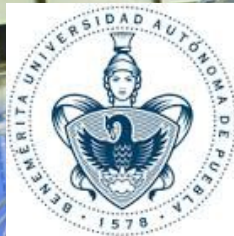


ALICE



Sphero(i)city technicalities

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ACO
meeting

24 de febrero 2017

Outline

- Response for Sopc_m vs So_m for Pythia Monash
- Nch Response matrix and extrapolation for Perugia 0 and EPOS-LHC
- Efficiency and secondaries contamination for EPOS-LHC
- Corrections to the paper text

❑ Software

- ❑ AliRoot: v5-08-13a-1 AliPhysics: vAN-20160716-1 ROOT: v5-34-30-alice5-alice-1

❑ Datasets

- ❑ Good runs (according with RCT) LHC15f pass2

- ❑ LHC15g3a3 (Pythia 8 - Monash 2013) anchored to LHC15f pass2

❑ Event selection

- ❑ AliEvent::kINT7, AnalysisUtils::IsSPDClusterVsTrackletBG(), IsPileupFromSPDInMultBins(), IsIncompleteDAQ()

❑ Vertex

- ❑ For events with both SPD and Track vertices reconstructed, their separation along the z-coordinate was required to be smaller than 5 mm

❑ Sphero(i)city is reconstructed using more than two tracks with transverse momentum greater than $0.15 \text{ GeV}/c$ and within $|\eta| < 0.8$. Three sets of cuts were tested:

- ❑ **TPC**: GetStandardTPCOnlyTrackCuts()+TPCrefit

- ❑ **Hybrid**: CreateTrackCutsPWGJE(10001008)+CreateTrackCutsPWGJE(10011008)

- ❑ **Standard**: GetStandardITSTPCTrackCuts2011(kTRUE,1)

❑ At the end we decided to use the TPC track cuts (global tracks which satisfy GetStandardTPCOnlyTrackCuts()+TPCrefit). More details can be found here:

<https://aliceinfo.cern.ch/Notes/node/529>

❑ In this presentation, results for the reference estimator are discussed

- ❑ **GetReferenceMultiplicity(fESD, AliESDtrackCuts::kTrackletsITSTPC, 0.8)**

❑ pp data @ 13 TeV

❑ Period: LHC15f pass2

❑ Runs: 225031 225576 225757 226476 225035 225578 225762 226483
225037 225579 225763 226495 225041 225580 225766 226500 225043
225582 225768 225050 225586 226062 225051 225587 226170 225052
225707 226220 225106 225708 226225 225305 225709 226444 225307
225710 226445 225309 225716 226452 225313 225717 226466 225314
225719 226468 225322 225753 226472

❑ 48 M events were analyzed

❑ Software: AliRoot::v5-08-13a-1, AliPhysics::vAN-20160716-1

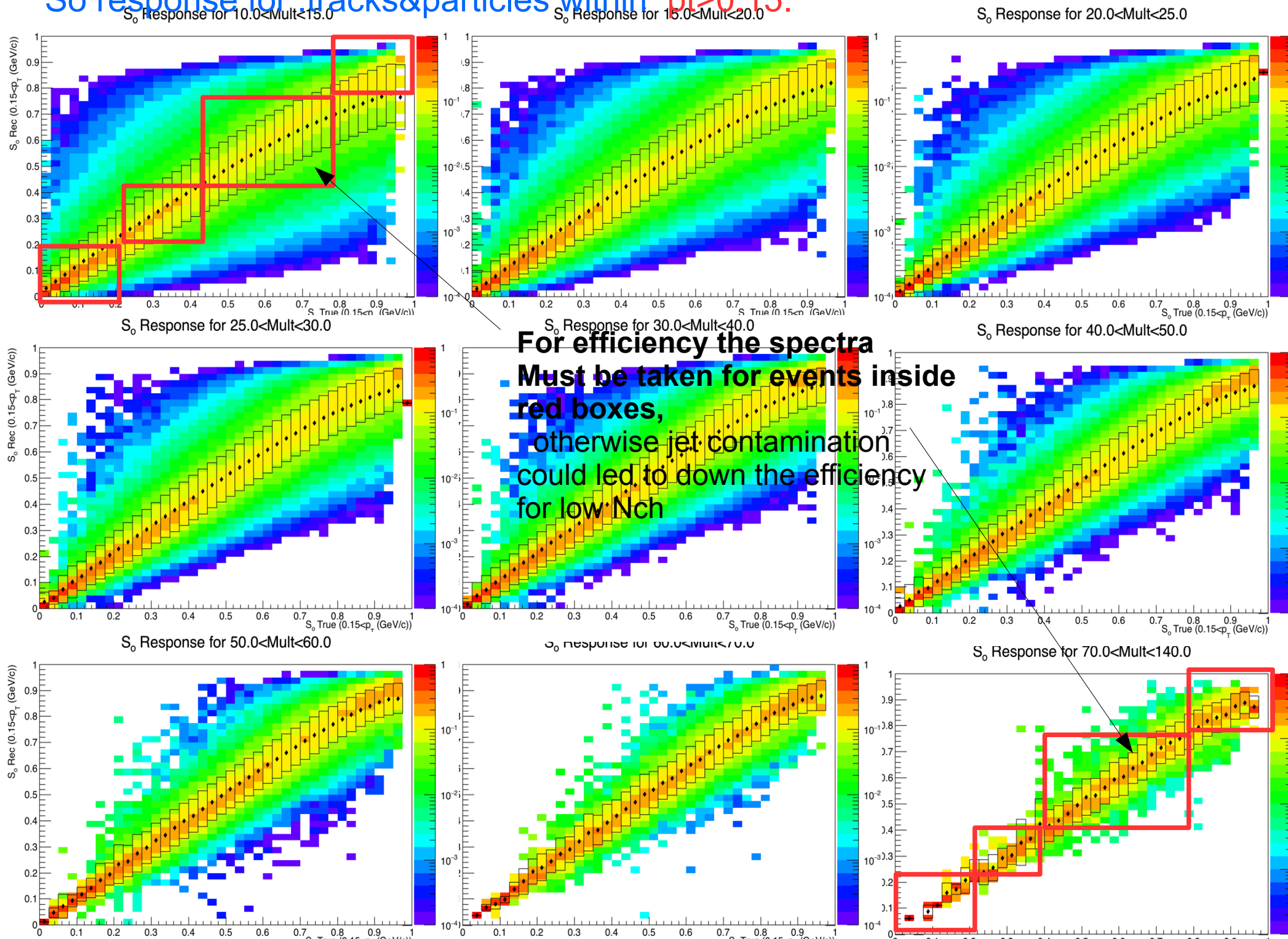
❑ According with Evgeny's talk: <https://indico.cern.ch/event/489470/>, using recent software version: physics selection now implements: new background + pileup cuts

