

# ORCA data studies

Runs: 2495-2500 (all DOMs functional)

Using L1 slices

*VERY PRELIMINARY!*

group meeting 12 October 2017

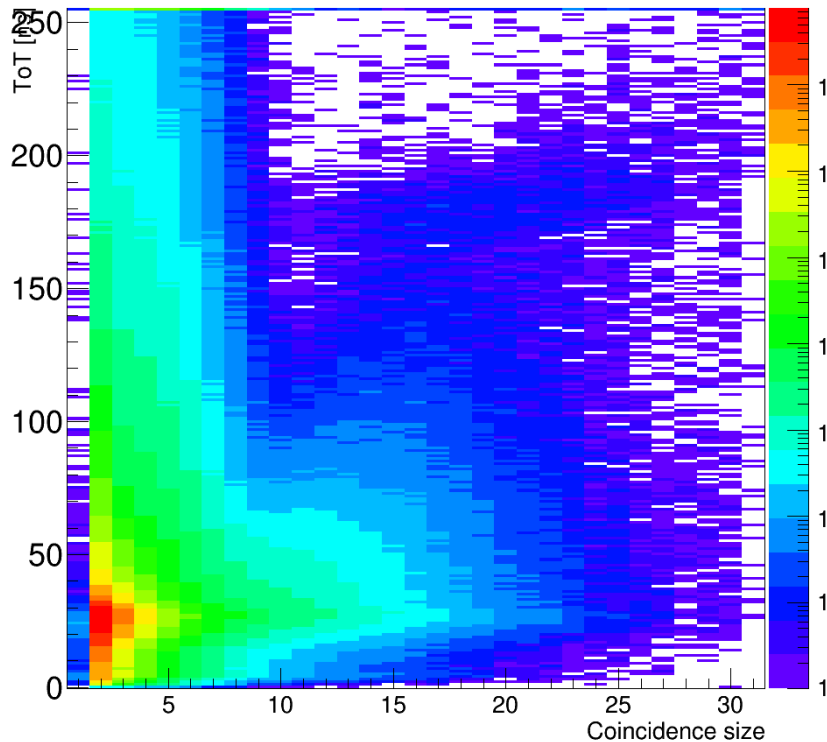
Dorothea Samtleben

# ToT of hits in L1 cluster versus L1 multiplicity

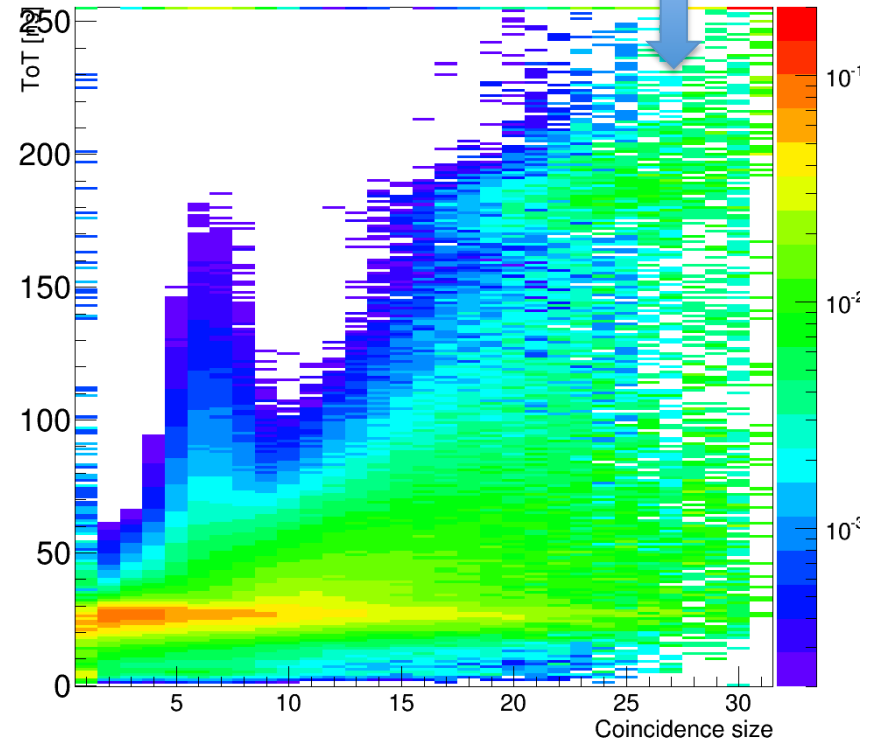
Using JClusterBuilder (Jpp\_v8.0.7290) with 30ns window

$\delta$  ray contribution?

