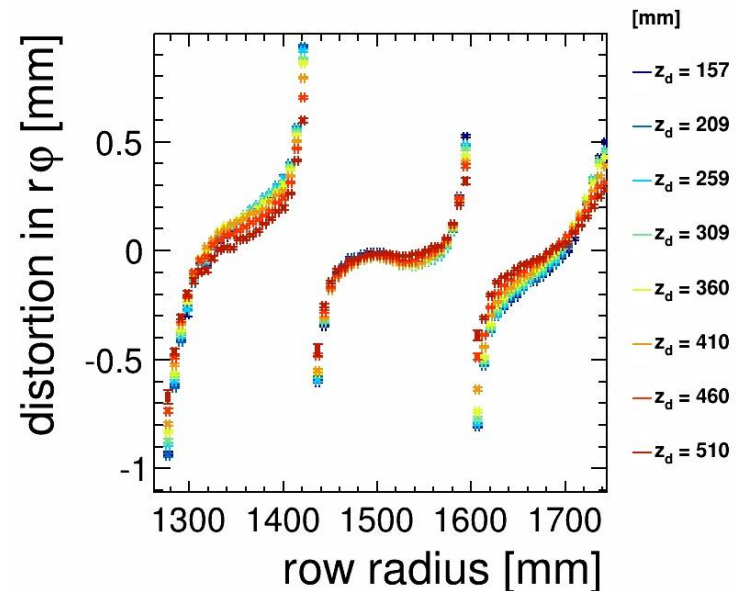
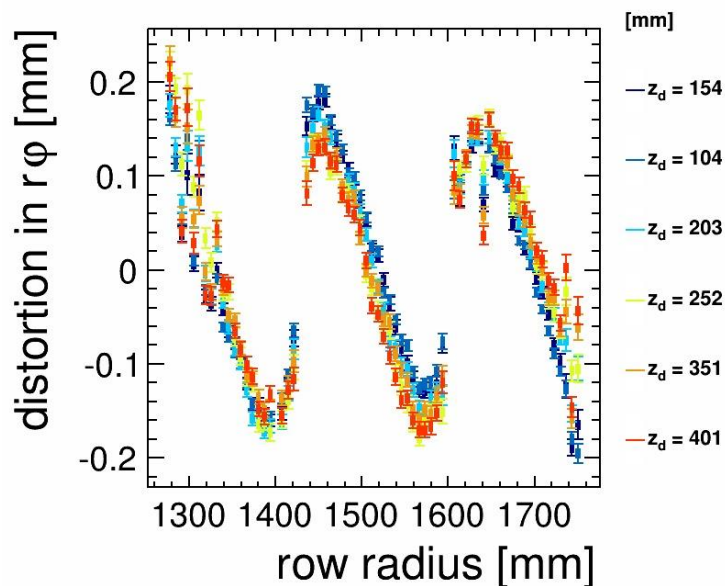


