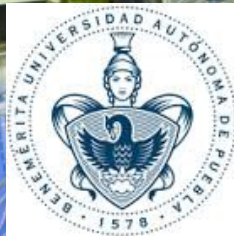


# ALICE



Weekly report

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1. (FCFM-BUAP) 2.(ICN-UNAM)

ACO  
meeting

3 de septiembre 2016

# Outline

- proceeding DpyC in Arxiv to appear this Monday
- I obtain plots for Eta, phi, Pt efficiency, dca<sub>xy</sub>, dca<sub>z</sub> for DATA ESD/ MC ESD comparison for:
  - ITSTPC2011 track cuts
  - TPC Only track cuts
  - TPC Only+TPC refit track cuts
  - HYBRID track cuts
- Some visualizations with So

# Analysis and run selection

Software: Aliroot:v5-07-20 Aliphysics:vAN-20160204

Event shape classes: (PWGLF/SPECTRA/Spherocity)

Analysis macros: AddTransverseEventShapeTask.C

AliAnaTransverseEventShapeTask.cxx

AliAnaTransverseEventShapeTask.h

LHC15f pass2: (44.6 mill of evts) (after all ev selection)

LHC15g3a3 Monash Tune (43.2 mill of evts) (after all ev selection)

good runs\*:

226500, 226495, 226483, 226476, 226472, 226468, 226466,  
226452, 226445, 226444, 226225, 226220, 226170, 226062,  
225768, 225766, 225763, 225762, 225757, 225753, 225719,  
225717, 225716, 225710, 225709, 225708, 225707, 225705,  
225587, 225586, 225579, 225578, 225576, 225322, 225315,  
225314, 225313, 225310, 225309, 225307, 225305, 225106,  
225052, 225051, 225050, 225043, 225041, 225037, 225035,  
225031, 225026

(\*) <http://twiki.cern.ch/twiki/bin/viewauth/ALICE/PWGLF13TeVanalysis>

# Event, track and physics selection

## Event Selection

Trigger: KINT7

Rejection of AliESDEvent::IsIncompleteDAQ

Vertex selection

SPD Pile-up rejection

Background rejection

Multivertex Pile-up rejection

low diagonal cut OFO & V0M applied

Vertex conditions for 2015 data ( **NEW added**) (this reduce the sample of evts)

<https://twiki.cern.ch/twiki/bin/view/ALICE/PWGPPEvSelRun2pp>

**\*\***[https://twiki.cern.ch/twiki/bin/view/ALICE/AliceHMTFCODESnippets#Physics\\_Selection](https://twiki.cern.ch/twiki/bin/view/ALICE/AliceHMTFCODESnippets#Physics_Selection)

## Physics Selection

- MinNCrossedRowsTPC = 120; \*
- MinRatioCrossedRowsOverFindableClustersTPC=0.8;
- MaxFractionSharedTPCcluster = 0.4;
- Maxchi2perTPCcl=4.;
- Max dcaz ITSTPC=2.0;
- SetDCAToVertex2D(kFALSE);
- SetRequireSigmaToVertex(kFALSE);
- RequireTPCRefit(kTRUE);
- RequireITSRefit(kTRUE);
- AcceptKinkDaughters(kFALSE);
- MaxDCAToVertexXYPtDep("0.0182+0.0350/pt^1.01"); \*
- SetMaxChi2TPCConstrainedGlobal(36.);

## Track selection taken for each analysis

- So Analysis, Hybrid-track cuts for primary charged particles with  $|\eta| < 0.8$  and  $0.15 < p_T < 10$  GeV/c.
- $\langle p_T \rangle$  Analysis, Golden-track cuts with  $|\eta| < 0.8$  and  $0.15 < p_T < 10$  GeV/c.
- Multiplicity:
  - Reference multiplicity selection with  $|\eta| < 0.8$