ALL DOMS

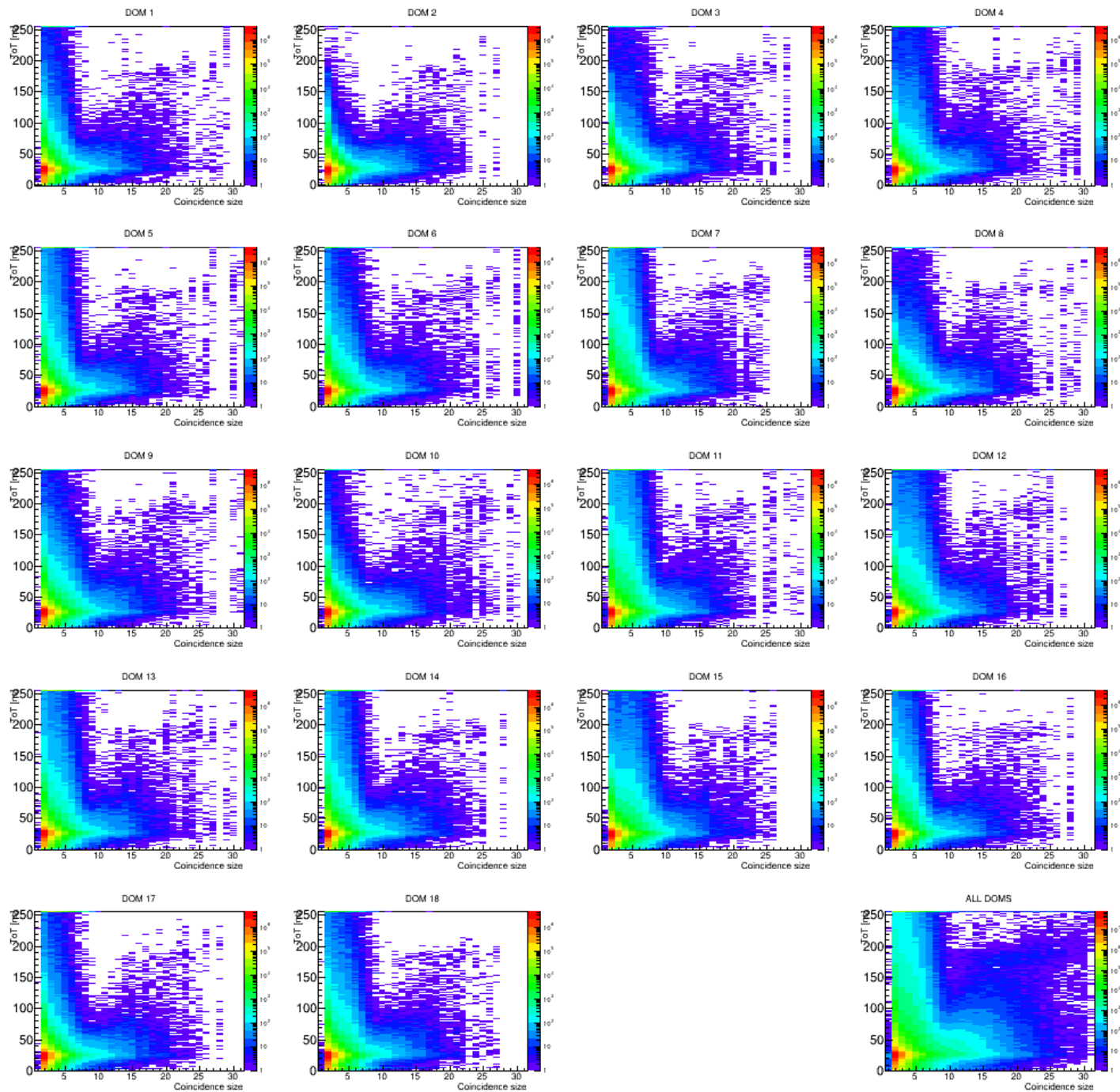


ALL DOMS

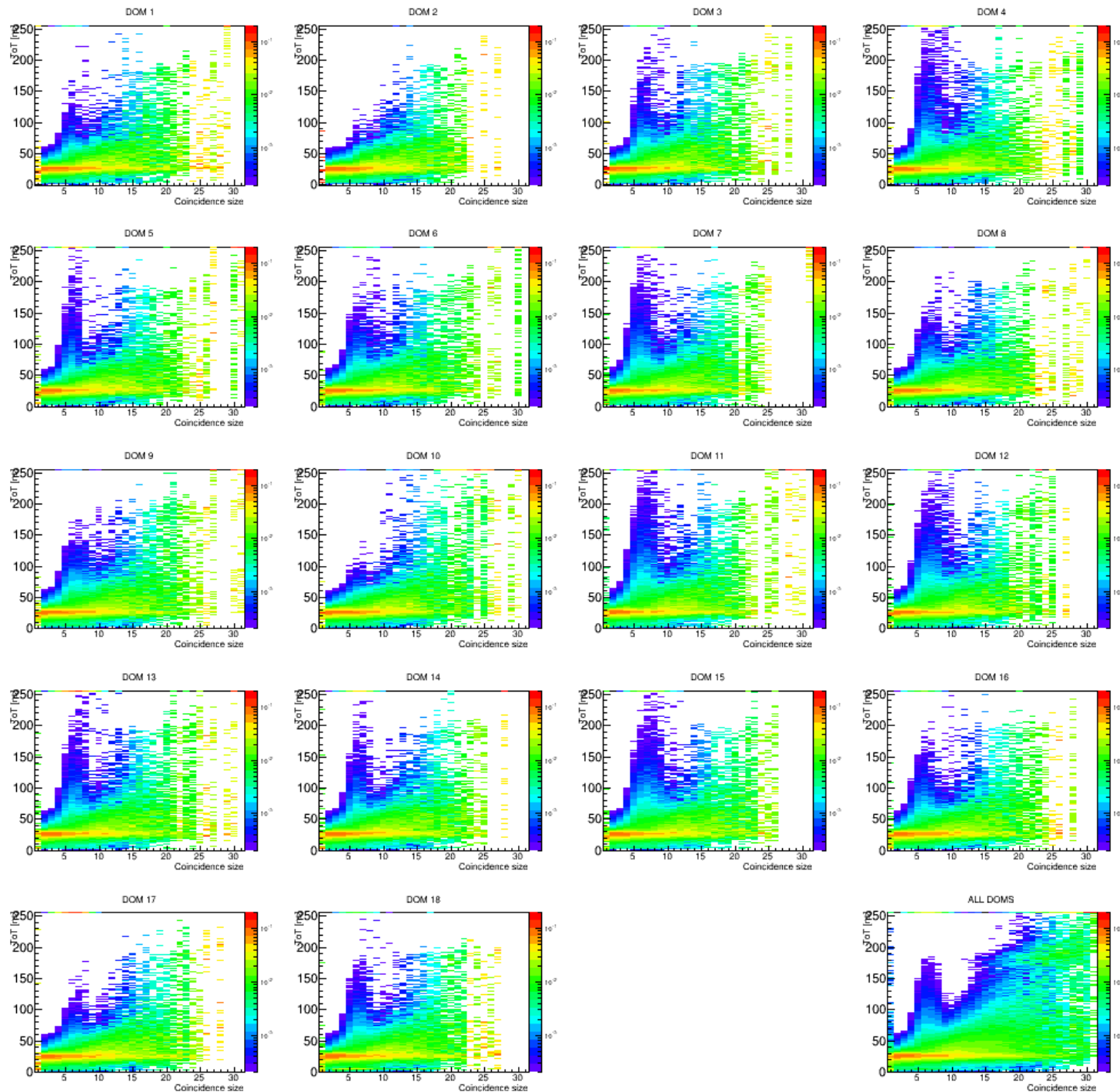


Same as left side, but every vertical row here normalized  
=> compare ToT shape for different multiplicities

