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Simulation results summary

CBM MUST

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- Hit rates
- Occupancy

Particle flux (maximum) near beam pipe

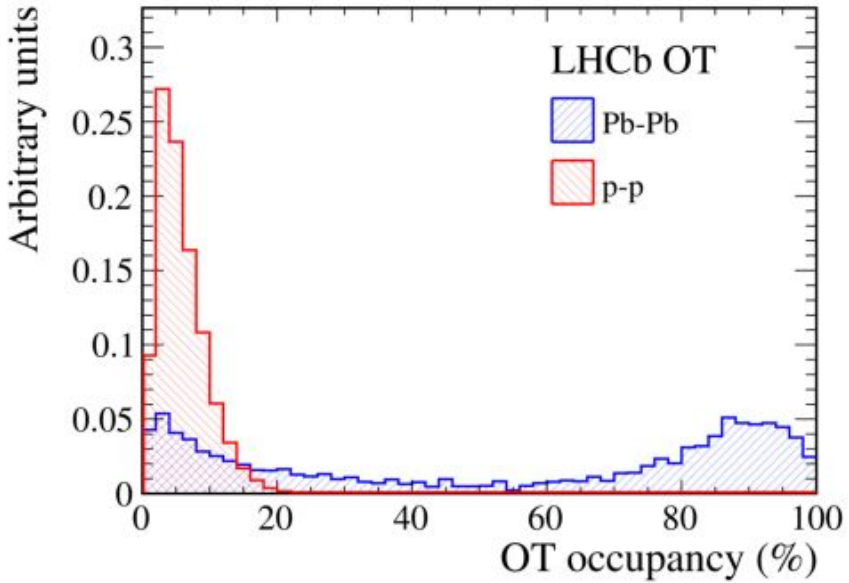
	12 AGeV AuAu		10 AGeV AuAu	
MuCh/MUST	FLUKA (straws) (MHz/cm2)	GEANT3 straws (mbias) (MHz/cm2)	GEANT3 straws (central) (MHz/cm2)	GEANT3 RPC (central) MHz/cm2)
3rd station	0.036	0.007	0.016	0.057
4th station	0.01	0.005	0.004	0.015

– Preliminary numbers

*Thanks to Anna, Anjali & Abhishek for Fluka and CBM transport simulations.

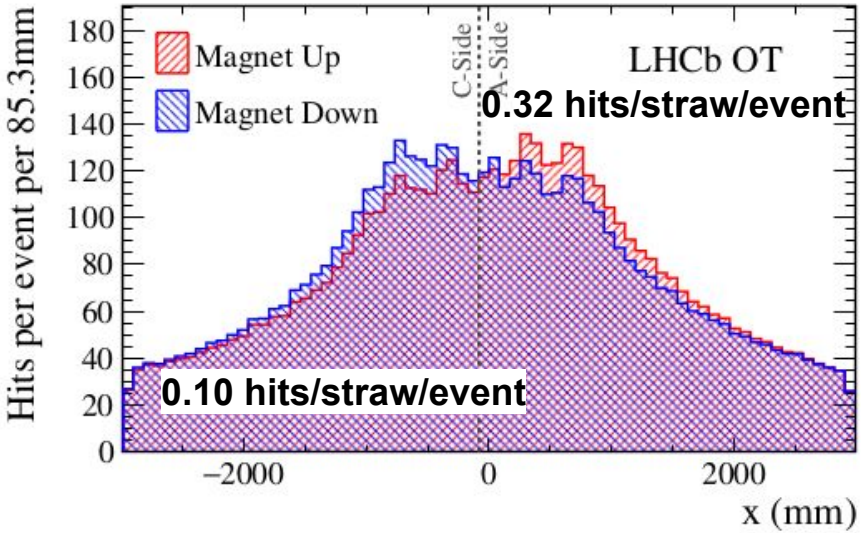
OCCUPANCY IN PROTON AND LEAD COLLISIONS

- Average occupancy for *pp*-collisions in Run II (2015&2016) is 12.7%.
- Only 30 noise hits per event compared to ~6800 hits from particles
- Maximum particle flux: 168 kHz/cm²
- OT has been operated during Pb-Pb runs, but analysis limited to event centrality of 60%



Hit rates/straw in LHCb in Run2

- pp collsions (COM energy 1.38 TeV)



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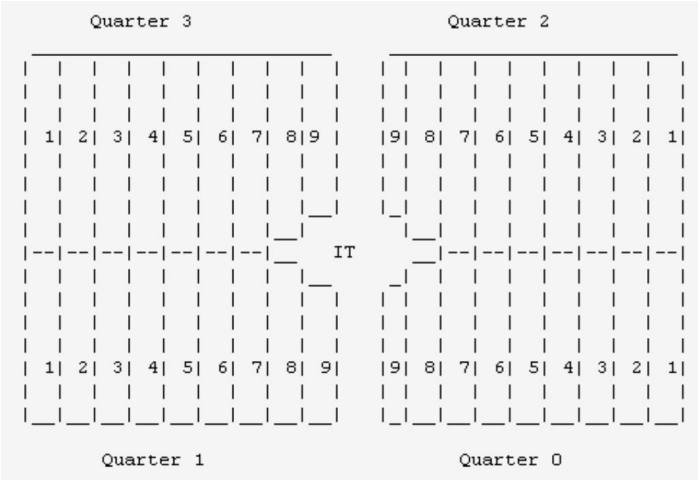


