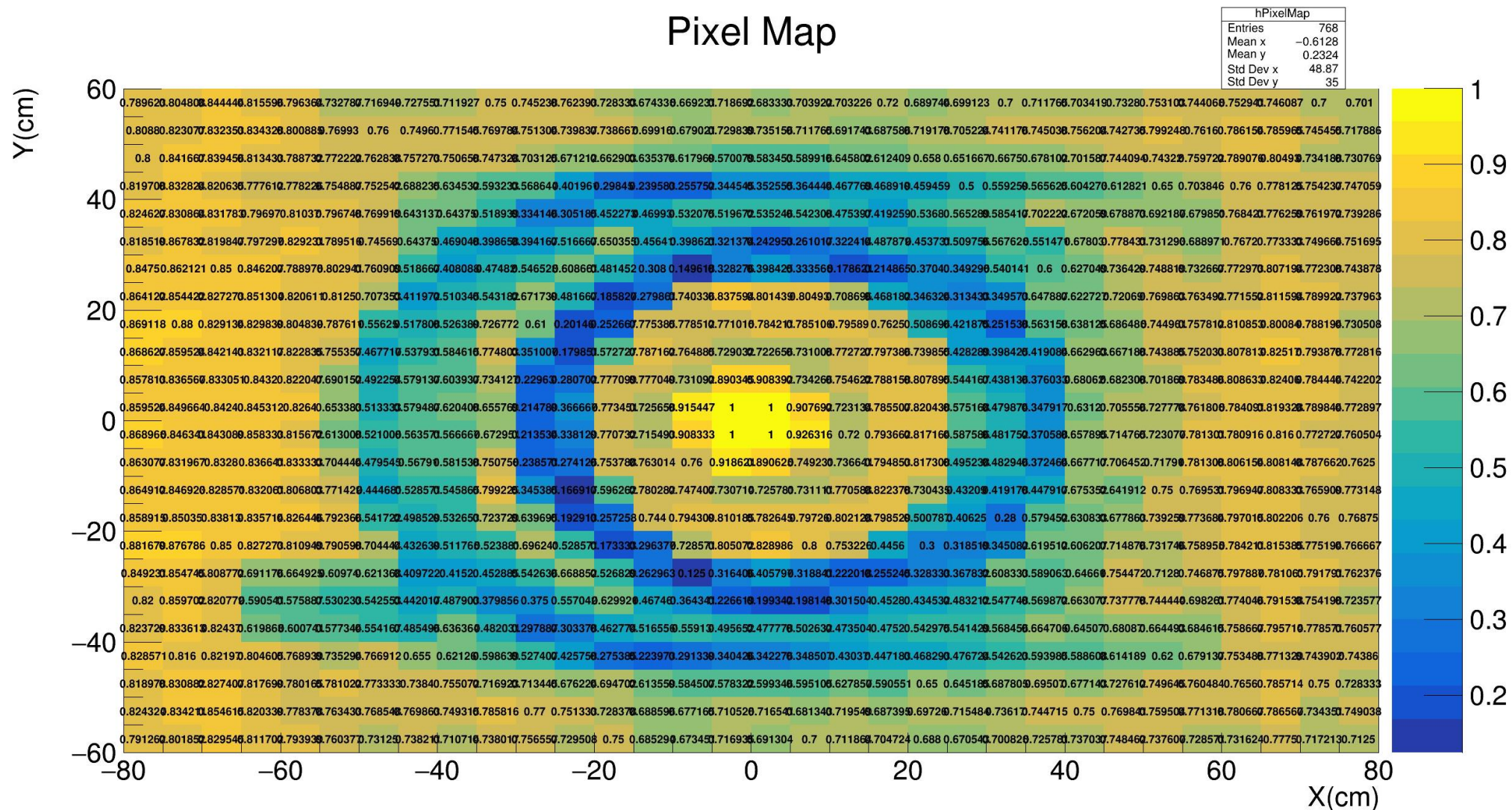
Simulation – Efficiency 4cm x 4cm

- Beam: proton 12 GeV/c
- Events: 100,000*10



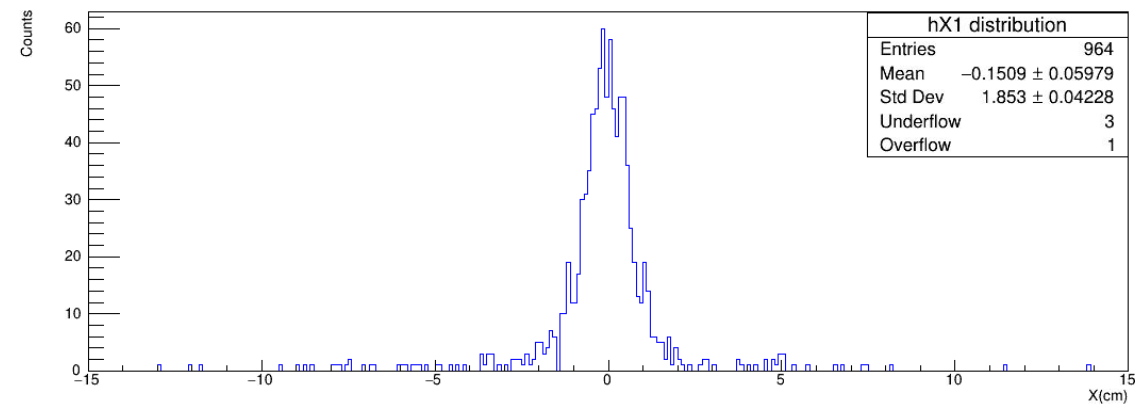
Simulation – Efficiency 5cm x 5cm

- Beam: proton 12 GeV/c
- Events: 100,000*10

