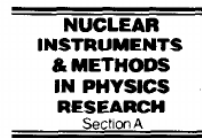# Dual-radiator RICH: update

Alessio Del Dotto for the EIC PID/RICH collaboration
May 13, 2017

Optimal (realistic) focal surface

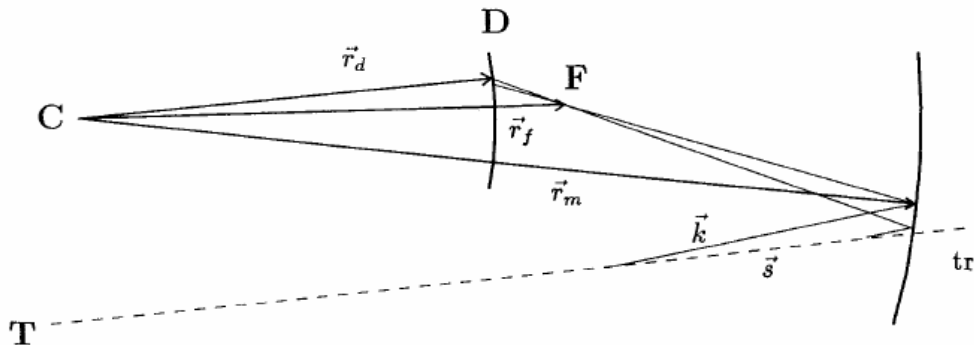Analytic exact calculation of the 3D focal surface providede by:

The optimal detector surface of a fixed target RICH with a tilted mirror

Peter Križan*, Marko Starič

Institut ''Jozef Stefan'', Jamova 39/p.p. 100, SI-1000 Ljubljana, Slovenia

Focal reconstruction for 1 single track event in the first sector
GEMC generated

Graph2D

We want to find a realistic "buildable" surface D

If F = D -> emission angular error = zero
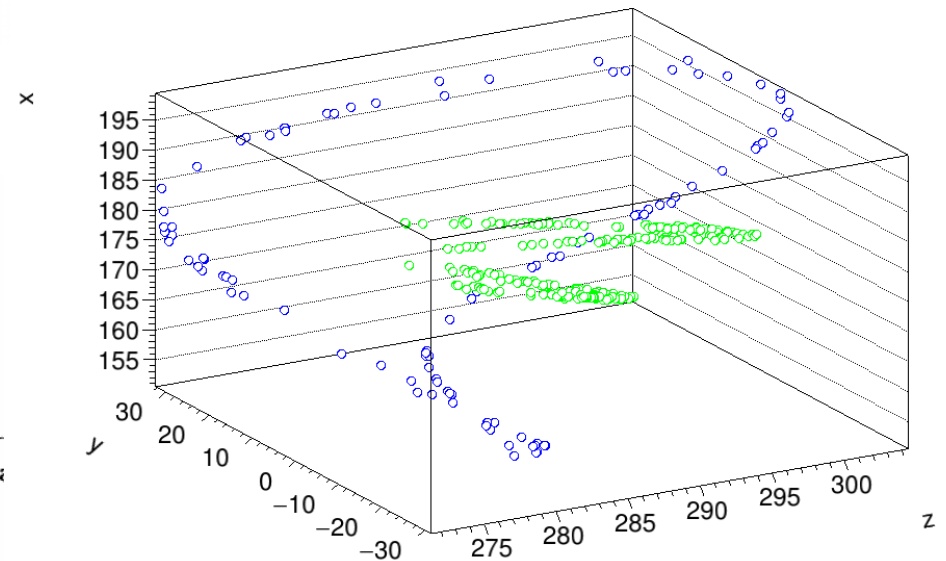
Gas focal space HIsto for 5000 events (GEMC generated)