❑ kINT7 trigger, isIncompleteDAQ

❑ We use the recommended vertex selection for 13 TeV pp analyses:

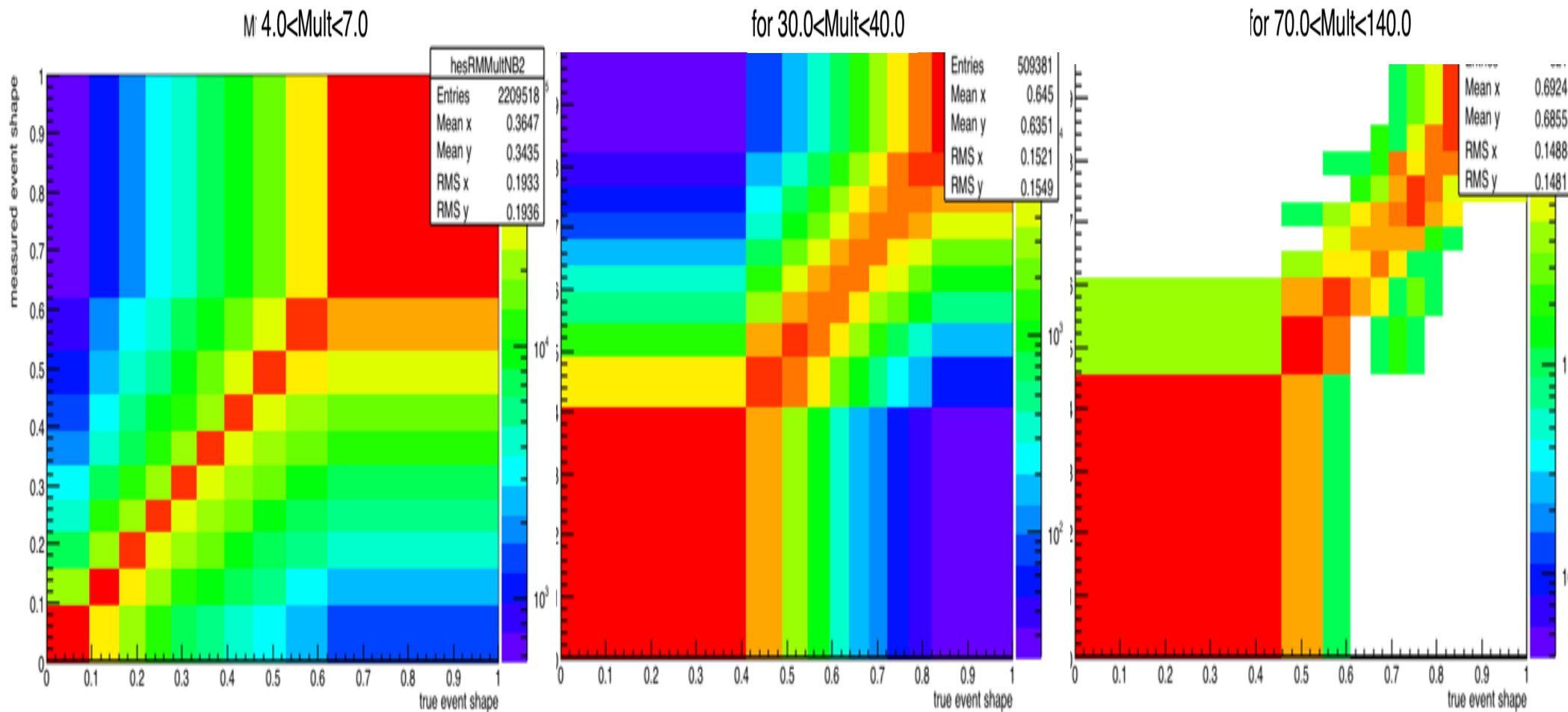
[https://twiki.cern.ch/twiki/bin/view/ALICE/
PWGPPEvSelRun2pp](https://twiki.cern.ch/twiki/bin/view/ALICE/PWGPPEvSelRun2pp)

So response for tracks&particles within $pt > 0.15$.