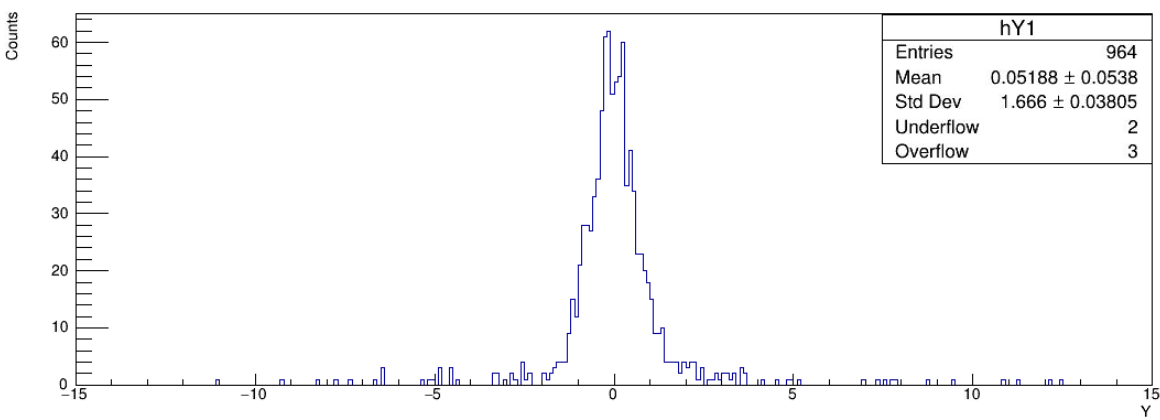


Simulation – Efficiency 5cm x 5cm

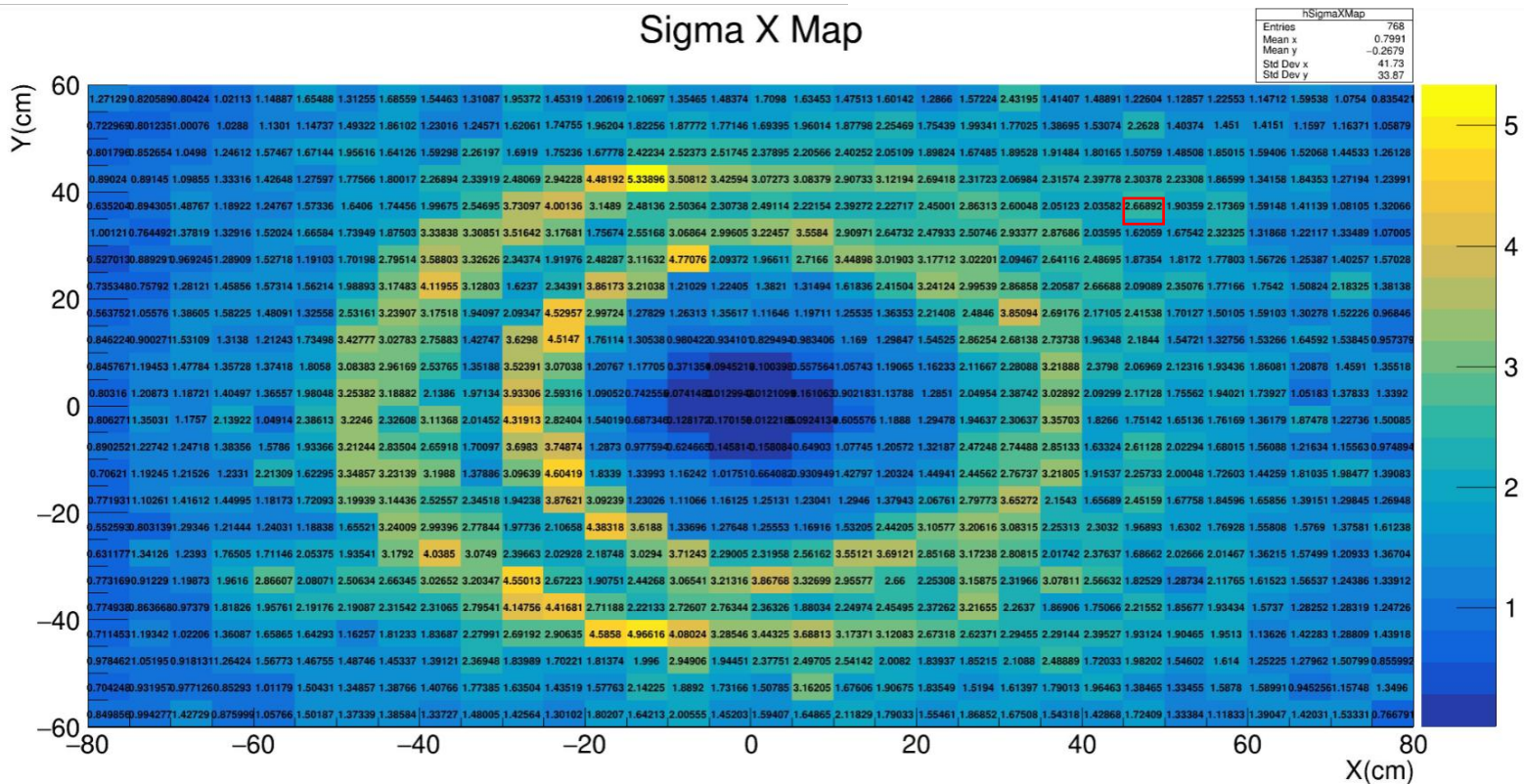
X1 distribution



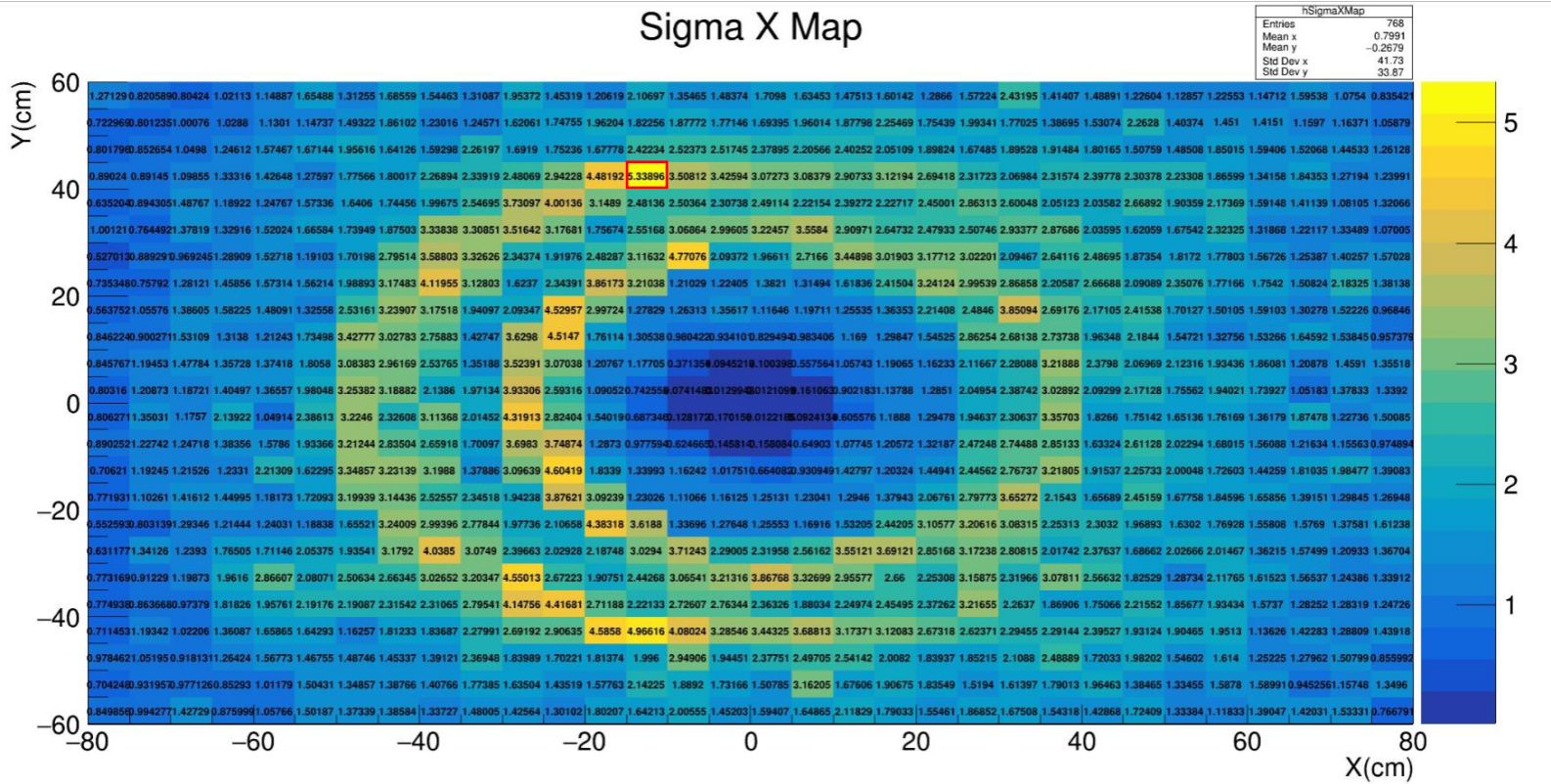
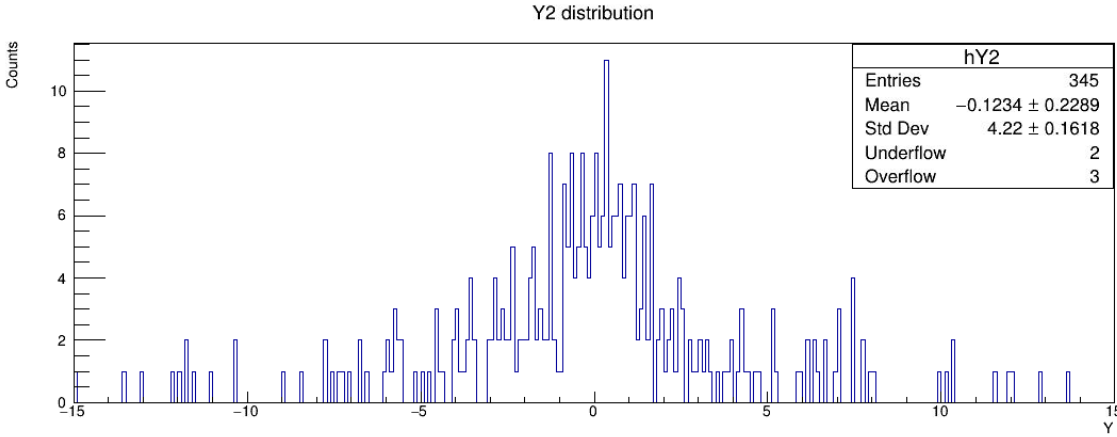
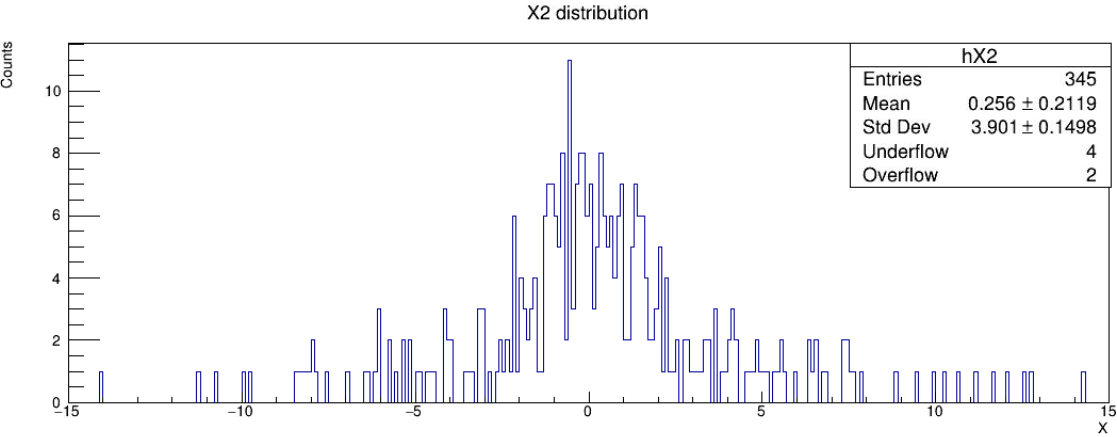
Y1 distribution