One sector of the RICH

Tracks' direction
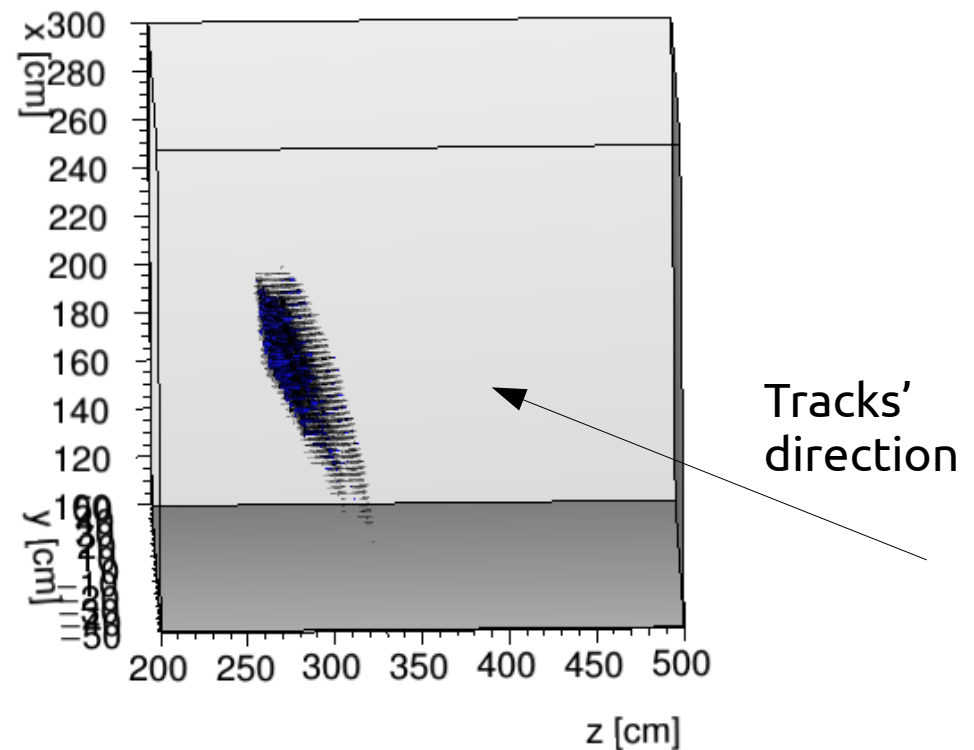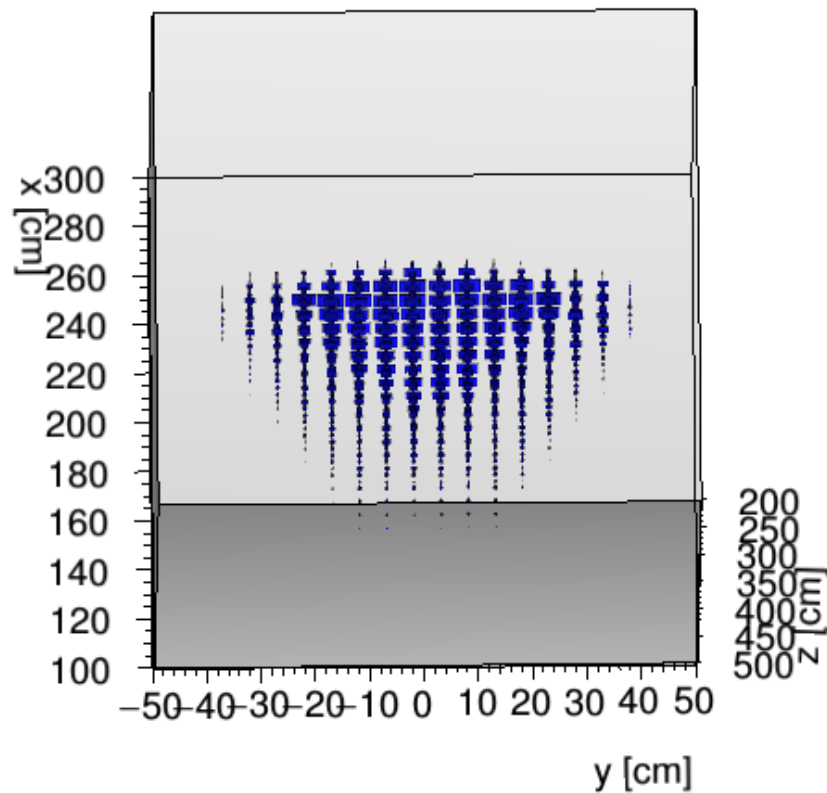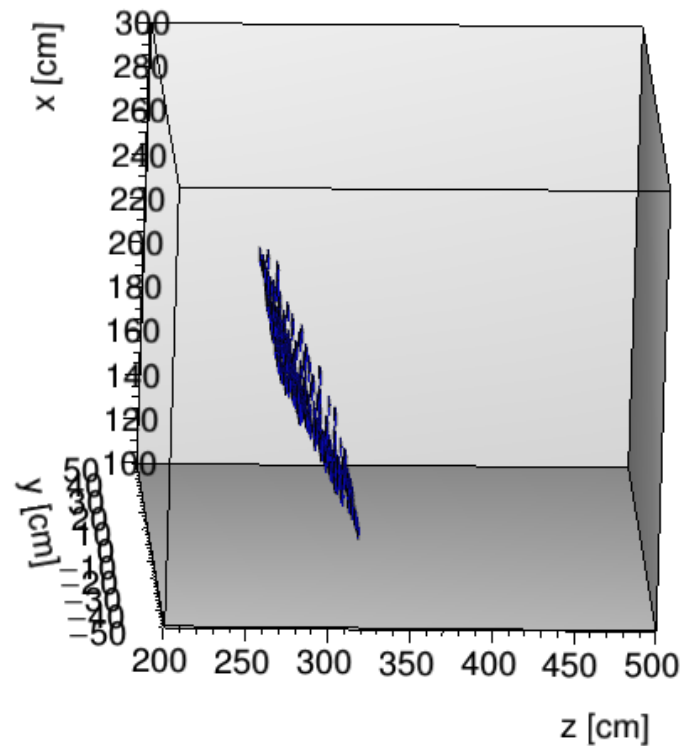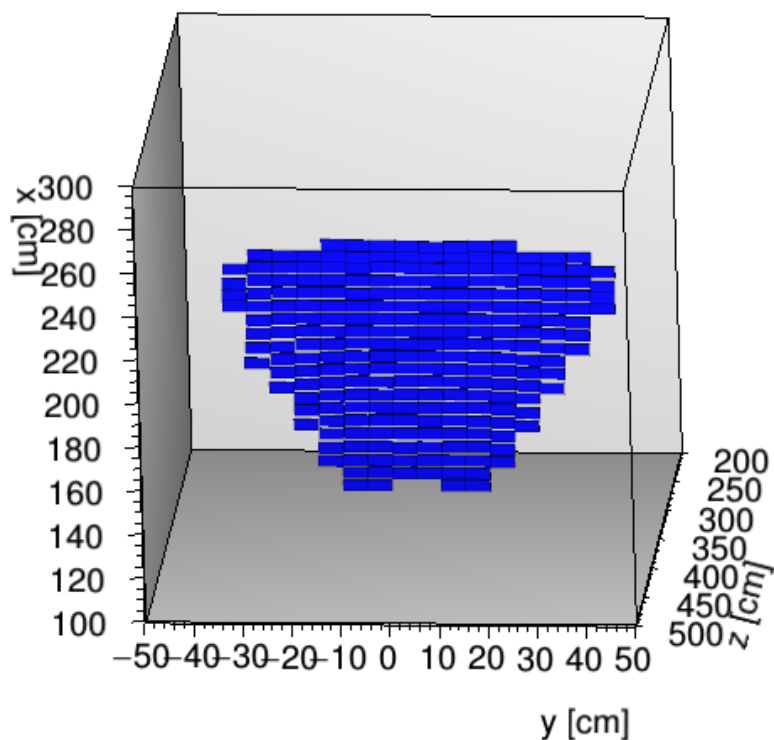
There are several focal voxel in z

Binning of the voxels (x,y,z) : 5 x 5 x 1 cm^3

3

Detector surface

One sector of the RICH's detector in tiles of 5 x 5 cm^2

<Weighted (per number of photons) average z position>

Next steps

- Build such a composite detector in GEMC

- Check the performance in terms of emission error contribution

- Try dufferent tilt angle (shape) -> possible iterations