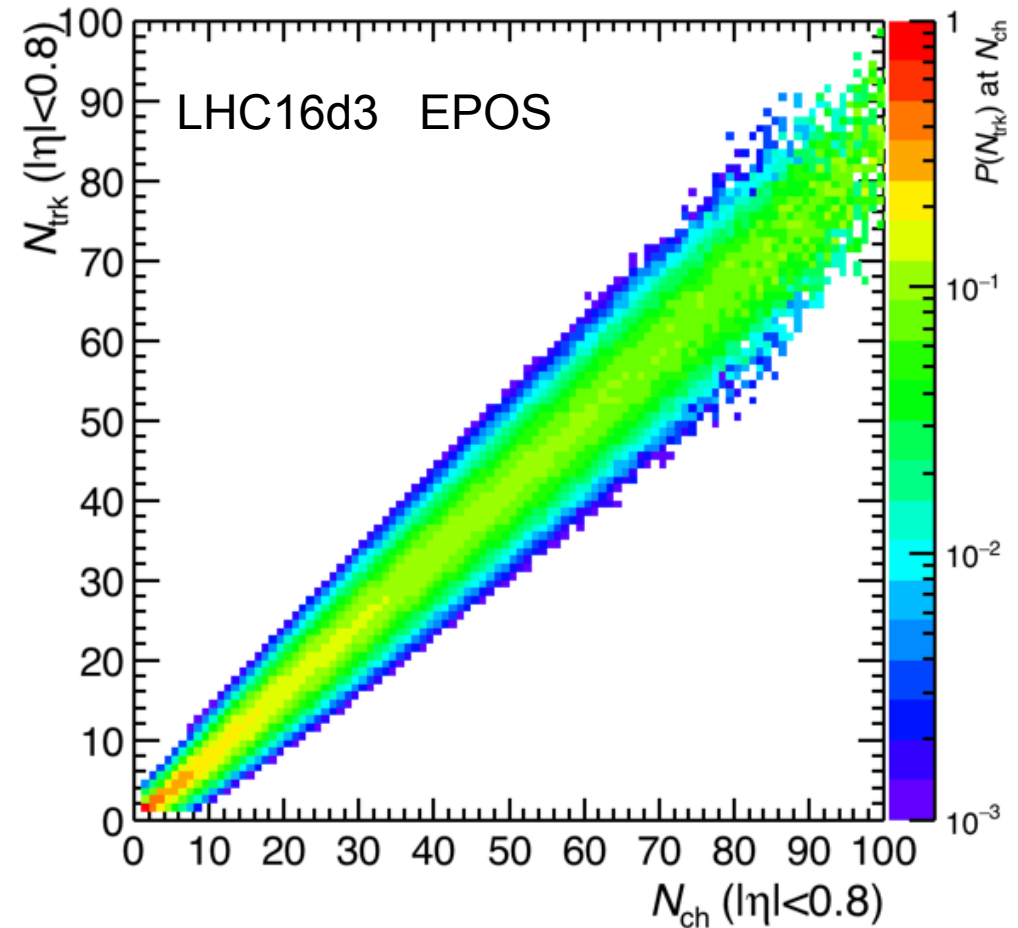
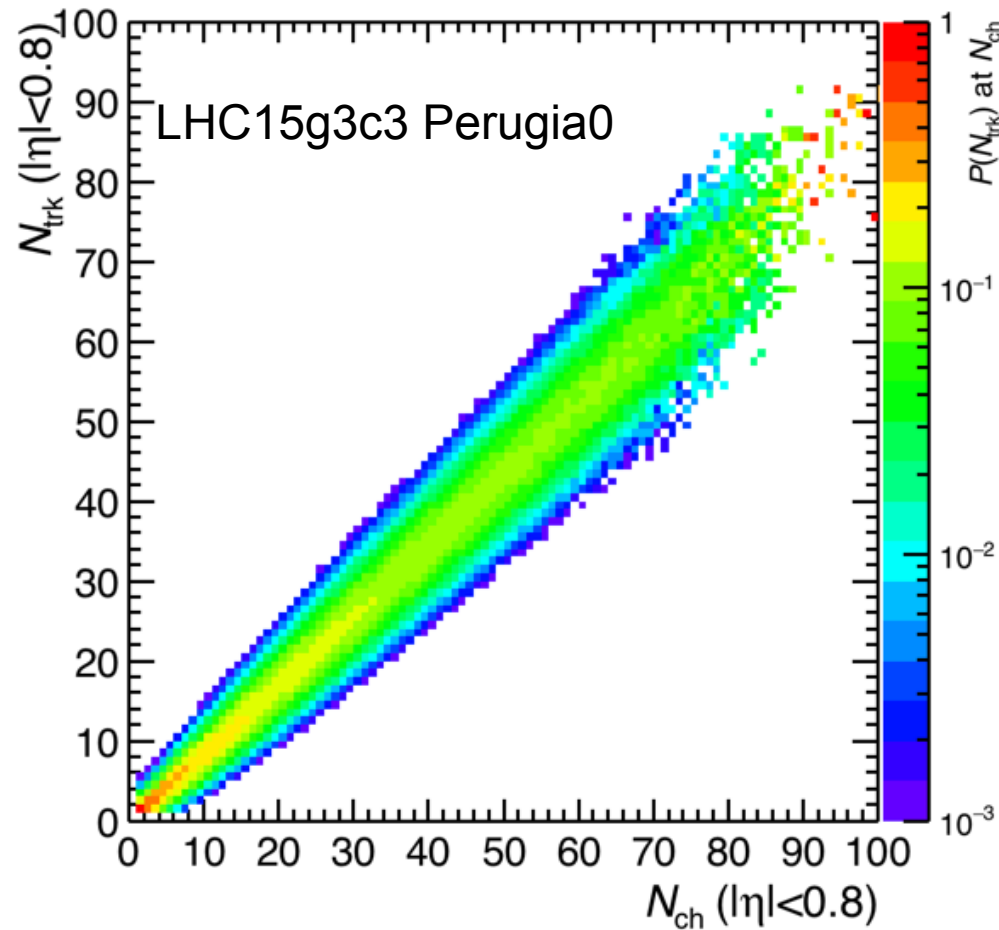
So response (som vs sot in bins corresponding to 10%pc)