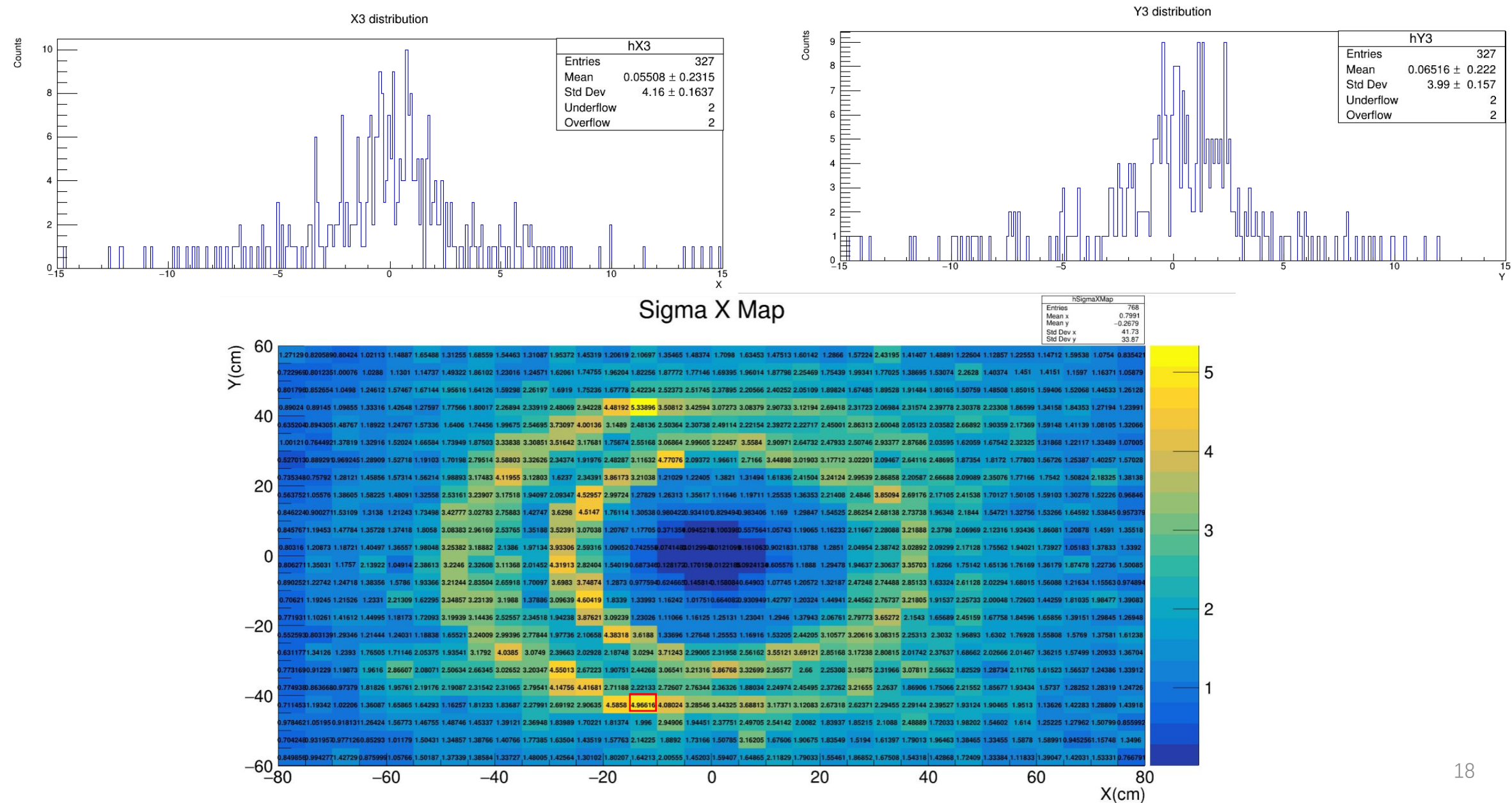
Sigma X Map



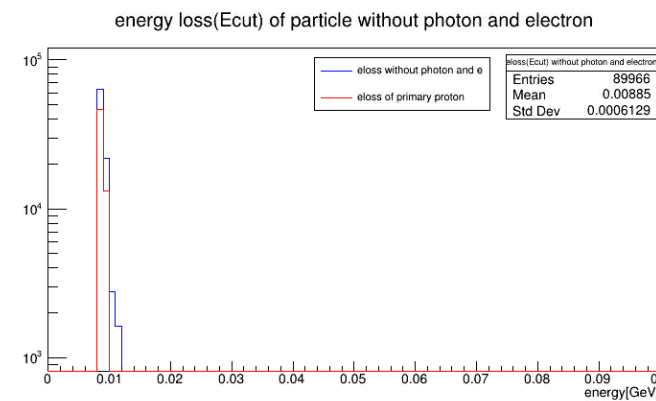
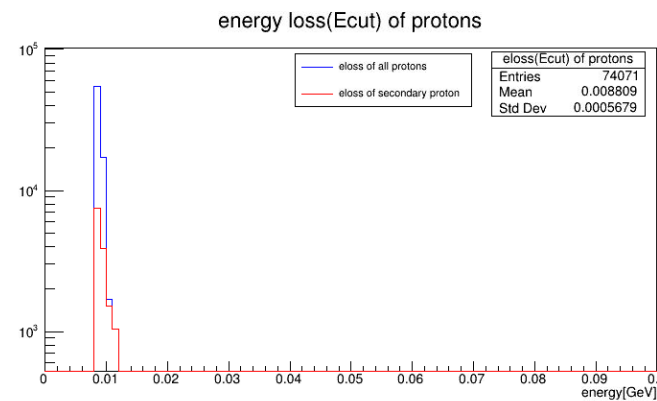
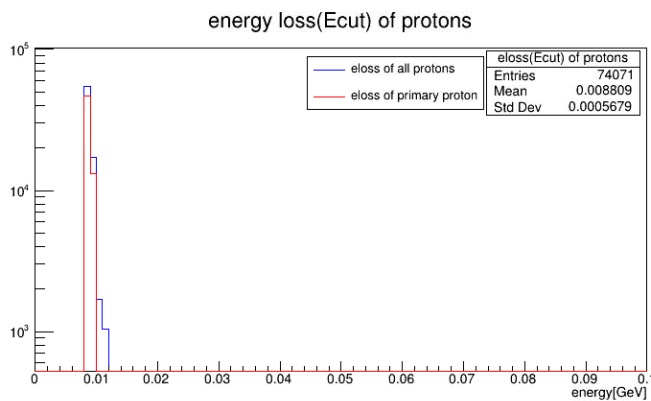
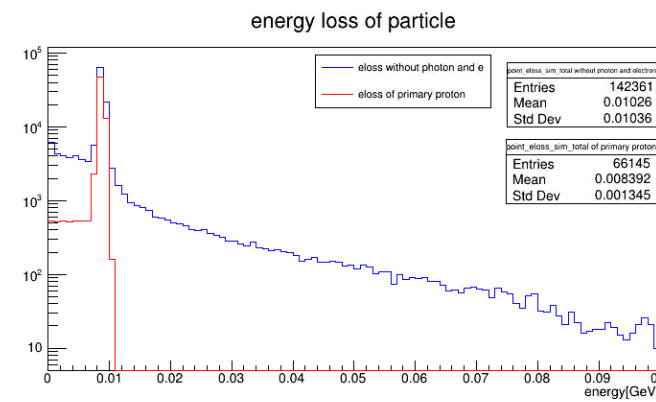