Studies on Electrostatic Distortion

SINP Kolkata

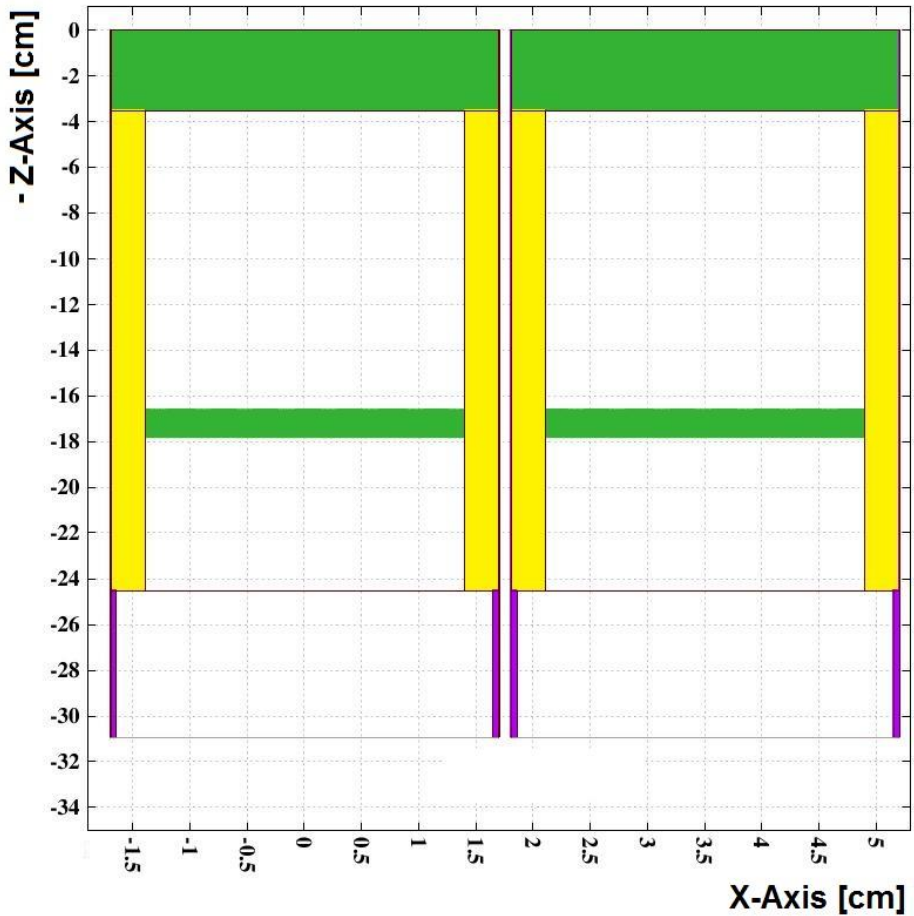
Test Beam Experiment at DESY (2013)

- ❖ *Large Prototype TPC with an end-plate, using seven Bulk Micromegas modules*
- ❖ *Variation of DESY electron beam energy from 1 – 5 GeV during various phases of experiment*
- ❖ *Gas mixture of Ar:CF₄:ISO-C₄H₁₀ (95:3:2)*
- ❖ *Collection of data related to the cosmic rays, drift velocity estimation, Z scan, phi scan, variation of gain, effect of different shaping times, effect of different magnetic fields*