- This was done with Perugia 0, in order to unfold Monash as data



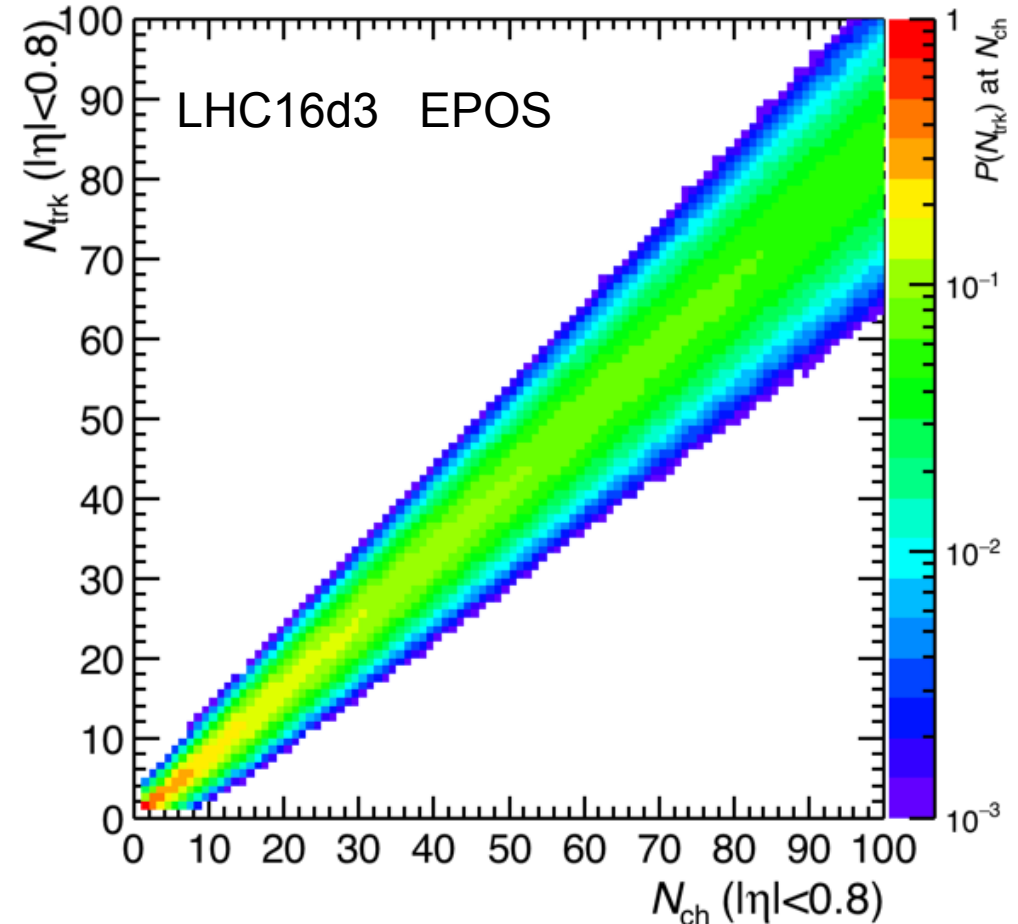
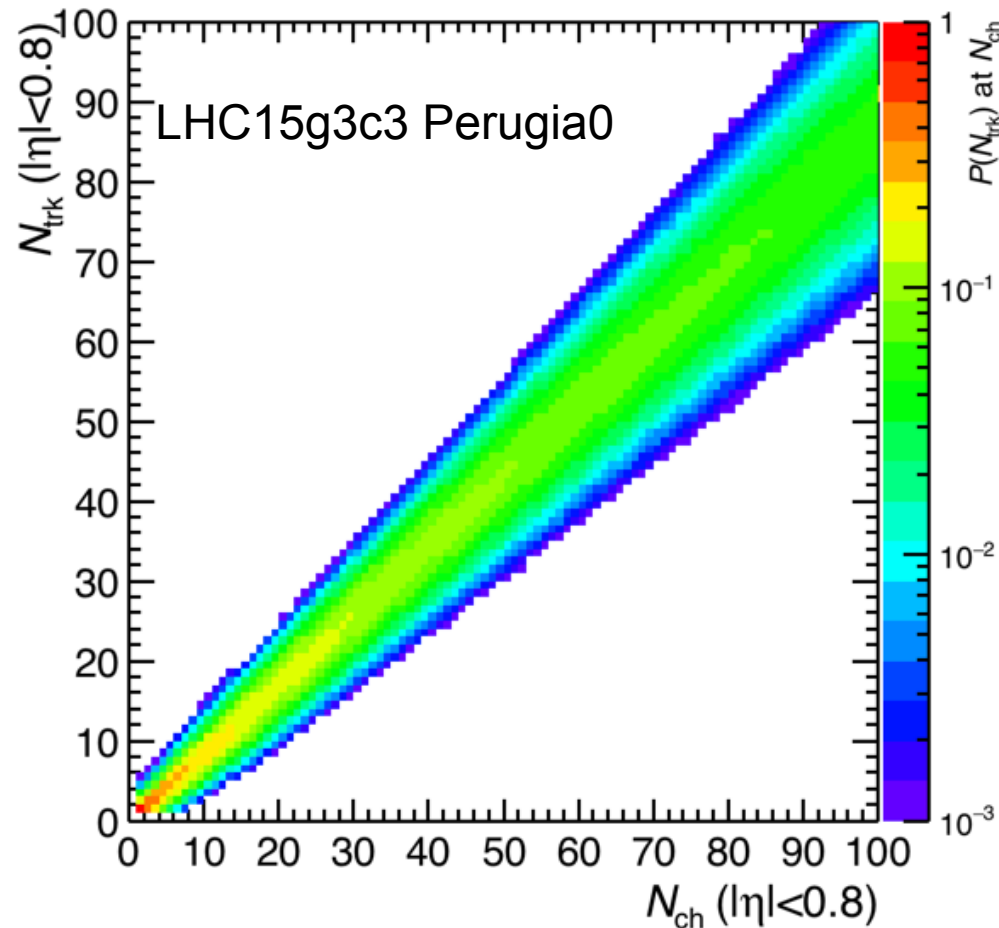
All entries to 10% of Sopc are of the same order