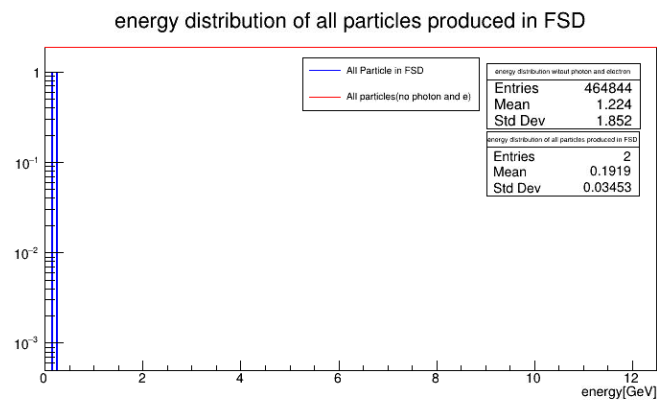
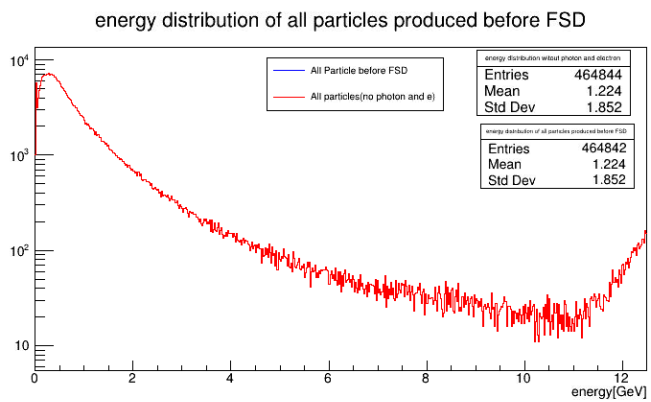
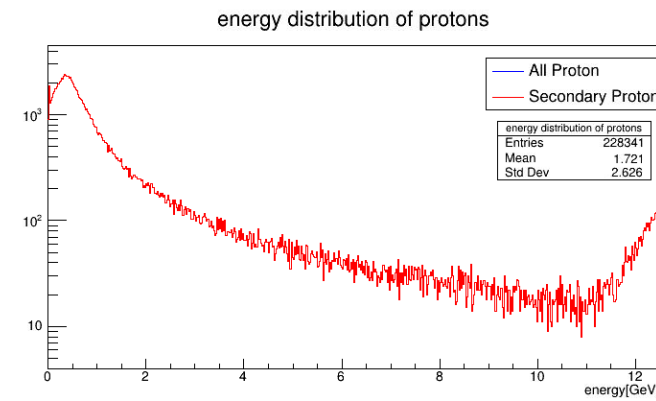
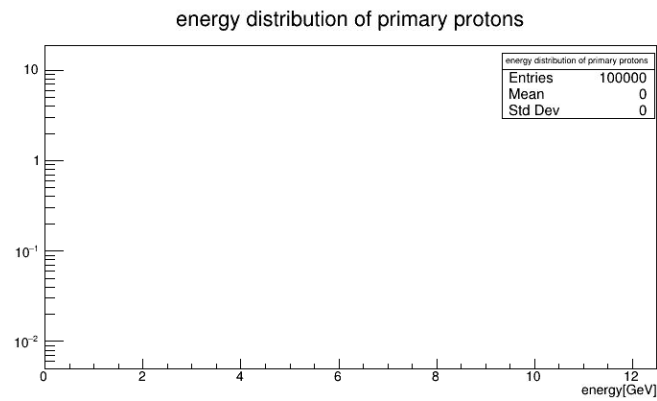
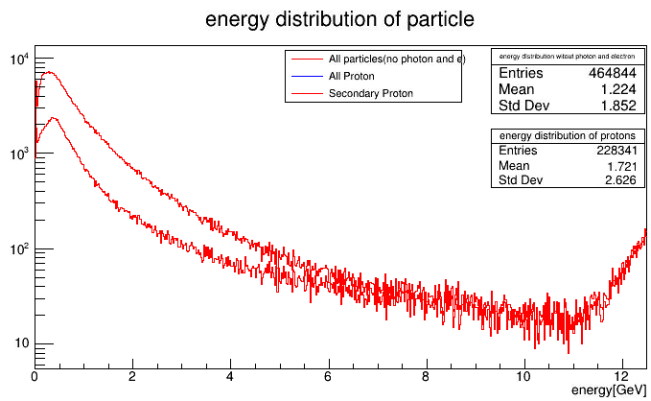
Simulation – Efficiency 5cm x 5cm