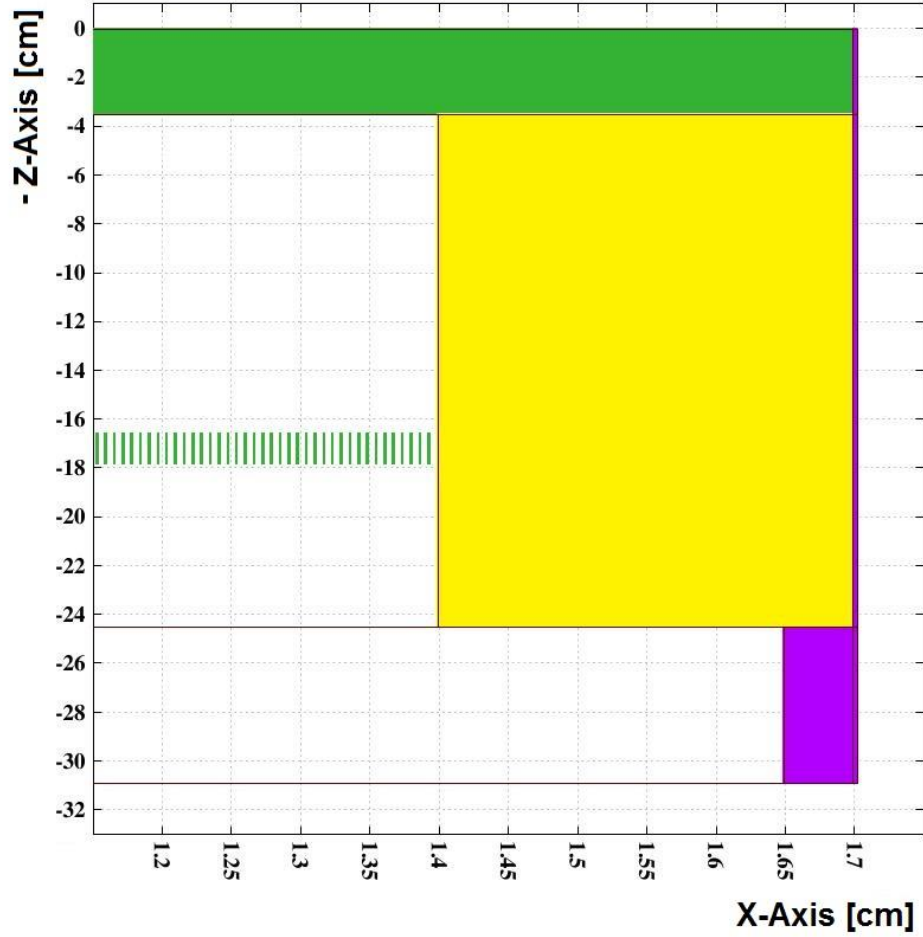


- ❖ **Distortion in the residual data at the edge of the module**
- ❖ **Electric field distortion introduced by the gap between two modules**

Simulated model:

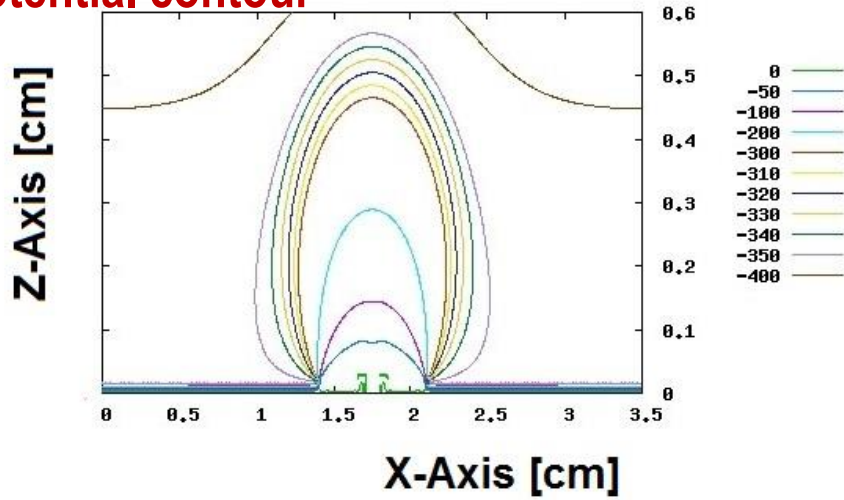


Two modules placed next to each other

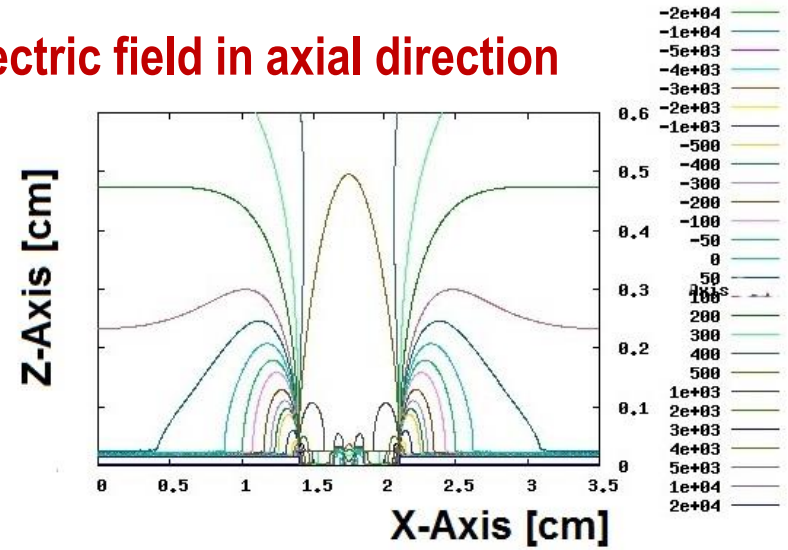


Closer view of the edge of one module

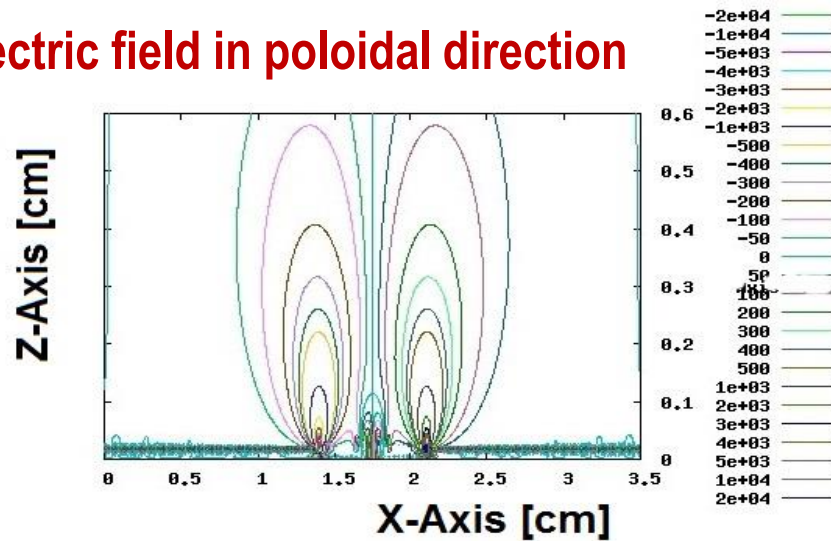