Same plots  
for all DOMs



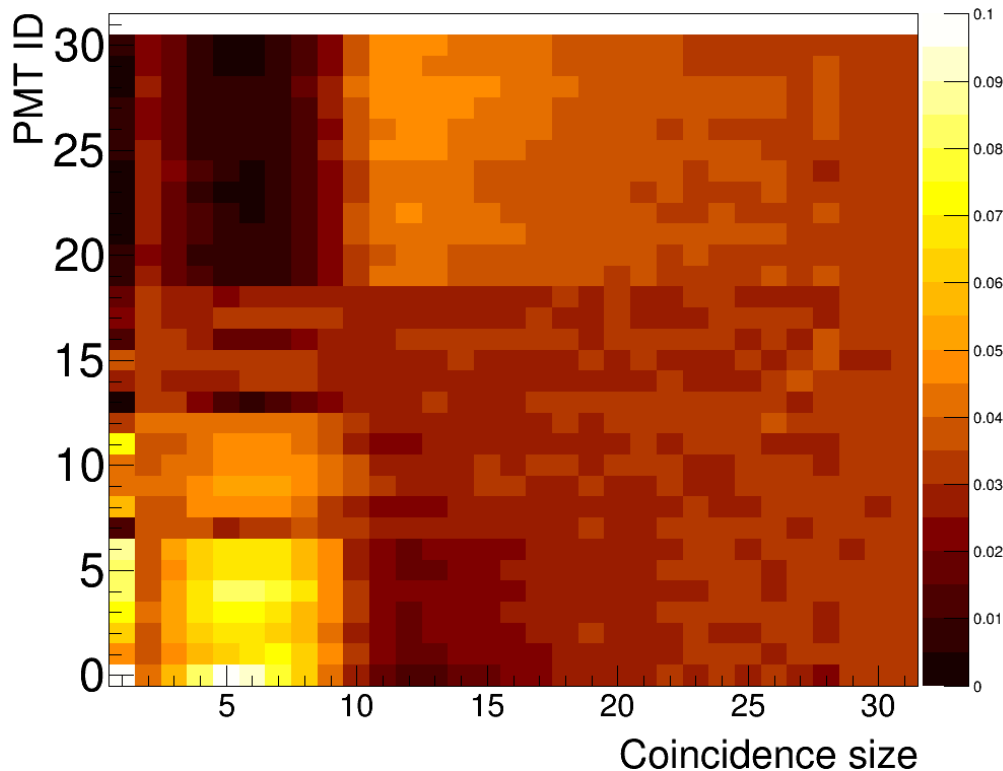
Same plots  
for all DOMs



# PMT channel occupancy in L1 cluster versus L1 multiplicity

Using JClusterBuilder (Jpp\_v8.0.7290) with 30ns window

ALL DOMS



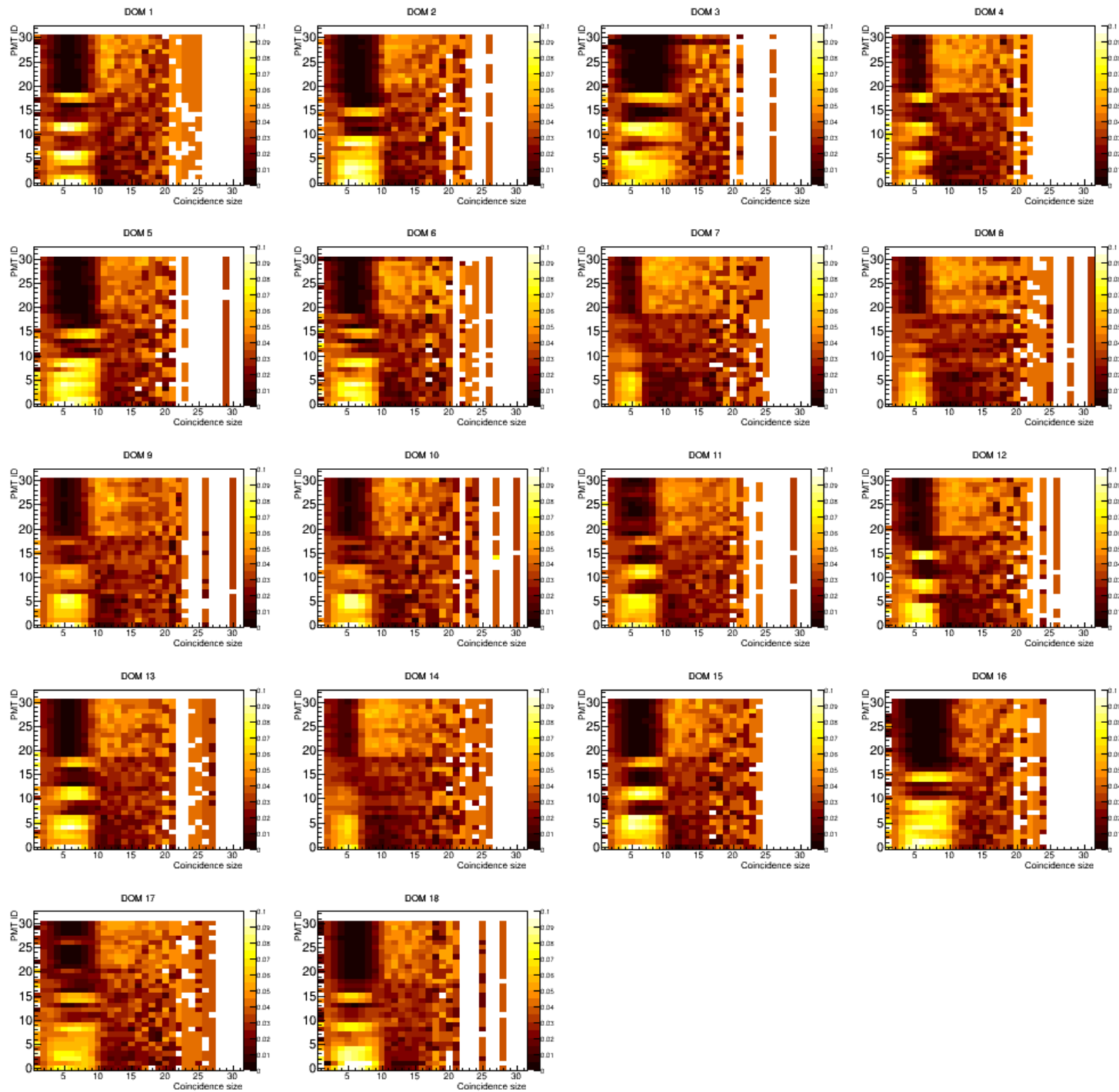