Simulation – Efficiency 5cm x 5cm



Simulation – Kinetic Energy and Energy loss



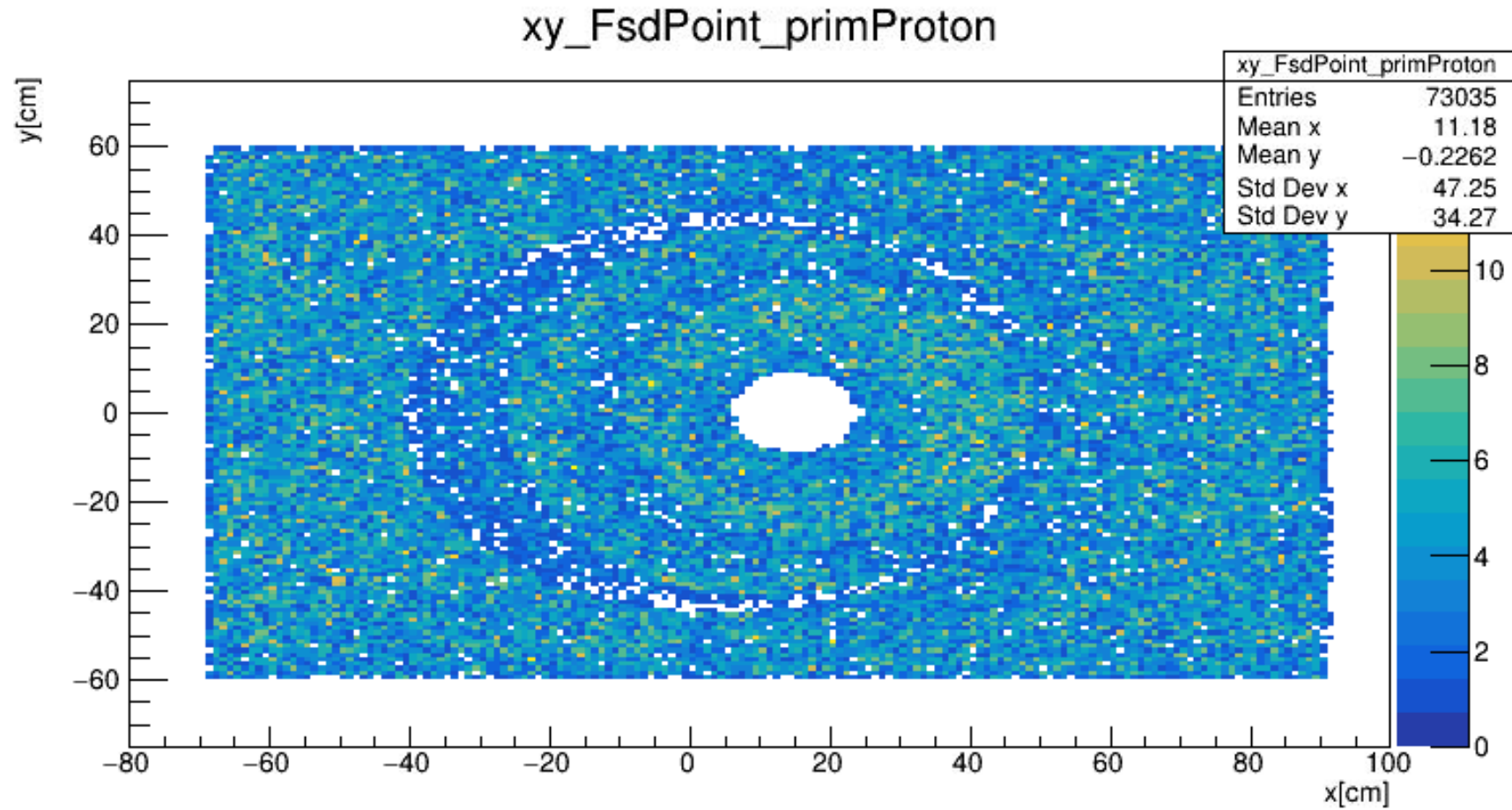
Simulation

- Beam: proton 12 GeV/c
- Events: 100,000
- Pipe: **light version v24h**

```
97     "subsystems": {
98         "magnet": "v22a",
99         "pipe": "v21d:v24h",
100        "mvd": "v20d_tr",
101        "sts": "v22d",
102        "rich": "v23a",
103        "trd": "v20b_1e",
104        "tof": "v21a_1e",
105        "psd": "",
106        "fsd": "v23a",
107        "platform": "v22b"
108    }
```