At the central region:
(LHCb) 0.32 x 30MHz = 9.5 MHz/straw
(CBM*) ~0.086 x 10 MHz = 0.86 MHz/straw

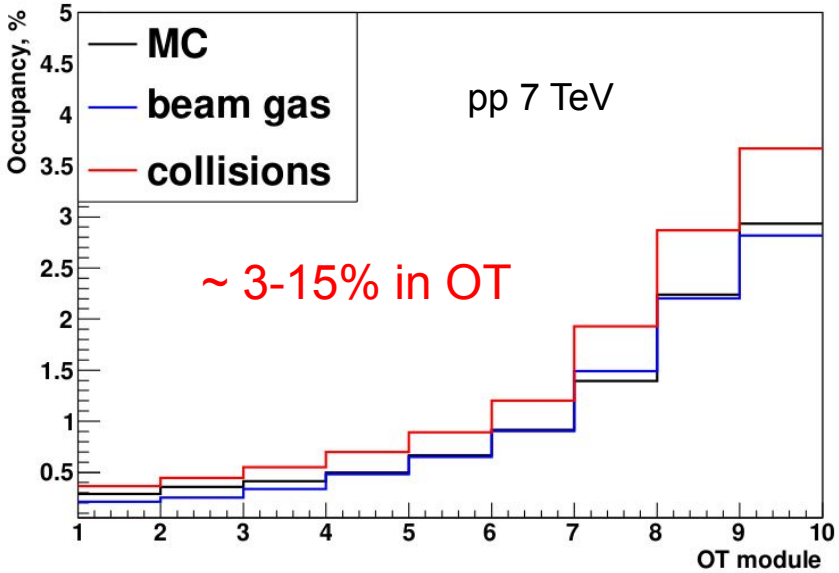
At the sides:
(LHCb) 0.1 x 30MHz = 3 MHz/straw
(CBM*) ~0.02 x 10MHz = 0.2 MHz/straw

*CBM Sim (mbias) by Anjali&Abhishek

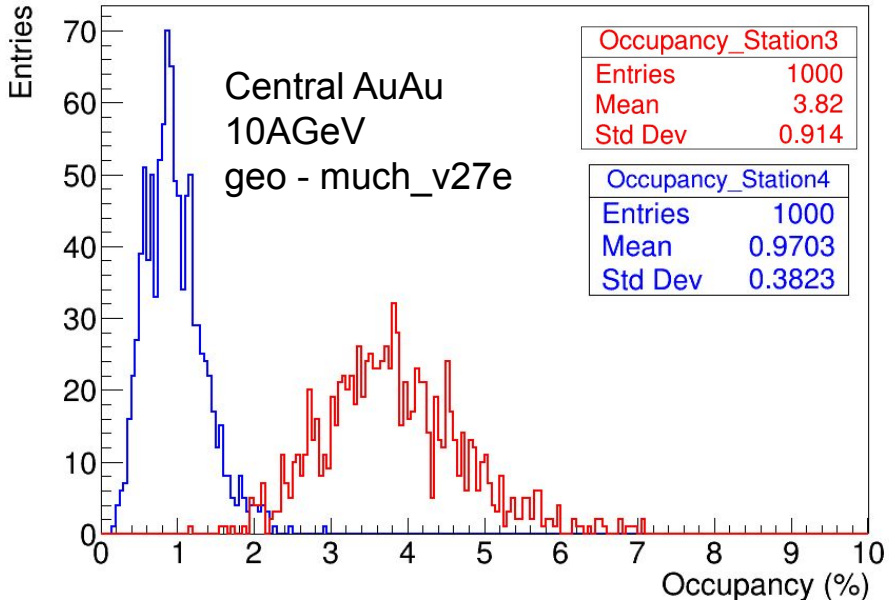
Occupancy in LHCb and CBM

$$\text{Occupancy} = \frac{\text{no. of straws fired}}{\text{total no. of straws}}$$

LHCb Run 1 (2009)



CBM-MUCH simulation



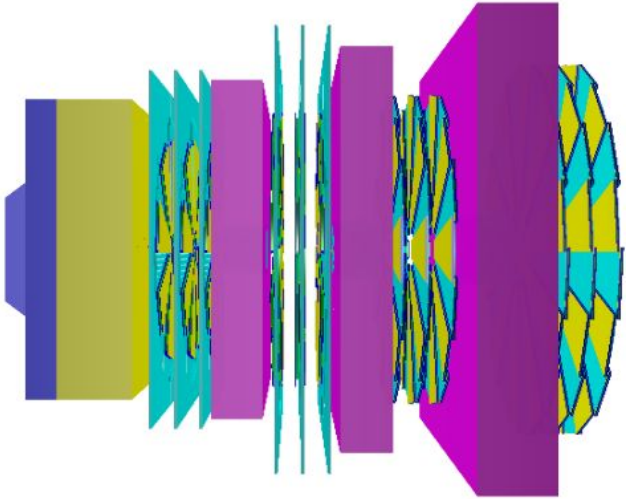
*Thanks to Anjali & Abhishek for CBM transport simulations.

CBM MUST

- Introduction - LHCb OT
- History and Status of OT
- Feasibility of using OT at CBM
- Introducing MUST, a CBM PANDA group
- Geometry MUST
- Simulations (FLUKA & GEANT3)
- PASTA (1 slide) is a technological project
- Summary & Discussions (open)
- Outlook (group meetings to be continued)- collecting comments/cristicism

backup

Particle flux (maximum) near beam pipe



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