Simulation for RPC Detector of Muon Chamber Detector for CBM Experiment

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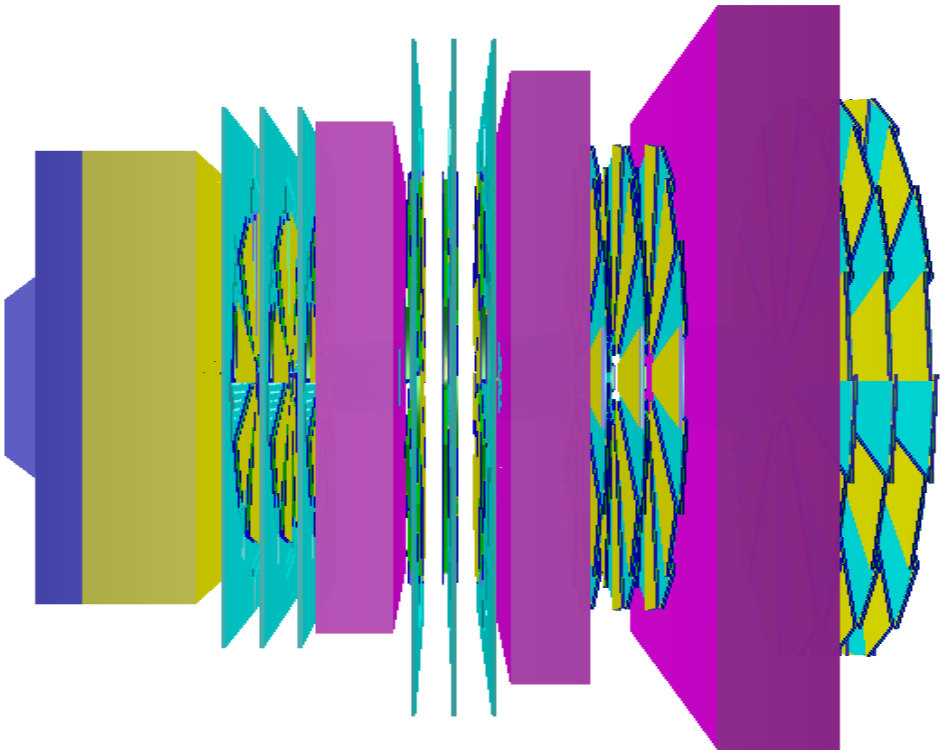
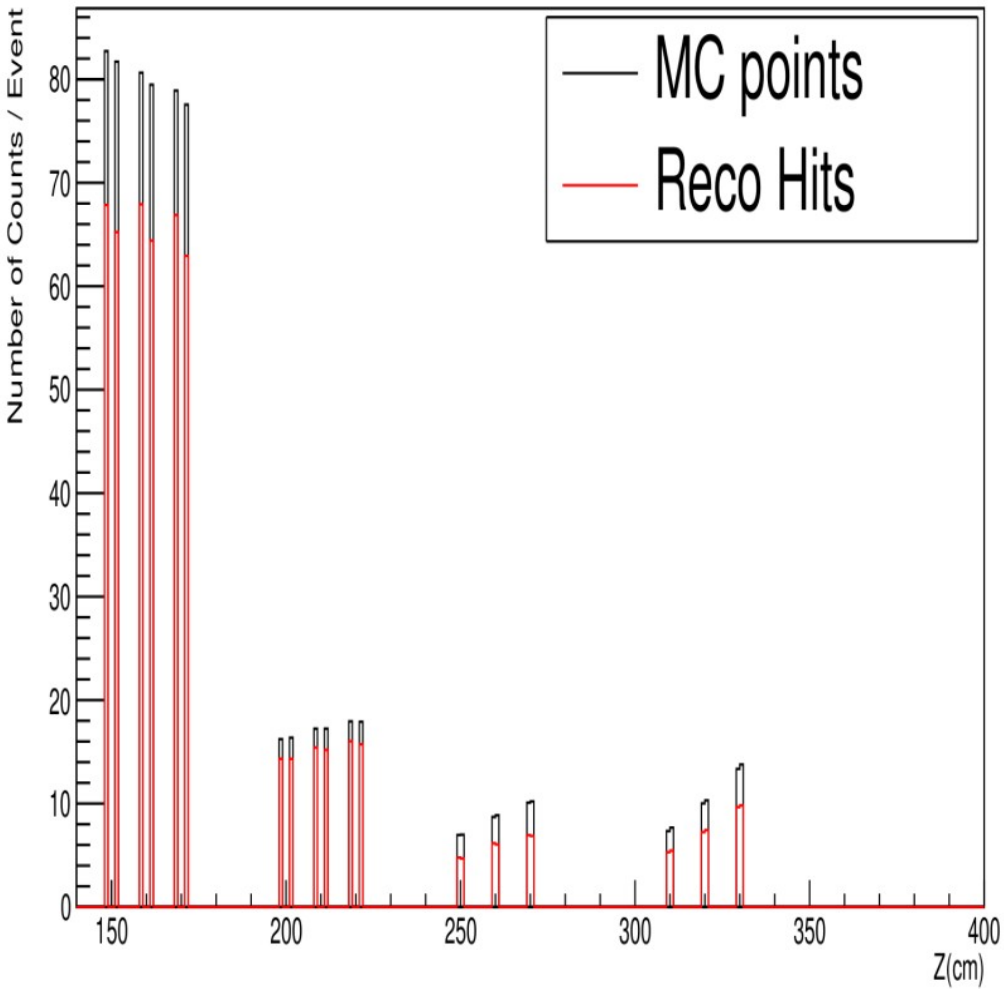
Beam Momentum : 4, 6, 8, 10, 12 AGeV central Au-Au collisions
Geometry: much_v23a