Simulation

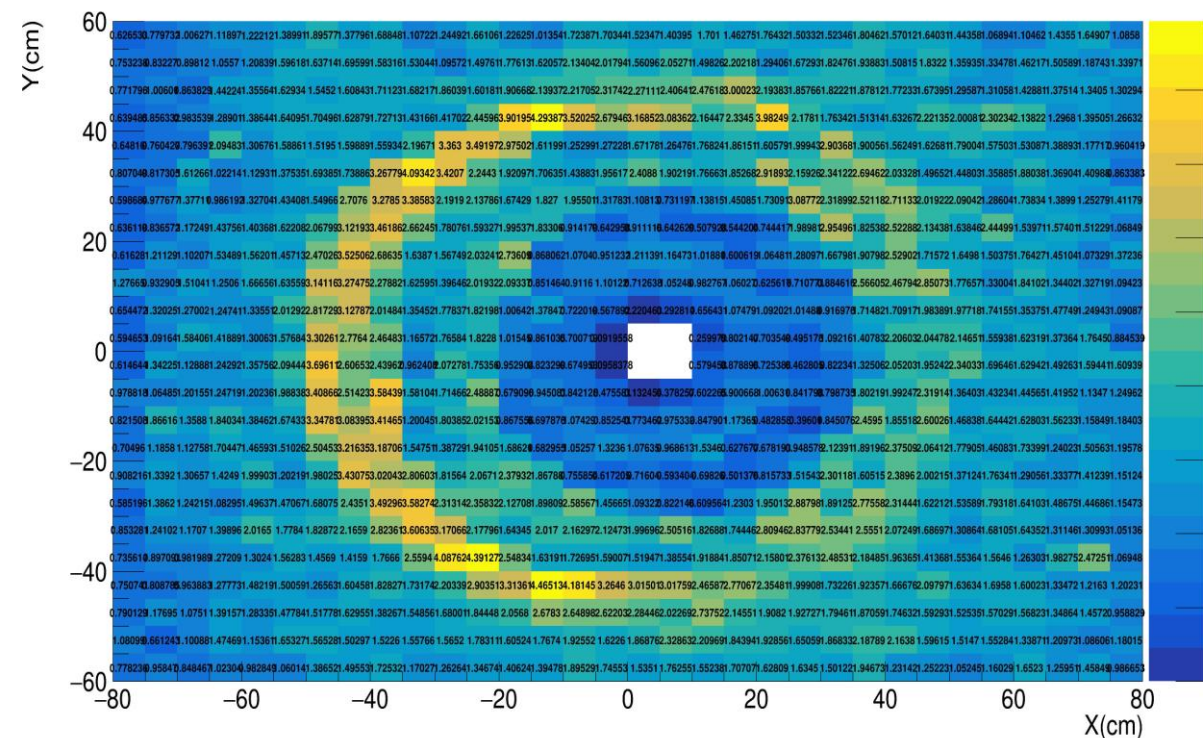
- Beam: proton 12 GeV/c
- Events: 100,000*10
- Pipe: **Light version**