V0M percentil selection

# To study MC/DATA dependence for different cuts: ITSTPC2011 golden DATA vs MC

## ITSTPC2011 golden

```
AliAnalysisFilter* trackFilterGolden = new AliAnalysisFilter("trackFilter");
```

```
AliESDtrackCuts* esdTrackCuts = new AliESDtrackCuts("AliESDtrackCuts");  
esdTrackCuts->SetRequireTPCRefit(kTRUE);  
esdTrackCuts->SetAcceptKinkDaughters(kFALSE);  
esdTrackCuts->SetMinNCrossedRowsTPC(120);  
esdTrackCuts->SetMinRatioCrossedRowsOverFindableClustersTPC(0.8);  
esdTrackCuts->SetMaxChi2PerClusterTPC(4.0);  
esdTrackCuts->SetMaxFractionSharedTPCClusters(0.4);  
esdTrackCuts->SetRequireITSRefit(kTRUE);  
esdTrackCuts->SetClusterRequirementITS(AliESDtrackCuts::kSPD, AliESDtrackCuts::kAny);  
esdTrackCuts->SetMaxChi2PerClusterITS(36.);  
esdTrackCuts->SetDCAToVertex2D(kFALSE);  
esdTrackCuts->SetRequireSigmaToVertex(kFALSE);  
esdTrackCuts->SetMaxDCAToVertexZ(2.0);  
esdTrackCuts->SetMaxDCAToVertexXYPtDep("0.0182+0.0350/pt^1.01");  
esdTrackCuts->SetMaxChi2TPCConstrainedGlobal(36.);  
trackFilterGolden->AddCuts(esdTrackCuts);
```