Each vertical slice normalized in order to compare shapes of channel distribution at different multiplicities

Lower hemisphere has larger PMT density and thus larger combinatorics phase space => K40/bioluminescence enhanced

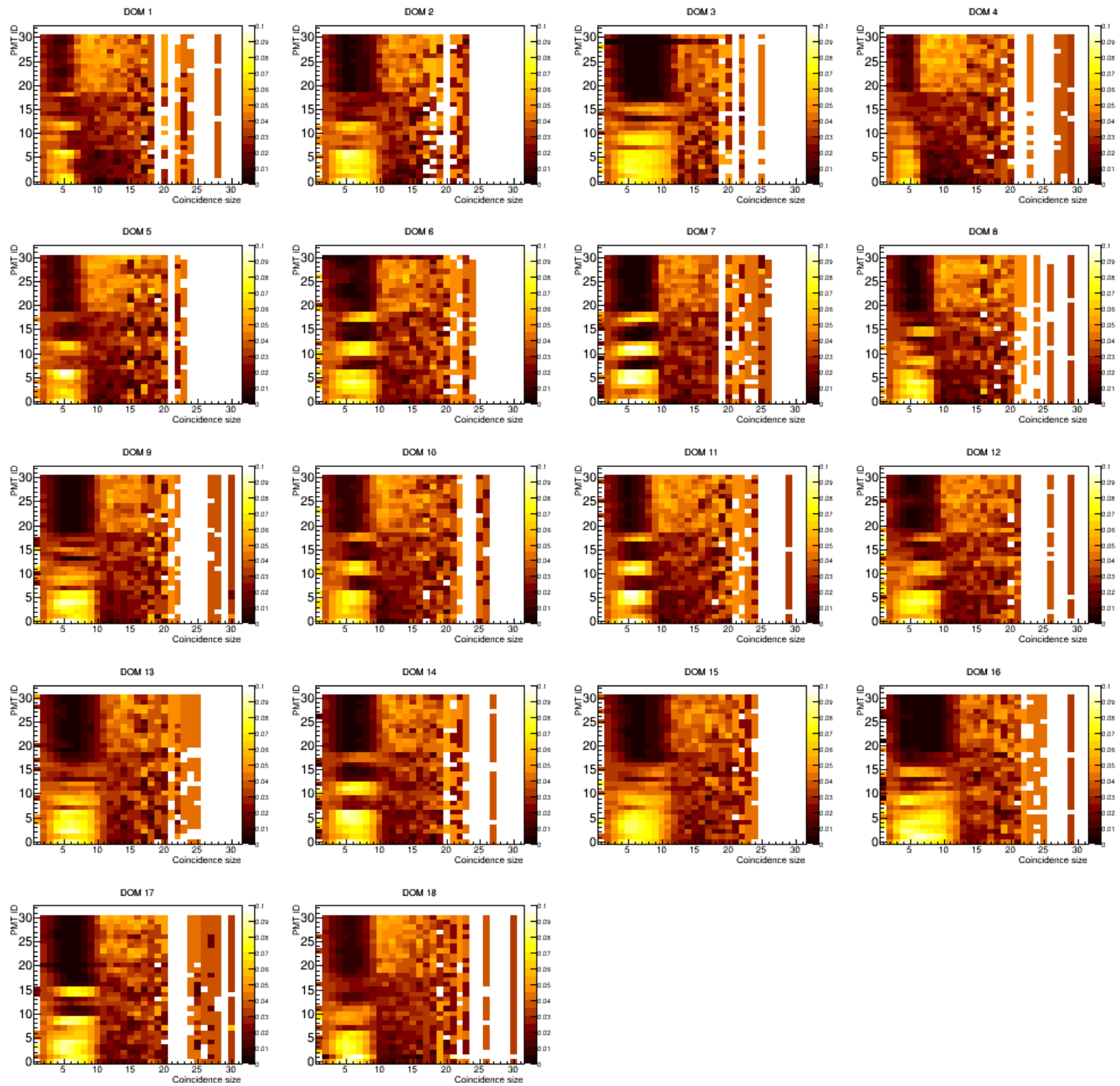
Large multiplicities:  
Muon contribution visible as enhancement of signal in upper hemisphere.