Potential contour



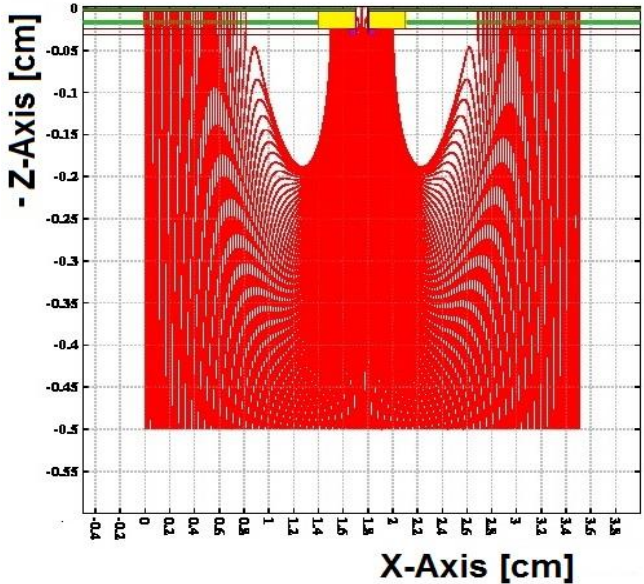
Electric field in axial direction



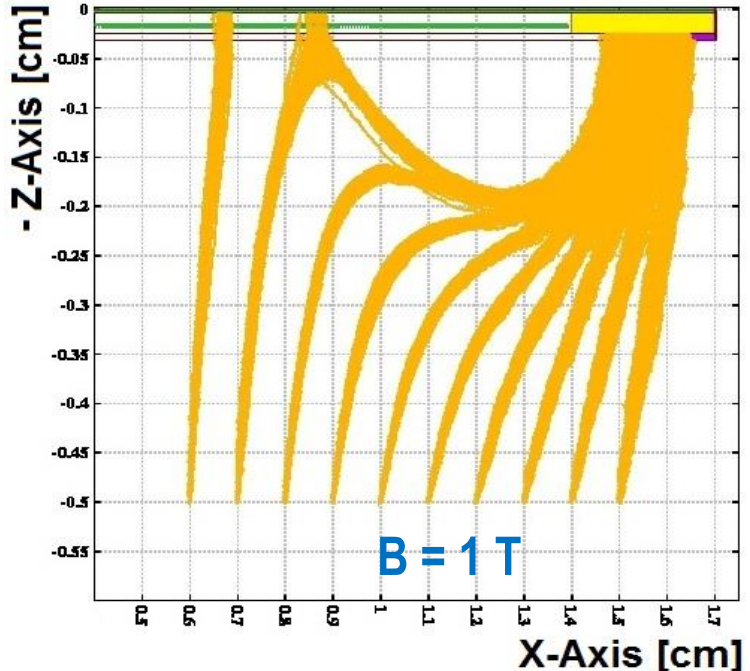
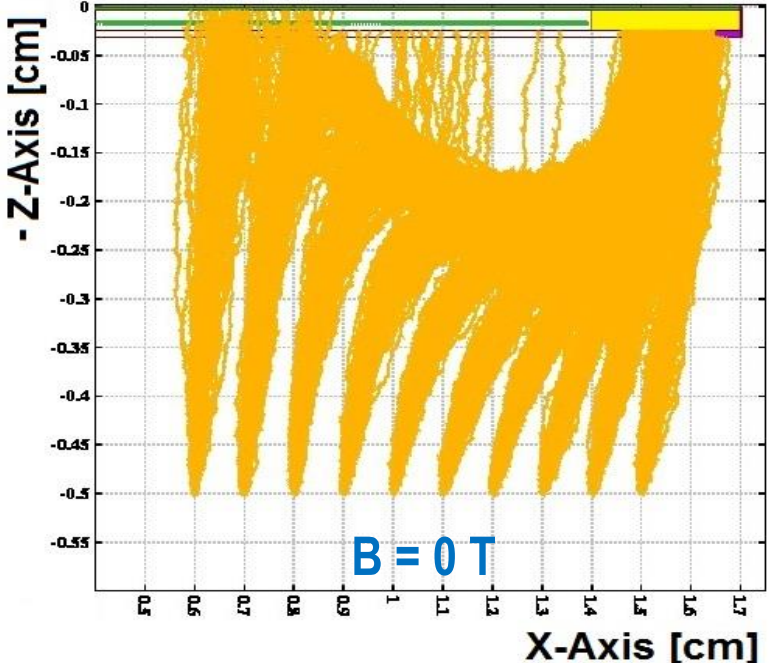
Electric field in poloidal direction