# To study MC/DATA dependence for different cuts: TPC Only DATA vs MC

## TPC Only cuts

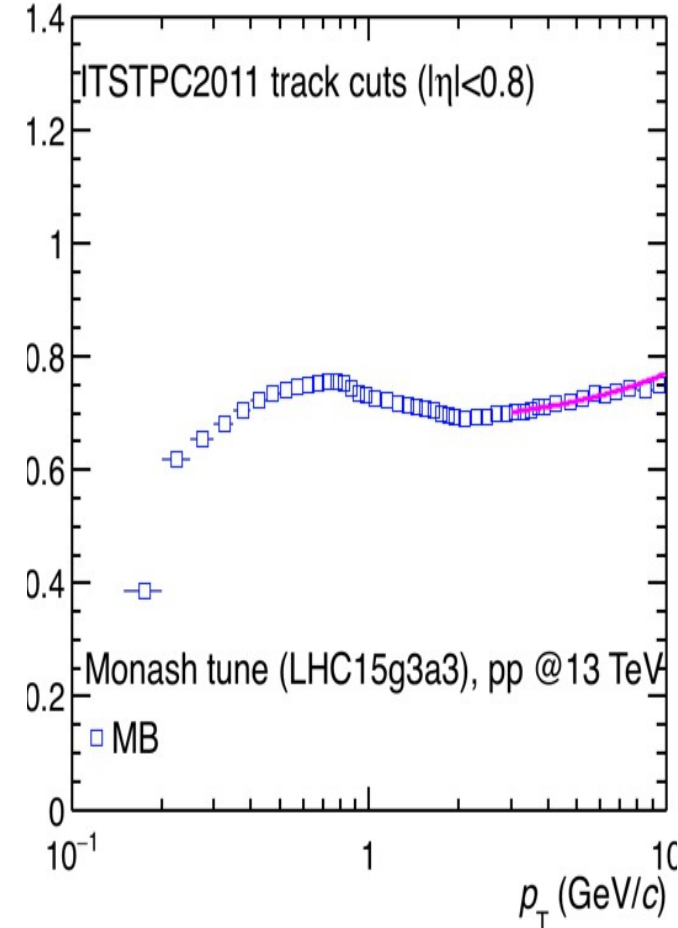
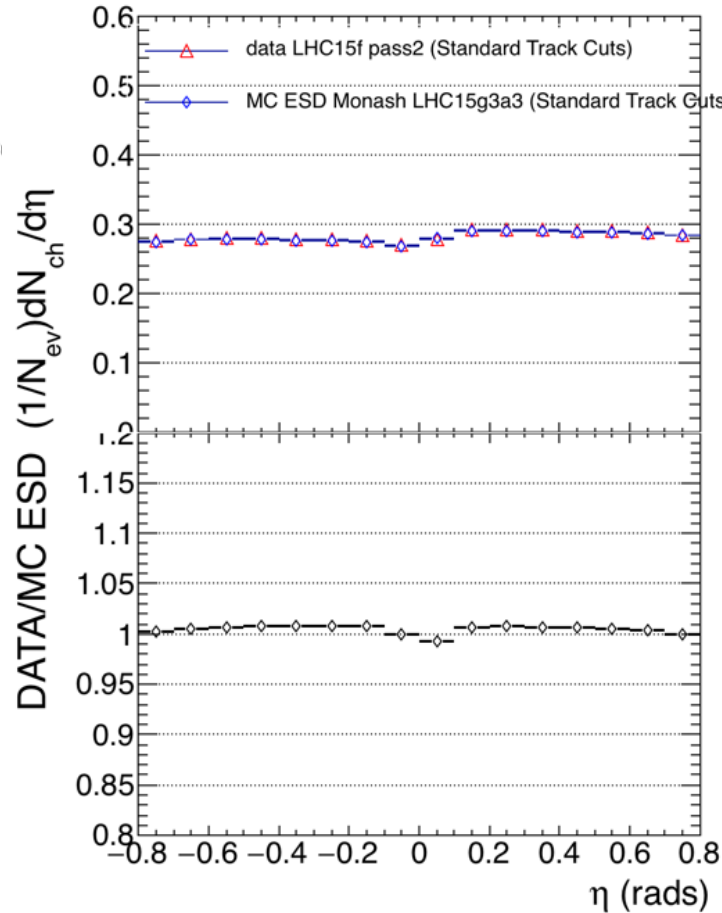
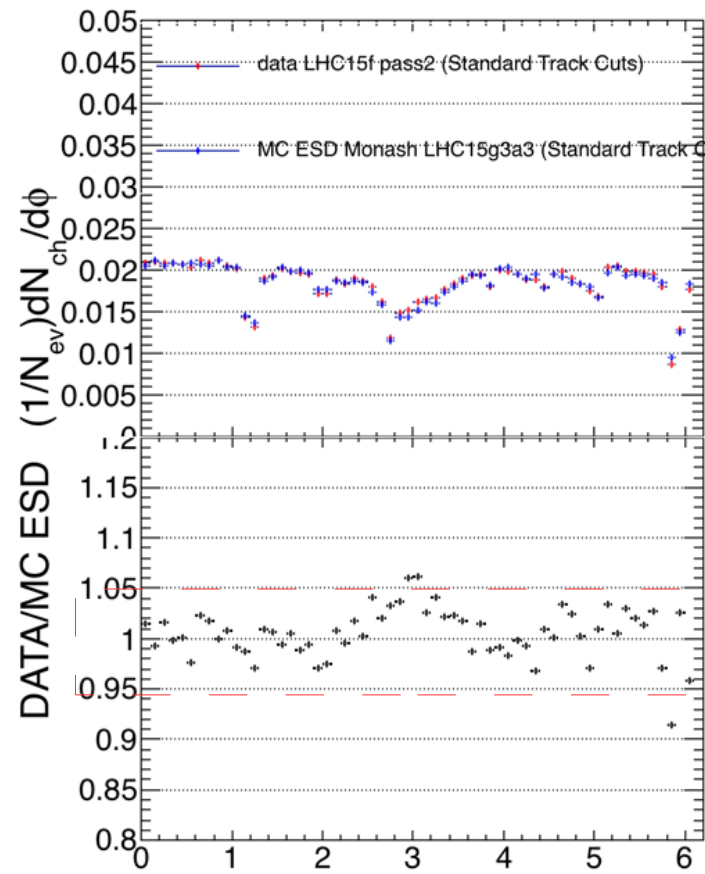
```
AliAnalysisFilter* trackFilterTPCOnly = new AliAnalysisFilter("trackFilter");
  AliESDtrackCuts* esdTrackCuts = new
AliESDtrackCuts("AliESDtrackCuts");
  esdTrackCuts->SetAcceptKinkDaughters(kFALSE);
  esdTrackCuts->SetMinNClustersTPC(70);
  esdTrackCuts->SetMaxChi2PerClusterTPC(4);
esdTrackCuts->SetDCAToVertex2D(kTRUE);
esdTrackCuts->SetRequireSigmaToVertex(kFALSE);
  esdTrackCuts->SetMaxDCAToVertexZ(3.2);
  esdTrackCuts->SetMaxDCAToVertexXY(2.4);
trackFilterTPCOnly->AddCuts(esdTrackCuts);
```

