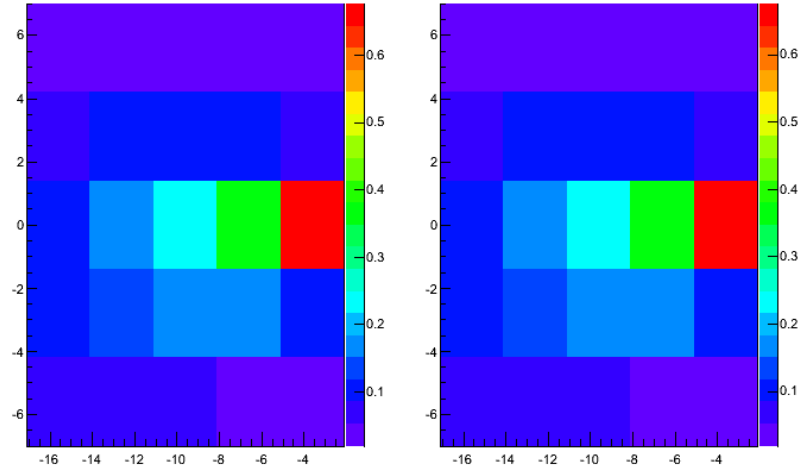


For sanity checks

- Occupancy/BX plotting from Mirko's $\mu=50$ ntuples, for the 2 arms (granularity according to quartic layout)
- File:
 - mu68_50_16Mar_500K.root
- Variables:
 - Ntpl_Particle_Arm = 0 or 1
 - Ntpl_Particle_X
 - Ntpl_Particle_Y
 - Ntpl_Particle_Type=2

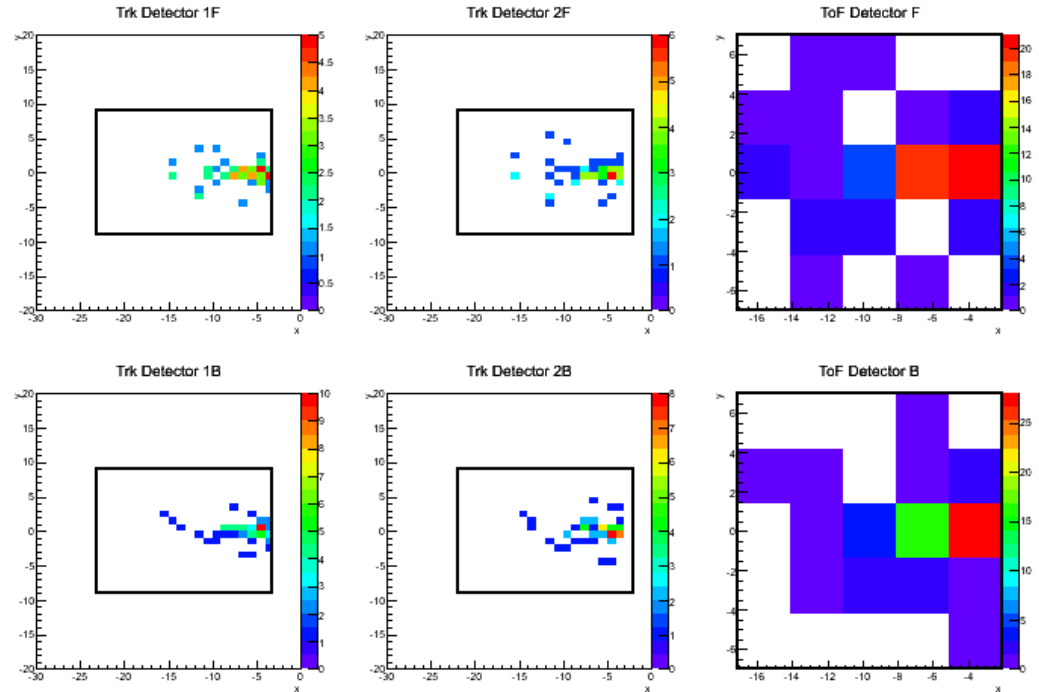


Procedure so far

1. Apply central detector cuts and proton acceptance cuts to WW MC as before (FullSim for central detector, Fastsim smeared RECO for PPS protons)
2. For each signal MC event read from WW ntuples, also read 1 BX from Mirko's background ntuples
3. Find timing detector cell position of the protons from WW MC, and cell positions of all background tracks
 - a. Only quartic geometry for now
4. If a signal proton falls in the same cell as ≥ 1 background track, reject the event