- Nch response matrix
- This was done with Perugia 0, and EPOS



High statistics for EPOS-LHC

- Nch response matrix extrapolated
- This was done with Perugia 0, and EPOS



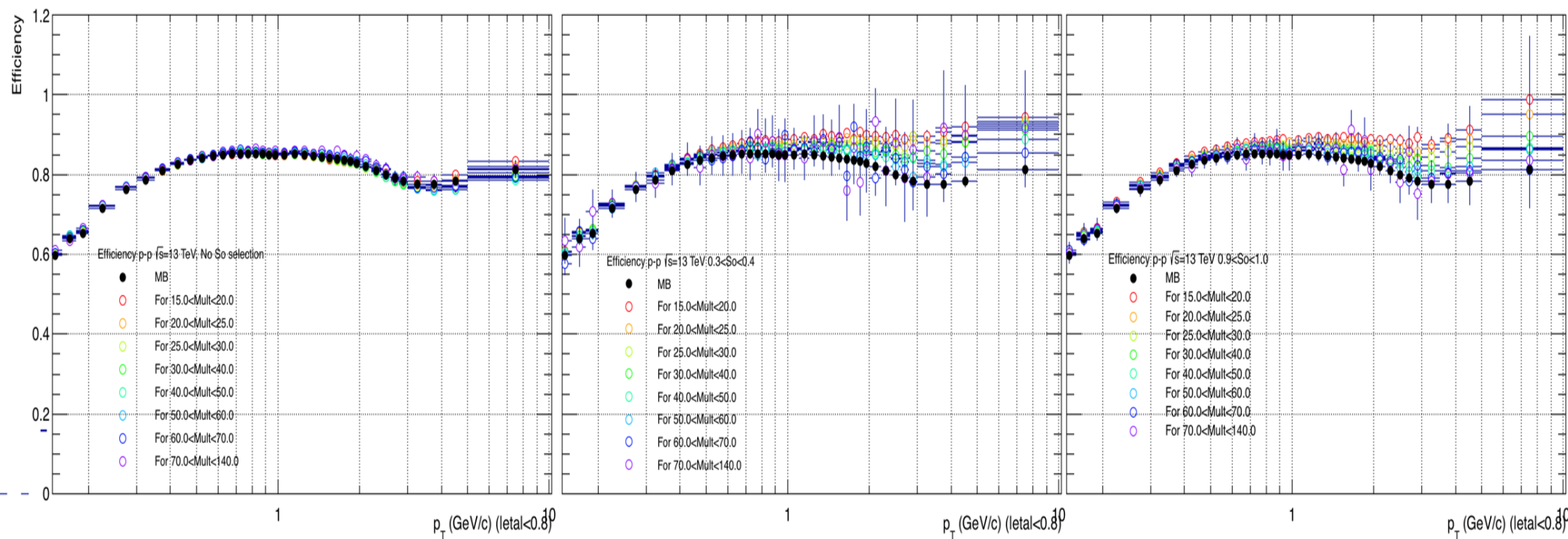
We will use EPOS-LHC for correction

• Efficiency for EPOS-LHC (LHC16d3)