# To study MC/DATA dependence for different cuts: TPC Only+ TPC refit DATA vs MC

TPC Only + TPC refit cuts

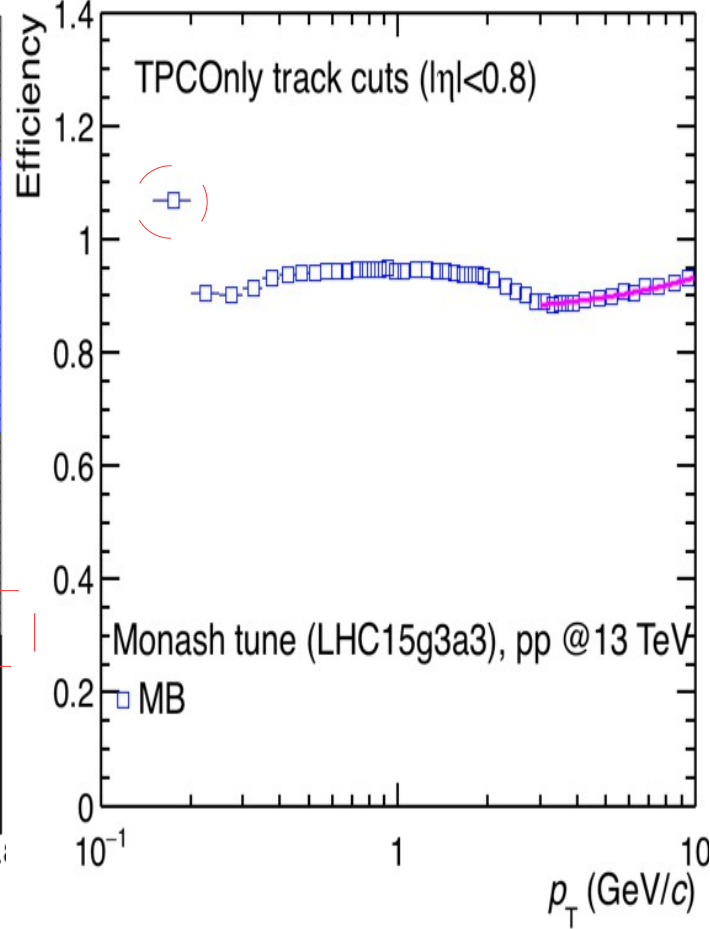
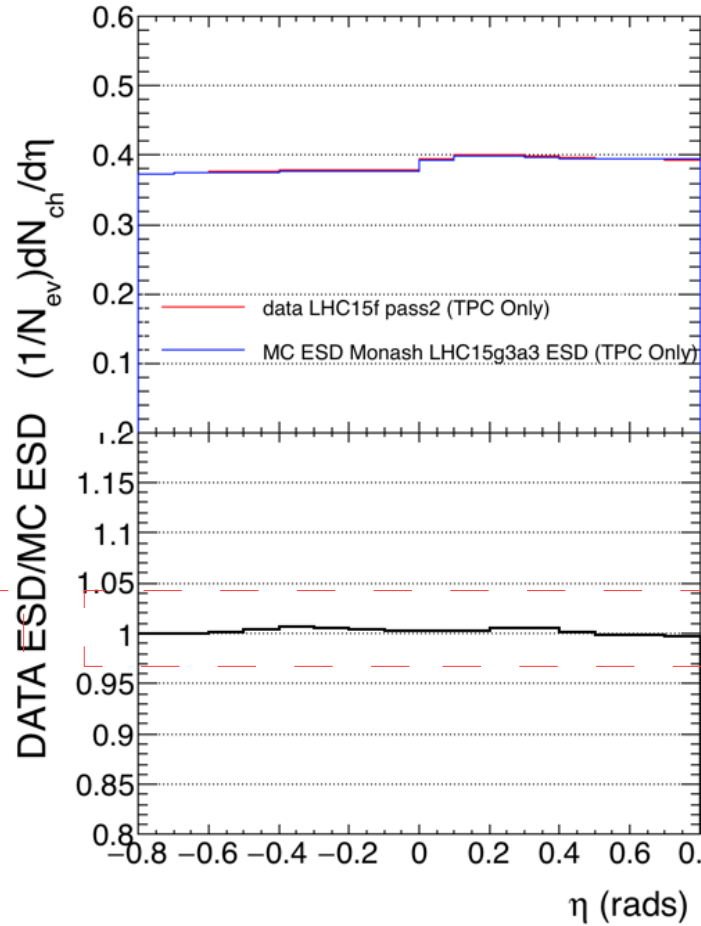
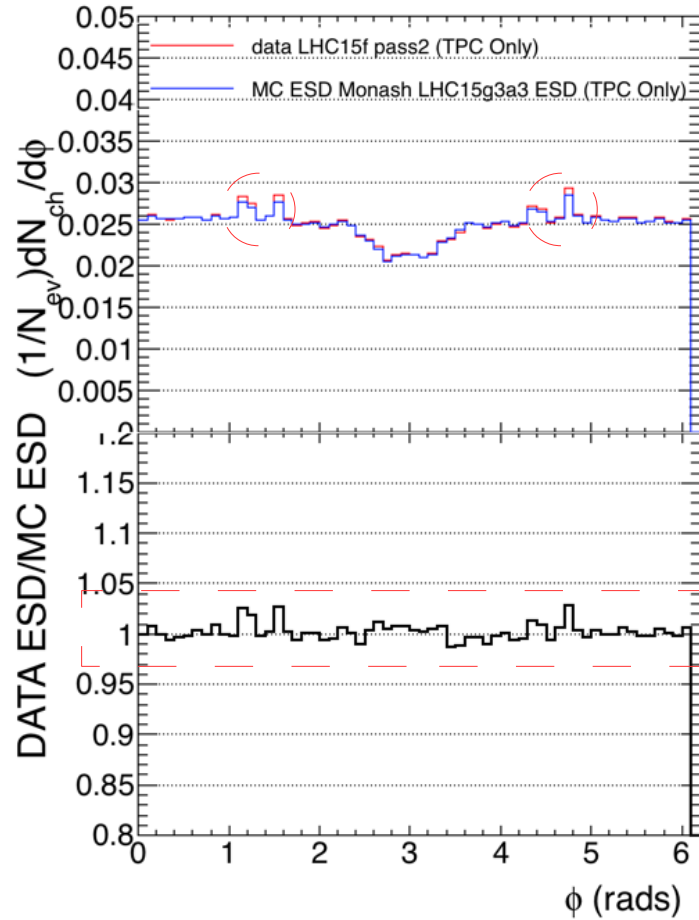
```
AliAnalysisFilter* trackFilterTPCOnly = new AliAnalysisFilter("trackFilter");
  AliESDtrackCuts* esdTrackCuts = new
AliESDtrackCuts("AliESDtrackCuts");
  esdTrackCuts->SetAcceptKinkDaughters(kFALSE);
  esdTrackCuts->SetMinNClustersTPC(70);
  esdTrackCuts->SetMaxChi2PerClusterTPC(4);
  esdTrackCuts->SetRequireTPCRefit(kTRUE);
  esdTrackCuts->SetDCAToVertex2D(kTRUE);
  esdTrackCuts->SetRequireSigmaToVertex(kFALSE);
  esdTrackCuts->SetMaxDCAToVertexZ(3.2);
  esdTrackCuts->SetMaxDCAToVertexXY(2.4);
trackFilterTPCOnly->AddCuts(esdTrackCuts);
```