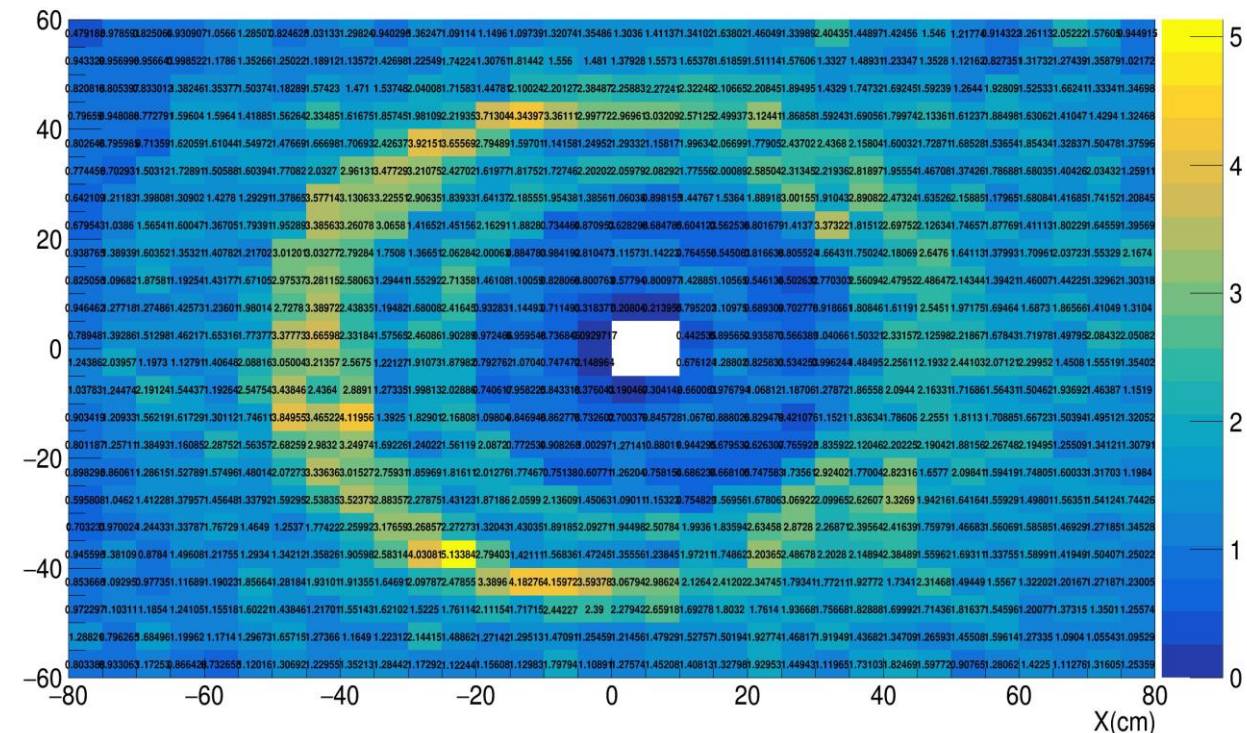
Simulation – 5cm x 5cm

- Beam: proton 12 GeV/c
- Events: 100,000*10
- Pipe: **Light version**

Sigma X Map

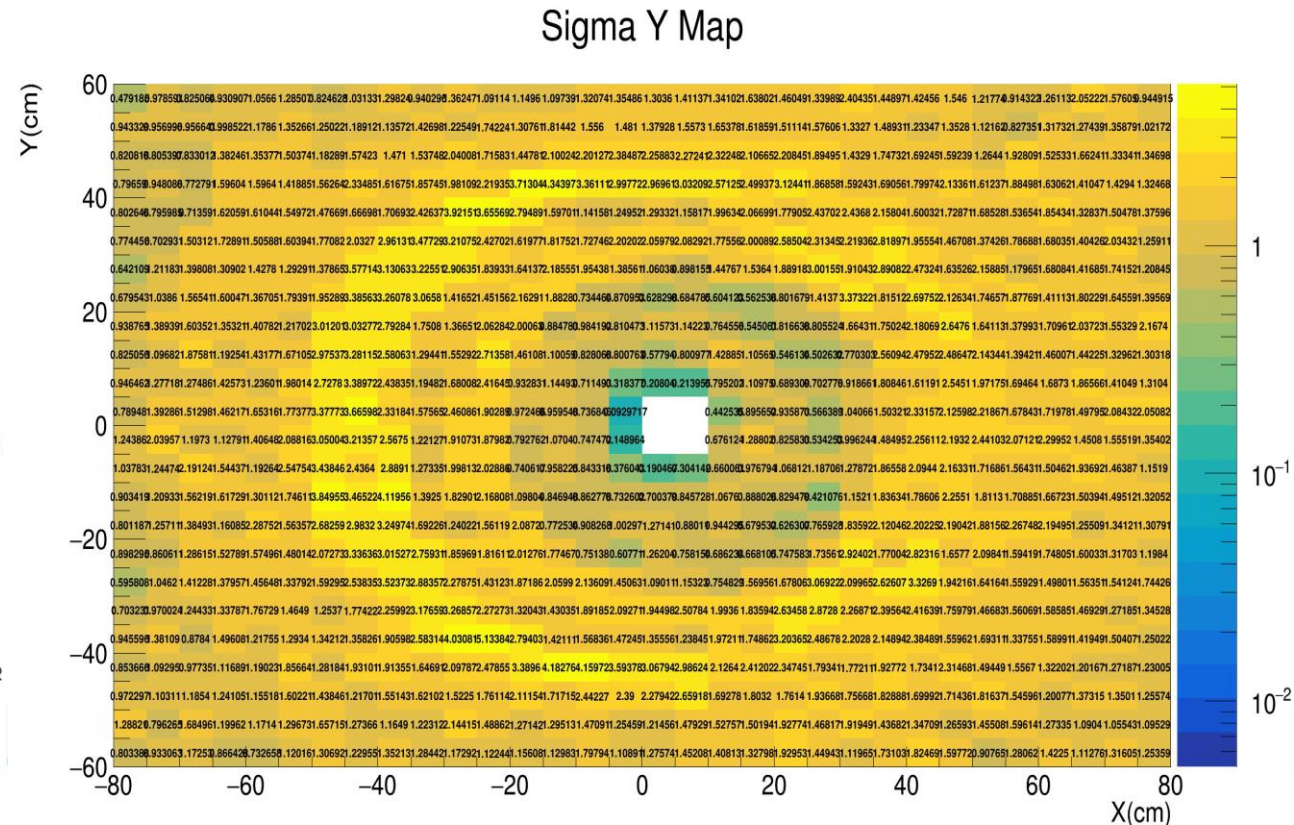
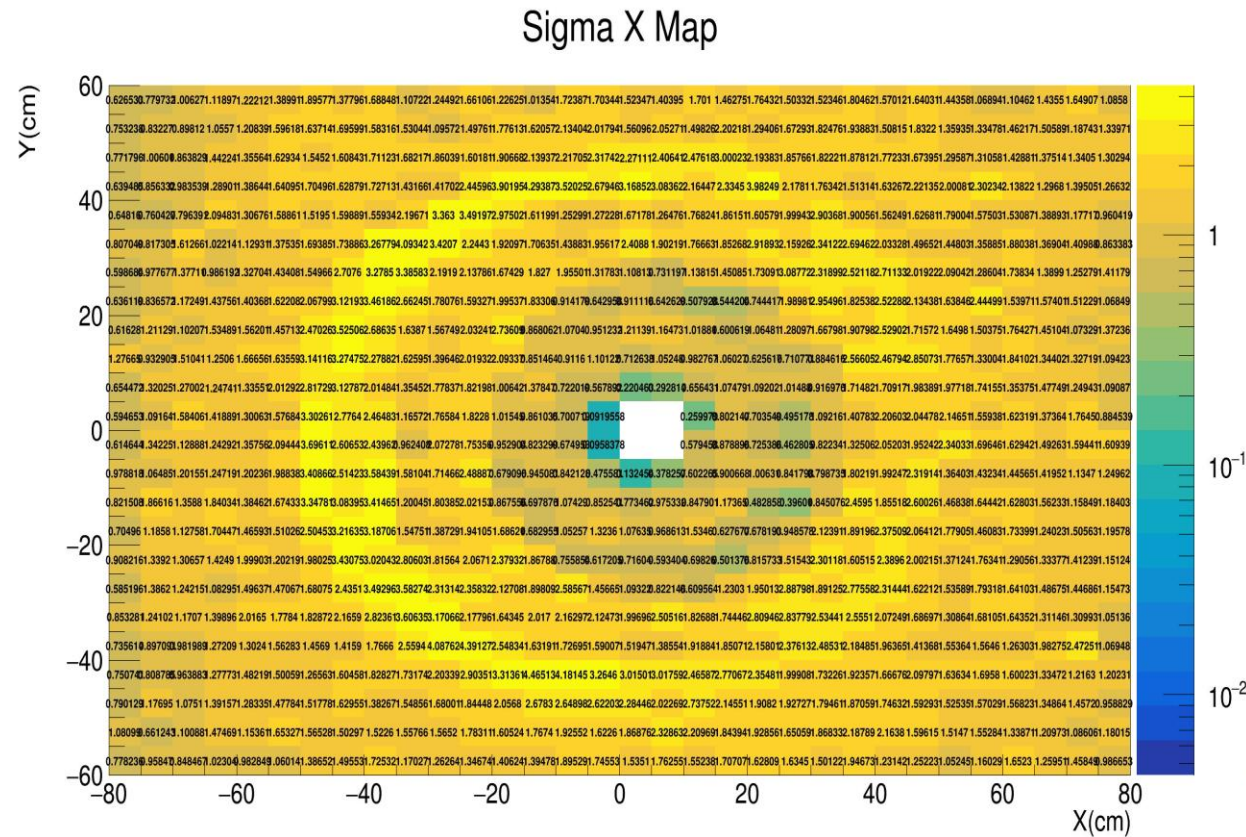