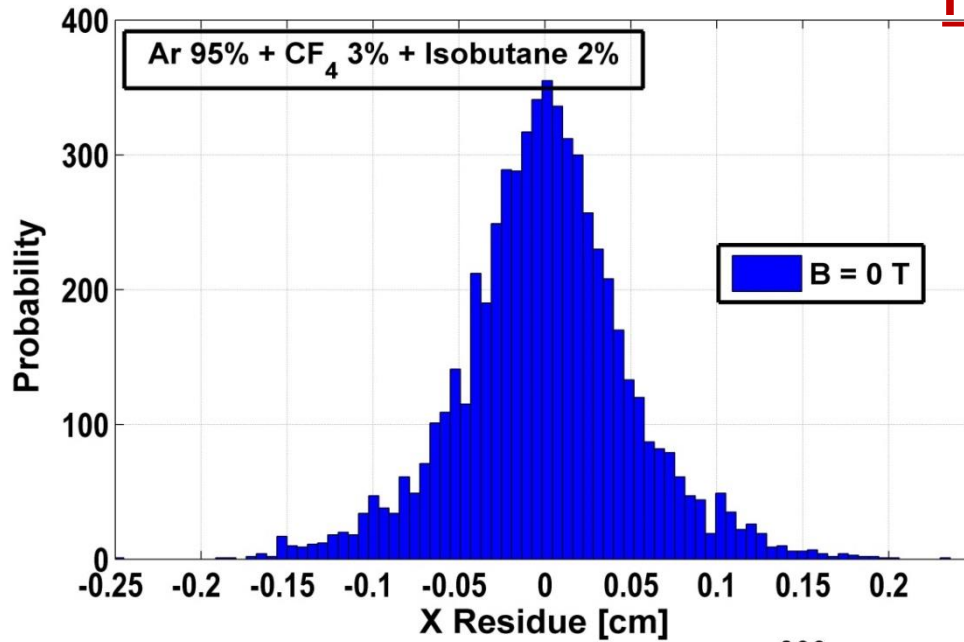
Electron drift lines



Without considering diffusion

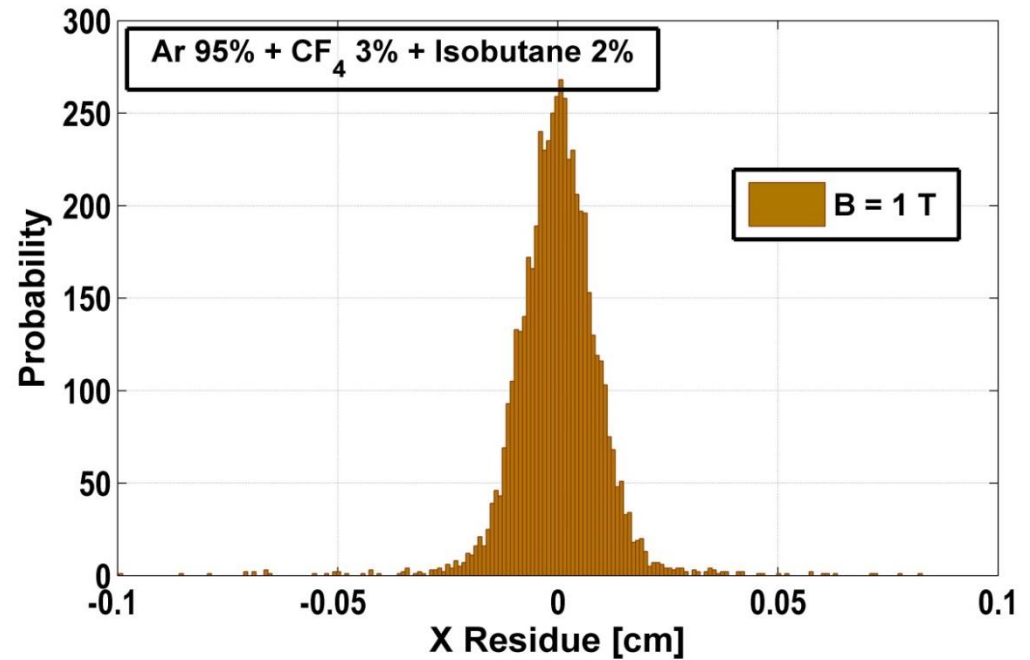


Histogram of residual along X-Axis

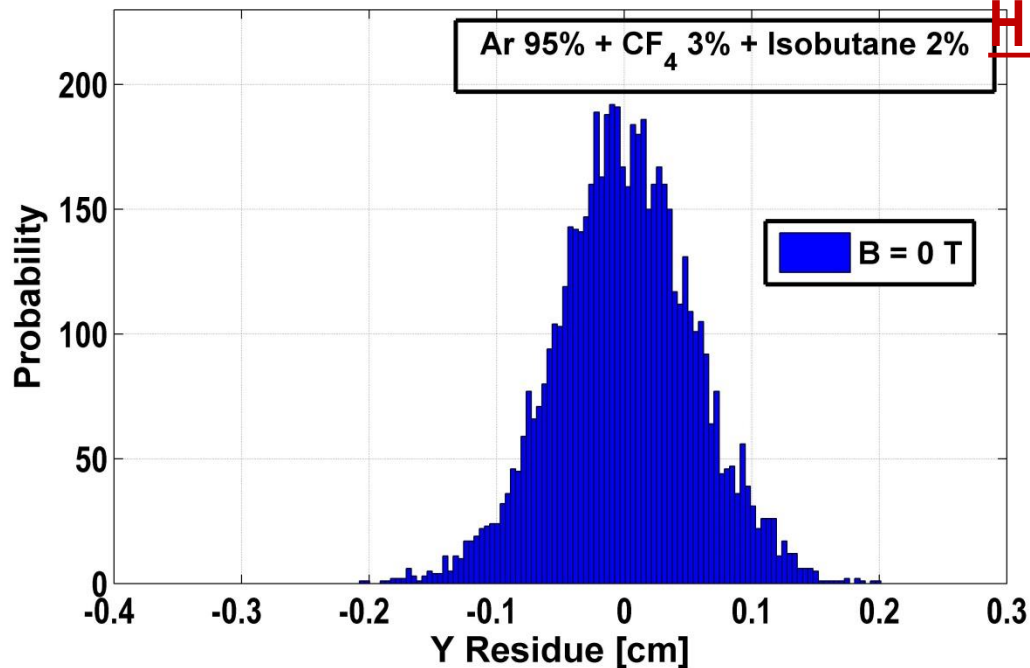


B = 0 T

B = 1 T



Histogram of residual along Y-Axis



B = 0 T

B = 1 T