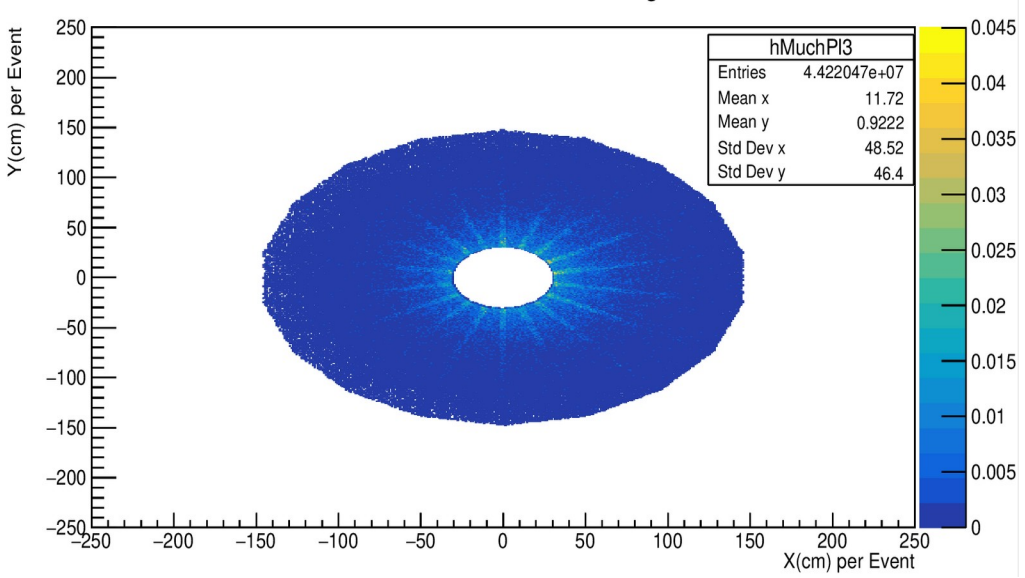
	Station 3	Station 4
No. Of. Mudules	18	18
Sector/Module	46	46
Channel/ Module	10	10