Sigma Y Map



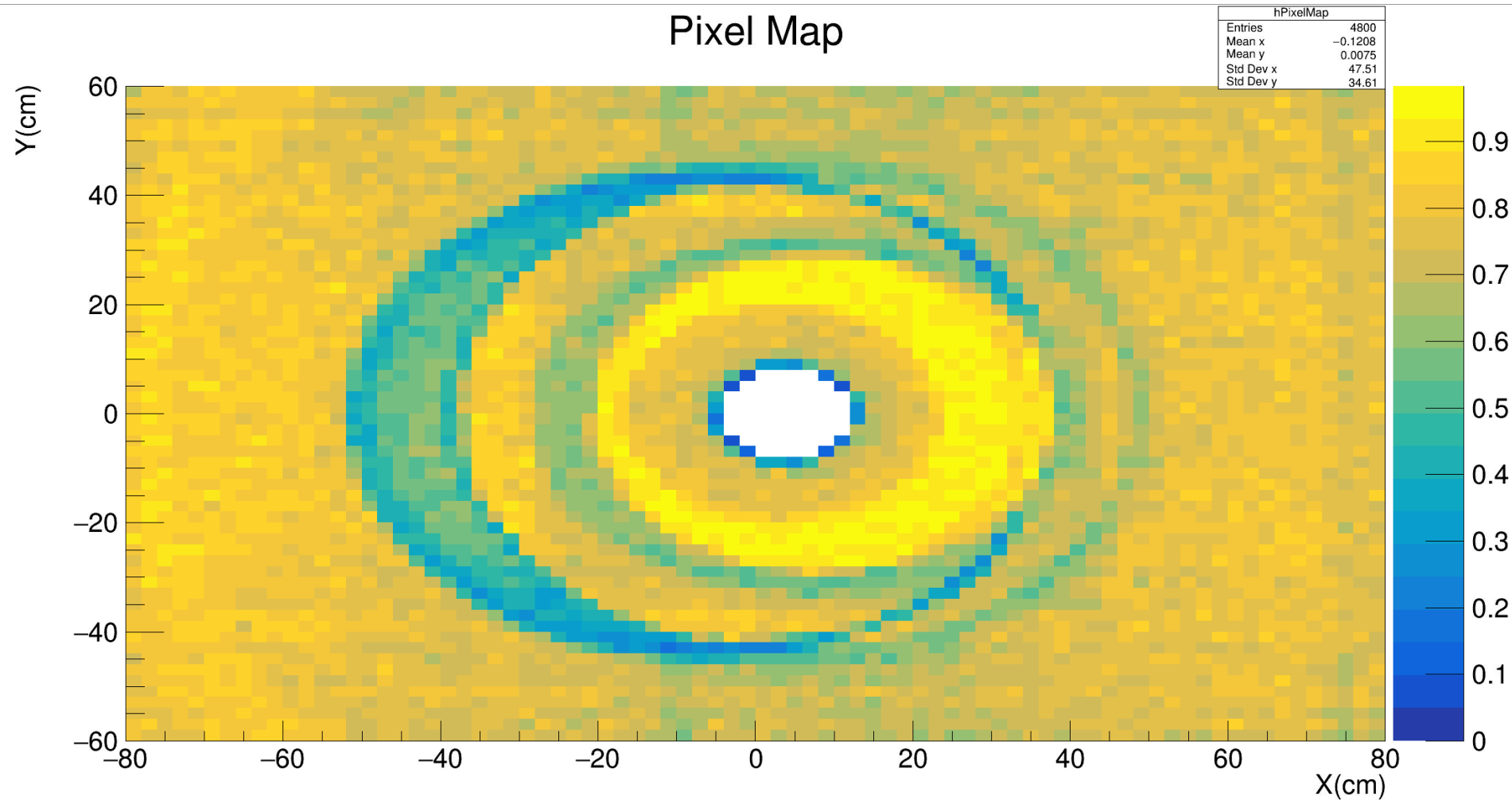
Simulation – 5cm x 5cm

- Beam: proton 12 GeV/c
- Events: 100,000*10
- Pipe: **Light version**



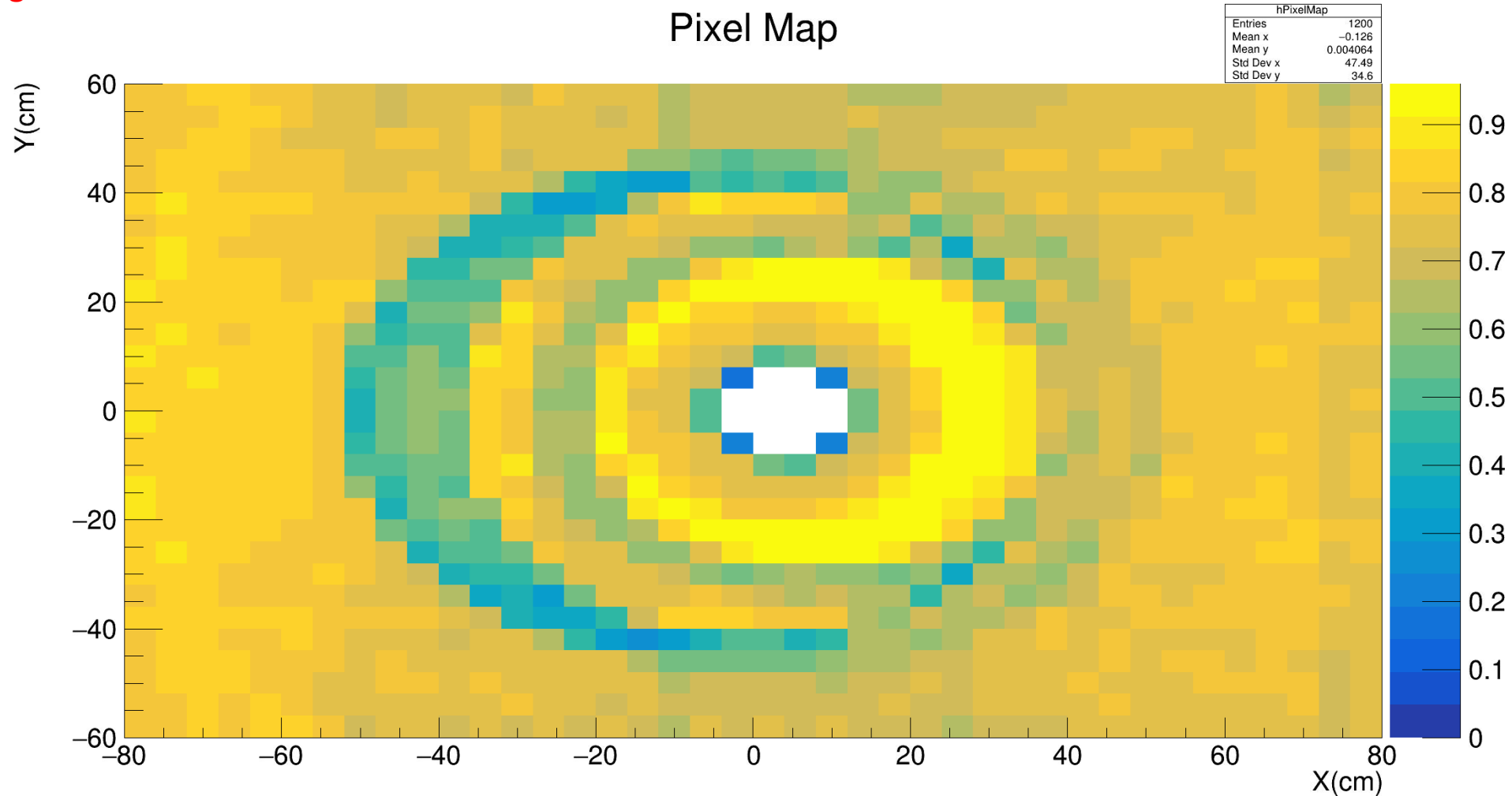
Simulation – 2cm x 2cm

- Beam: proton 12 GeV/c
- Events: 100,000*10
- Pipe: **Light version**



Simulation – 4cm x 4cm

- Beam: proton 12 GeV/c
- Events: 100,000*10
- Pipe: **Light version**



Simulation – 5cm x 5cm

- Beam: proton 12 GeV/c
- Events: 100,000*10
- Pipe: **Light version**

Pixel Map