No So selection

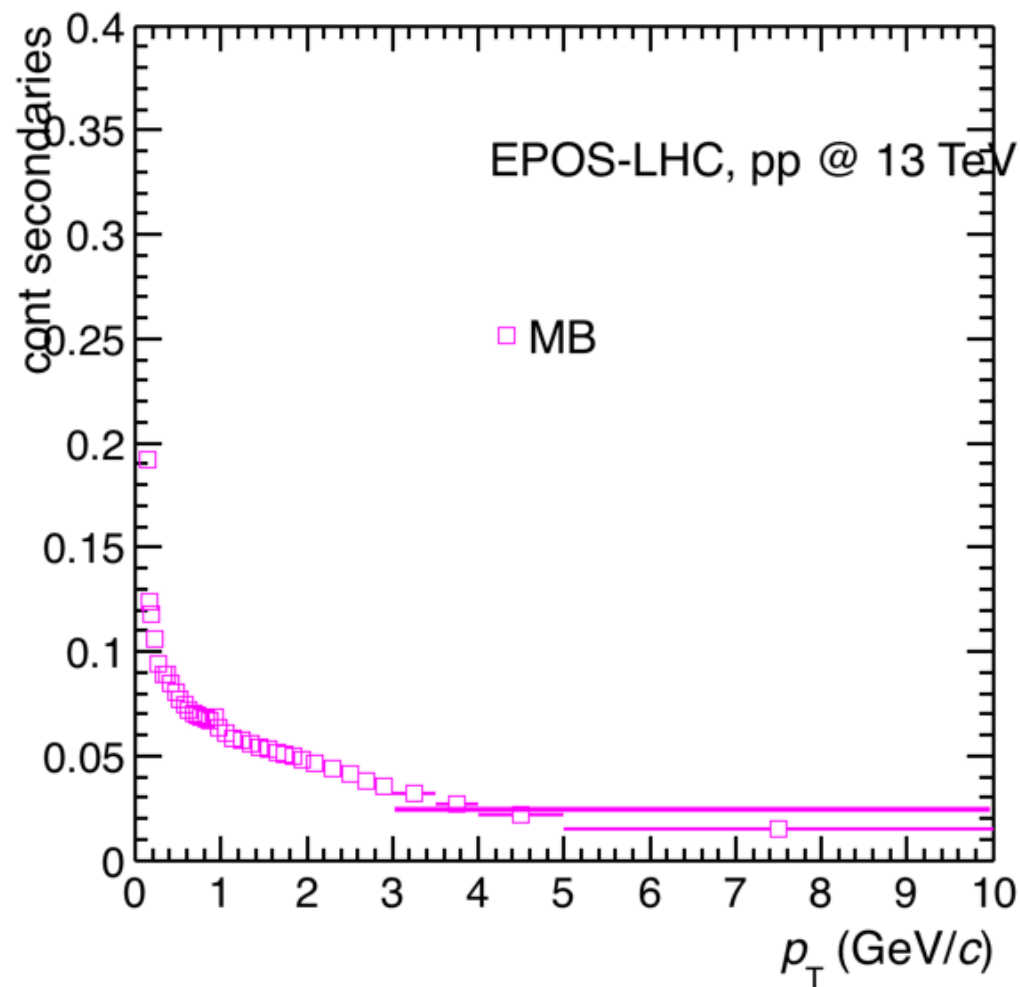
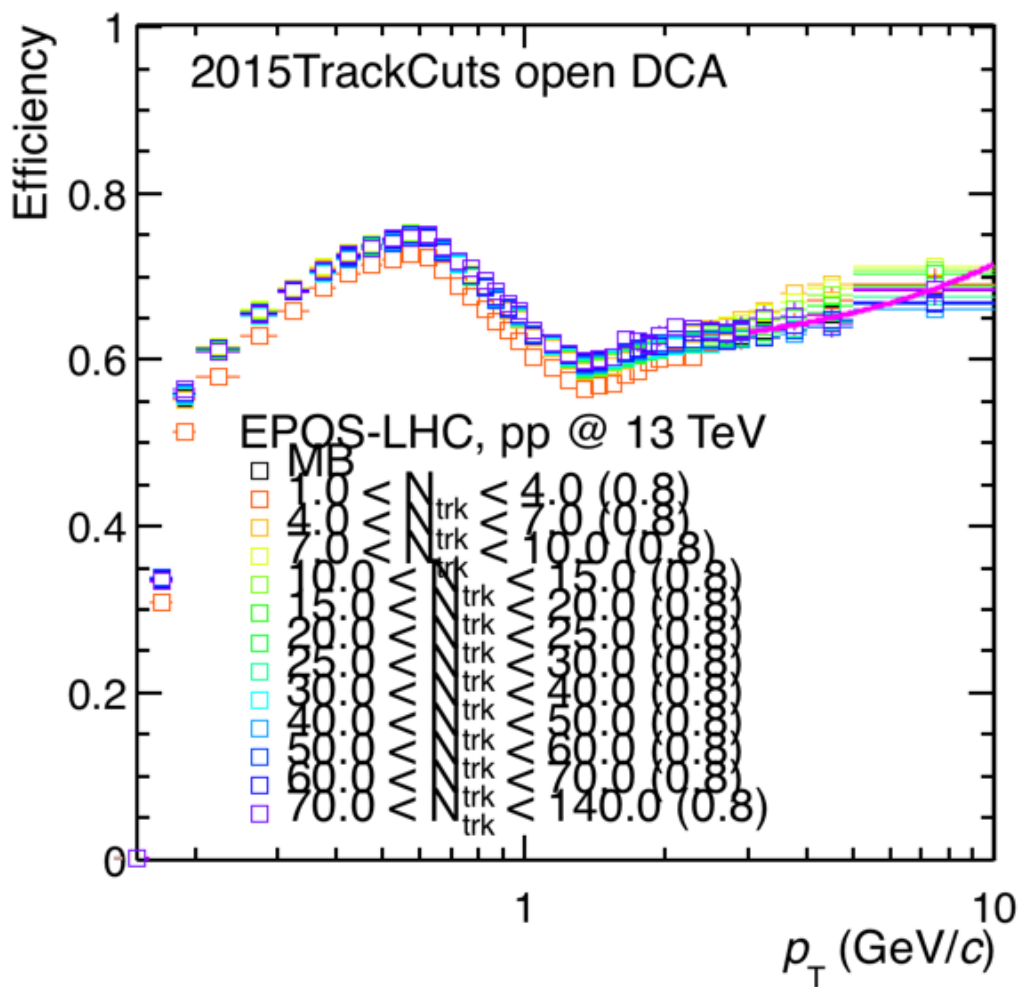
Jetty
0% < So_t & So_r < 10%