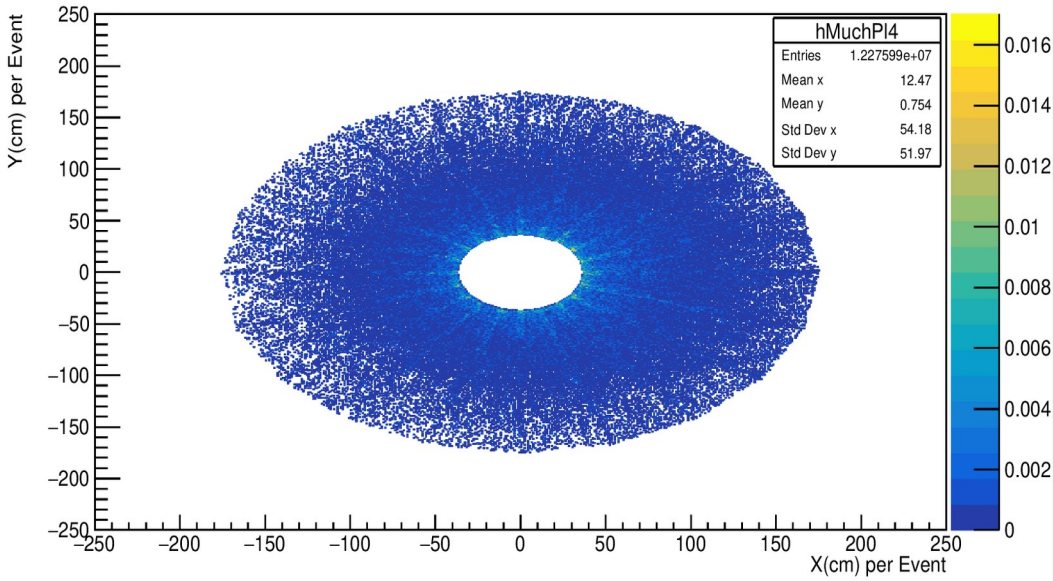
	RPC(Station 3 & 4)
$Q_{threshold}$	15 fC
Q_{max}	250 fC
Spot Radius	1.25 cm
Mean Gas Gain	30000