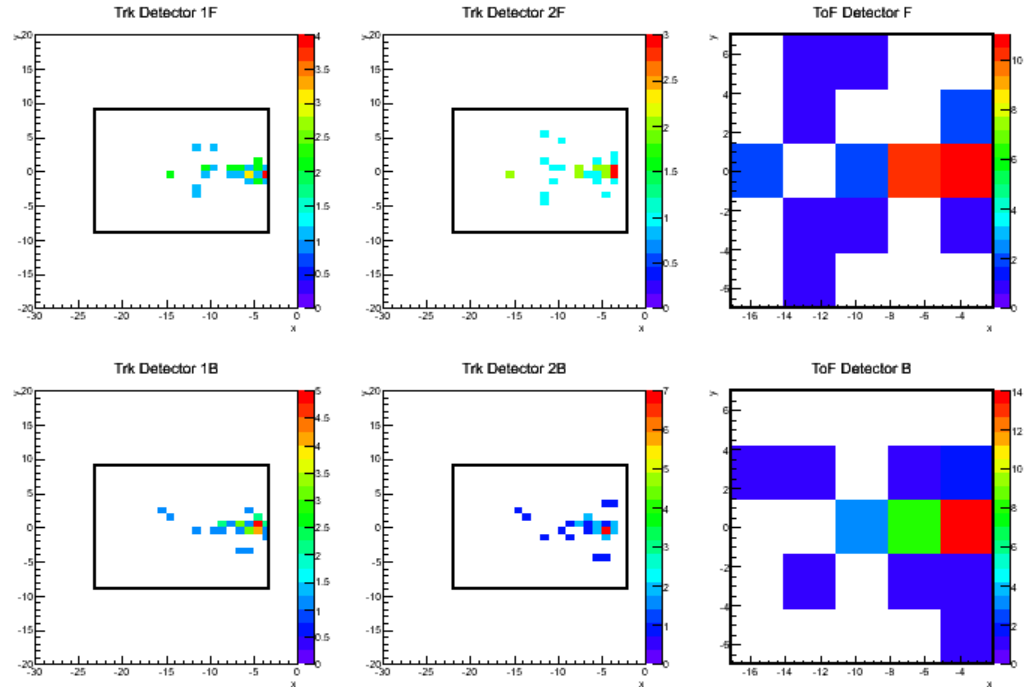
Hitmaps before background overlay

- Signal MC after central detector cuts + requiring coincidence in all tracking/timing stations
- Before removing events overlapping with backgrounds in quartic



Hitmaps after background overlay

- Signal MC after central detector cuts + requiring coincidence in all tracking/timing stations
- After removing events overlapping with backgrounds in quartic



Numbers (mu+mu- channel only)

Selection	Nevents selected	Relative cumulative eff	Visible xsec*BF (fb)
Generated WW->mu+mu-	1938	100%	0.8
Both muons in CMS muon/tracker geometrical acceptance at GEN level ($ \eta < 2.4$)	1335	69%	0.57
Both muons reconstructed with $p_T > 20$ GeV (~above trigger threshold)	960	49%	0.41
Opposite-charge muons, both passing tight ID	807	42%	0.35
Protons in TRK+TOF acceptance of both arms of PPS (fastsim RECO)	62	3.2%	0.025
And no overlapping background hits in ToF cells	34	1.8%	0.014

New
part