Isotropic
90% < So_t & So_r < 100%



We will use MB for correction

- Efficiency and secondaries for EPOS-LHC



Conclusions

- Nch response matrix was obtained for EPOS
- Efficiency and Secondaries contamination were obtained also

To do

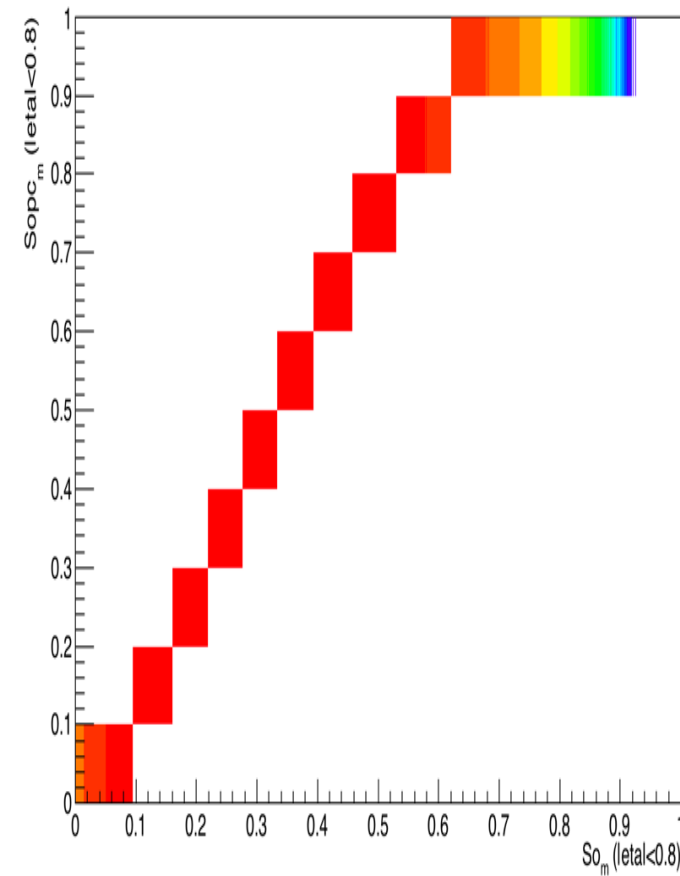
- Get the <pt> spectra in So bins of Monash and unfold with EPOS-LHC.
- Do the same with data.

Backup

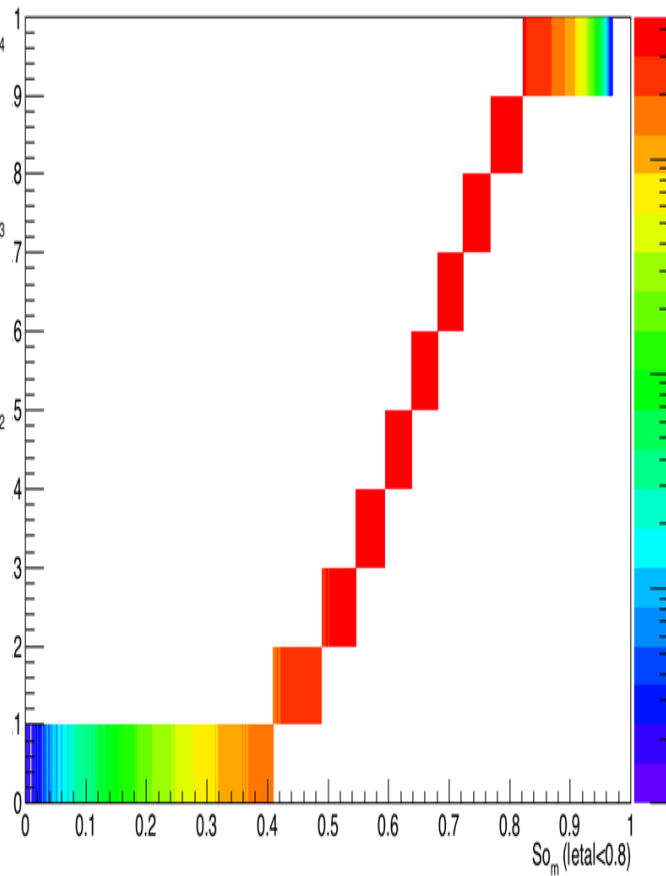
So response (som vs somperc)

- The idea: to get Soperc response matrix (Sopc_t vs Sopc_m)