Visible patterns not understood (routine to be double checked!)

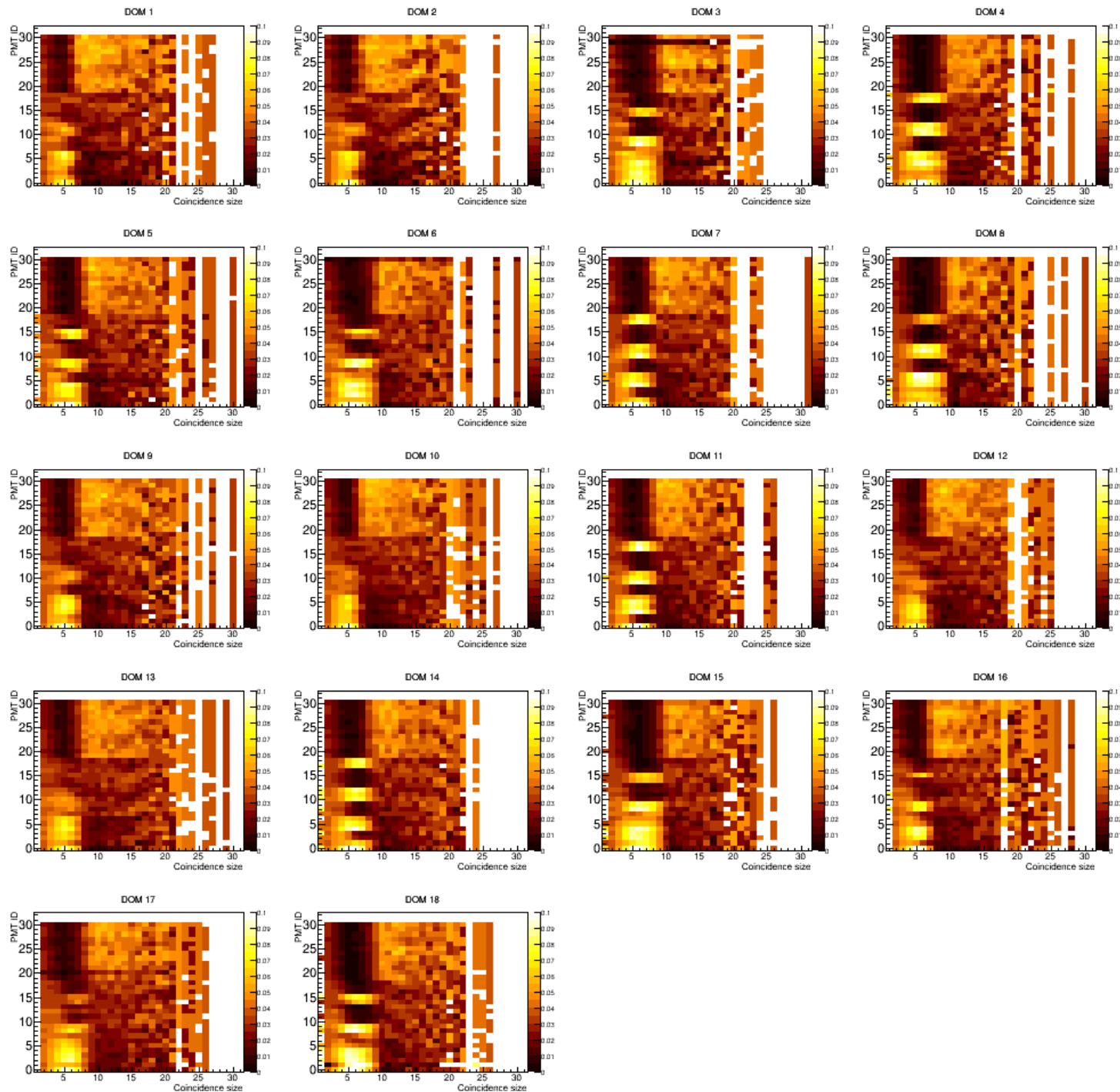
Run  
2498



Run  
2499



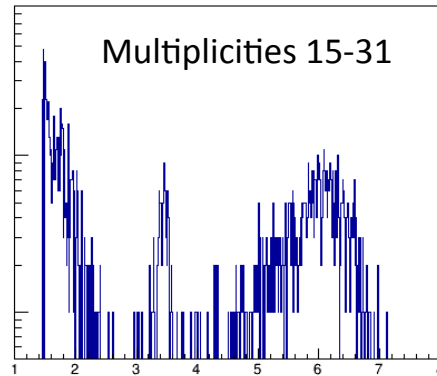
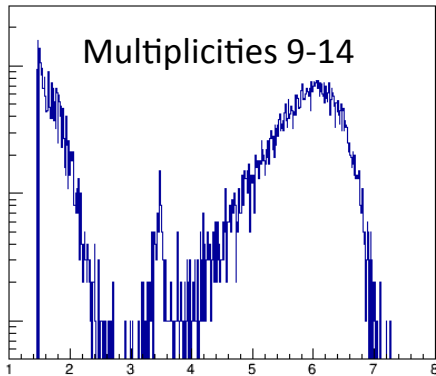
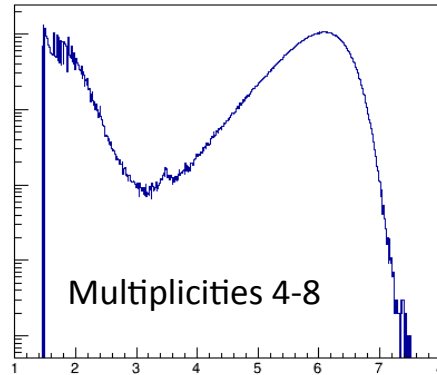
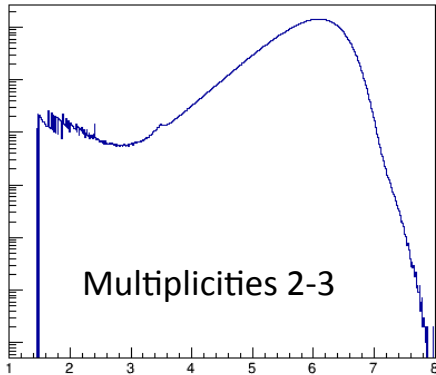
Run  
2500





# Time difference between L1 clusters

Using JClusterBuilder (Jpp\_v8.0.7290) with 30ns window



For high multiplicity coincidences an afterpulse contribution is noticeable

Afterpulses 3-5 $\mu$ s  
 $\log_{10}(3000)=3.5$   
 $\log_{10}(5000)=3.7$

x-axis:  $\log_{10}(\text{time difference/ns})$