Position Distribution of the MuCh RPC Station

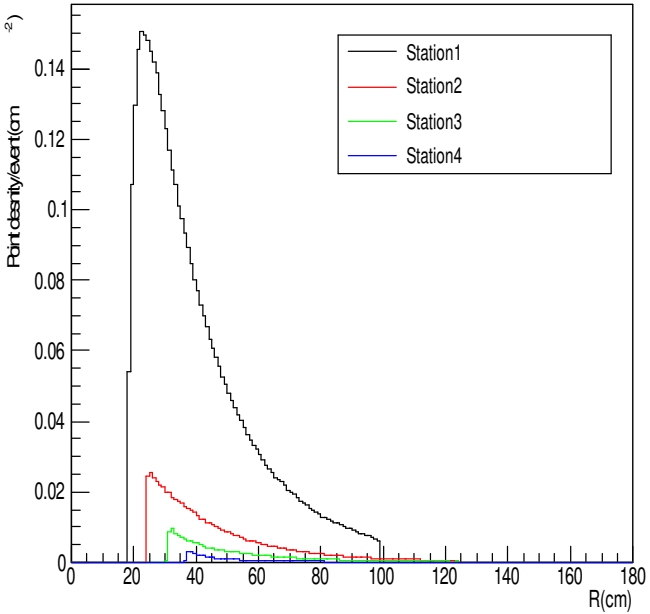




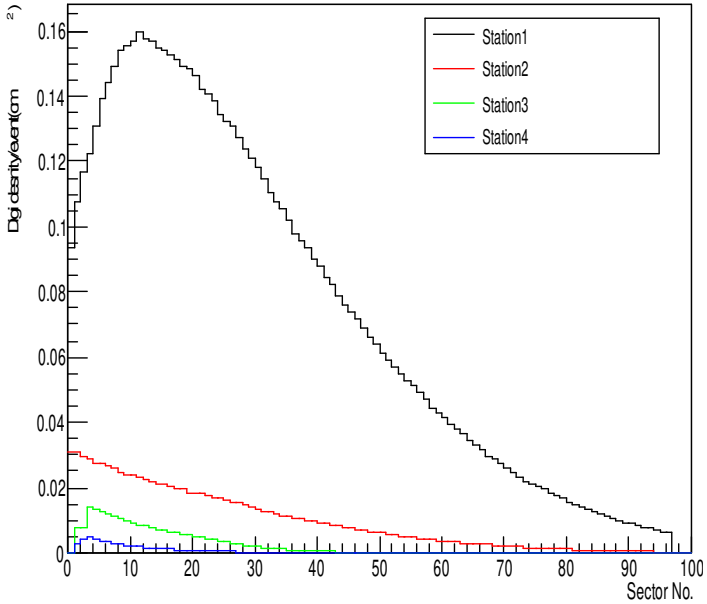


Rate Calculation 12AGeV

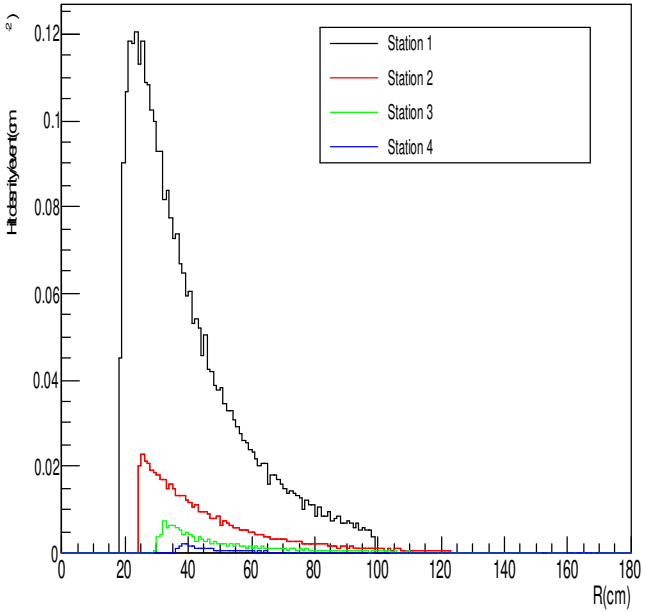
Radial Point Density Distribution 12AGeV



Sectorwise Ring Distribution 12gev



Radial Hit Density Distribution



Peak Density/cm^2	Station 1	Station 2	Station 3	Station 4
Monte Carlo	0.152	0.026	0.0090	0.0032
Digitization	0.160	0.031	0.0140	0.0051
Reconstrcuted Hits	0.121	0.023	0.0076	0.0022

MC Point Density per Event

Peak Density/cm^2	4 AGeV	6 AGeV	8 AGeV	10 AGeV	12 AGeV
Station 3	0.00120	0.0027	0.0049	0.0072	0.0090
Station 4	0.00036	0.00074	0.0014	0.0021	0.0032

Sectorwise Digi Density per Event

Peak density/cm2	4 AGeV	6 AGeV	8 AGeV	10 AGeV	12 AGeV
Station 3	0.001750	0.00400	0.00720	0.0105	0.0140
Station 4	0.000600	0.00130	0.00230	0.0035	0.0051

Hit Density per Event

Peak Density/cm^2	4 AGeV	6 AGeV	8 AGeV	10 AGeV	12 AGeV
Station 3	0.00090	0.0022	0.0040	0.0057	0.0076
Station 4	0.00028	0.00056	0.0010	0.00152	0.0022

Particle rate per event multiplied by 10MHz to get in per second particle rate