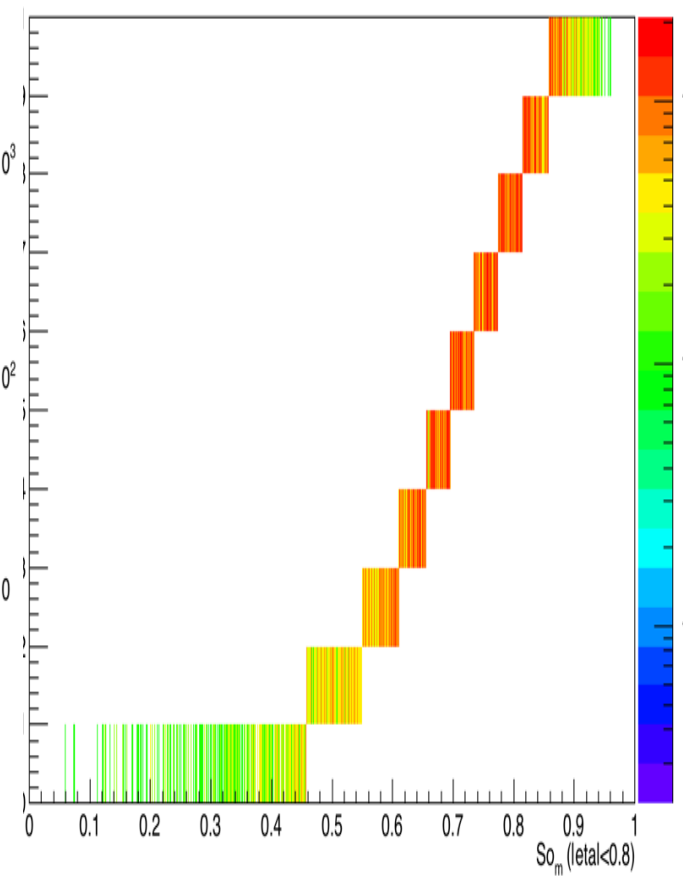
So_m vs Sopc_m for 4.0<Mult<7.0



So_m vs Sopc_m for 30.0<Mult<40.0

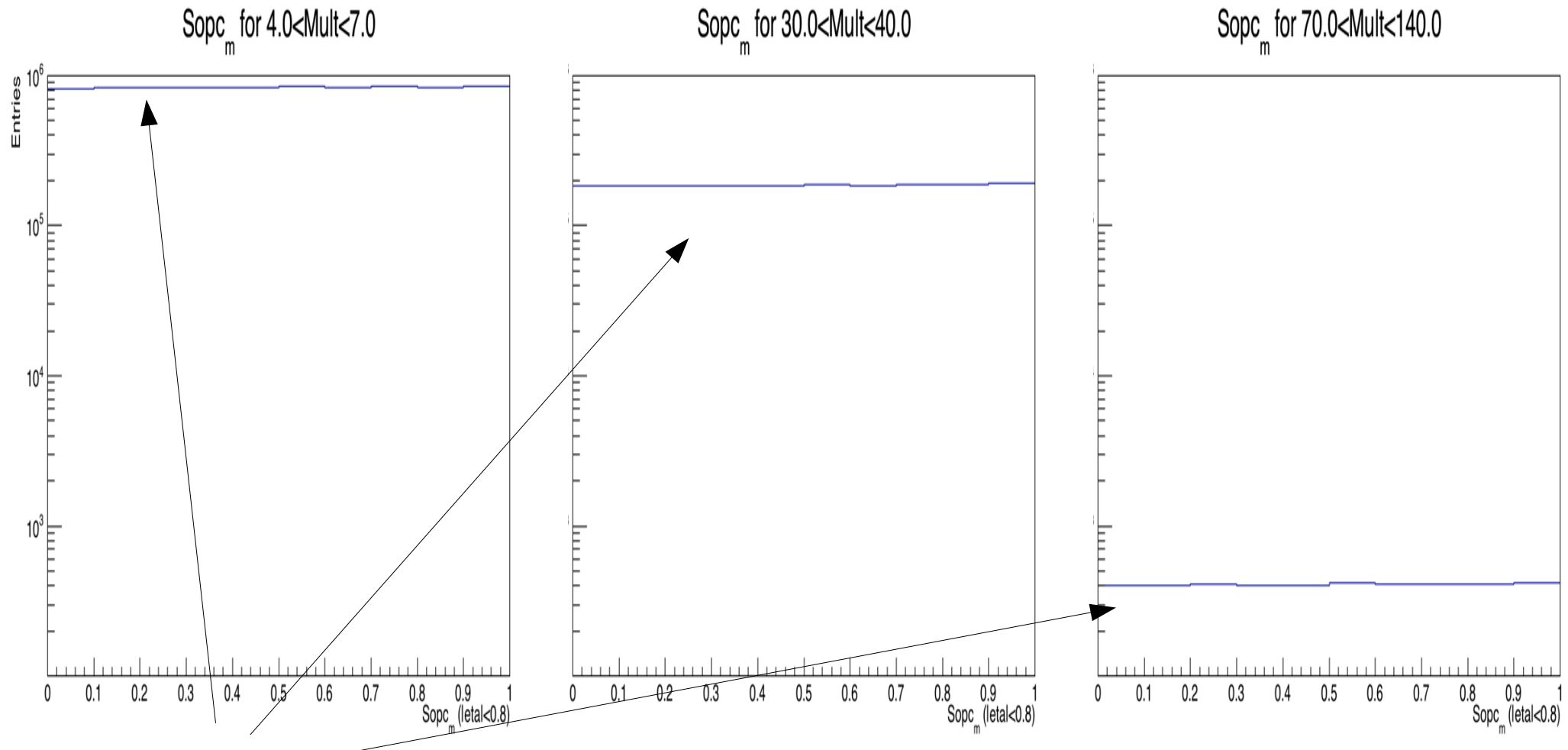


So_m vs Sopc_m for 70.0<Mult<140.0



So response (som vs somperc)

- The idea: to get Soperc response matrix (Sopc_t vs Sopc_m)



All entries to 10% of Sopc are of the same order