# To study MC/DATA dependence for different cuts: -ITSTPC2011 golden DATA vs MC

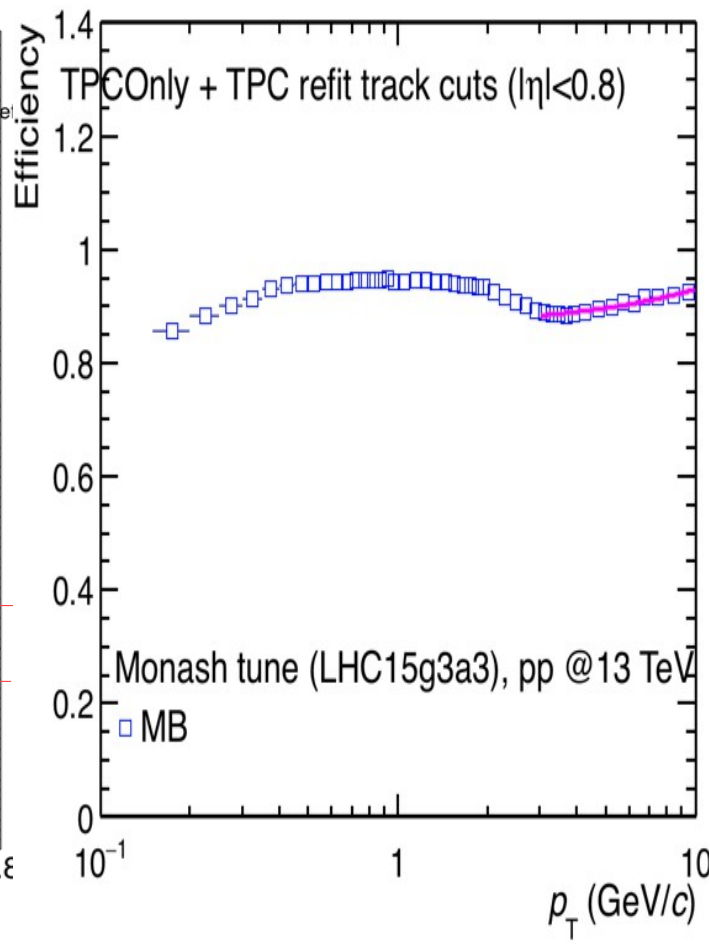
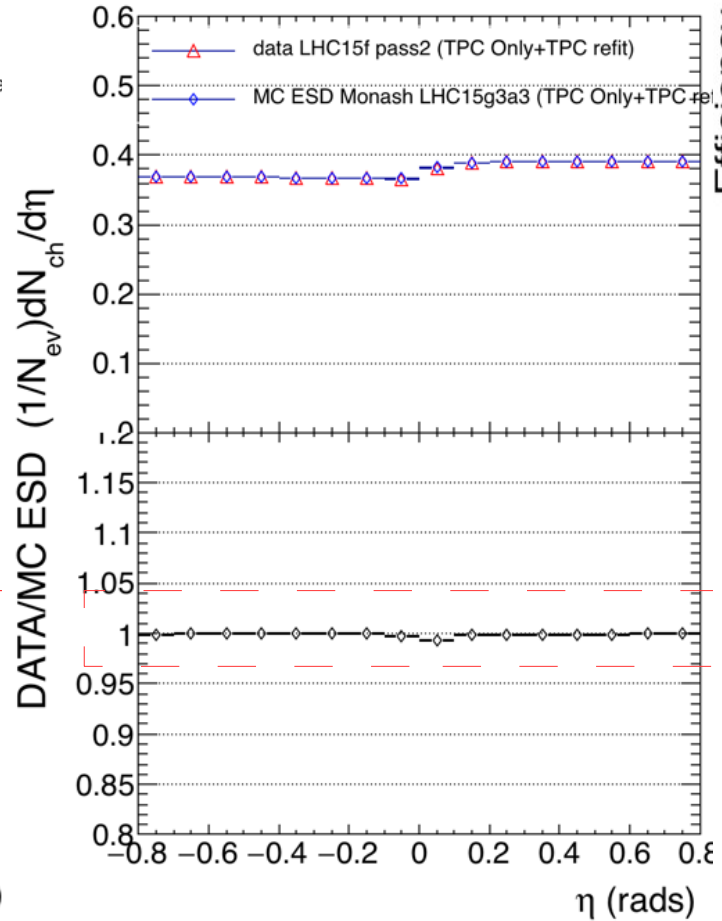
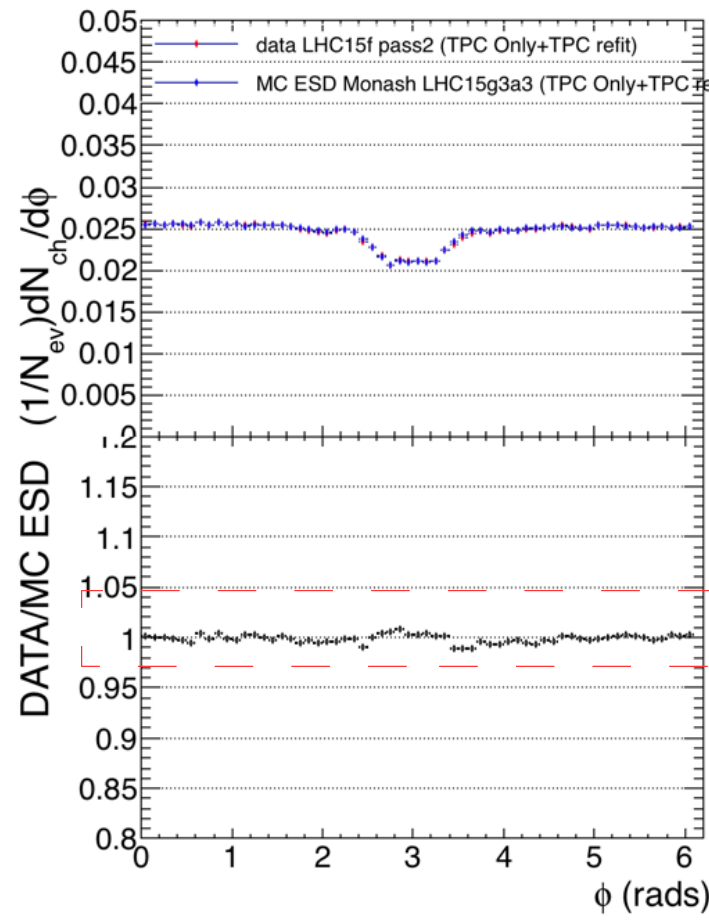




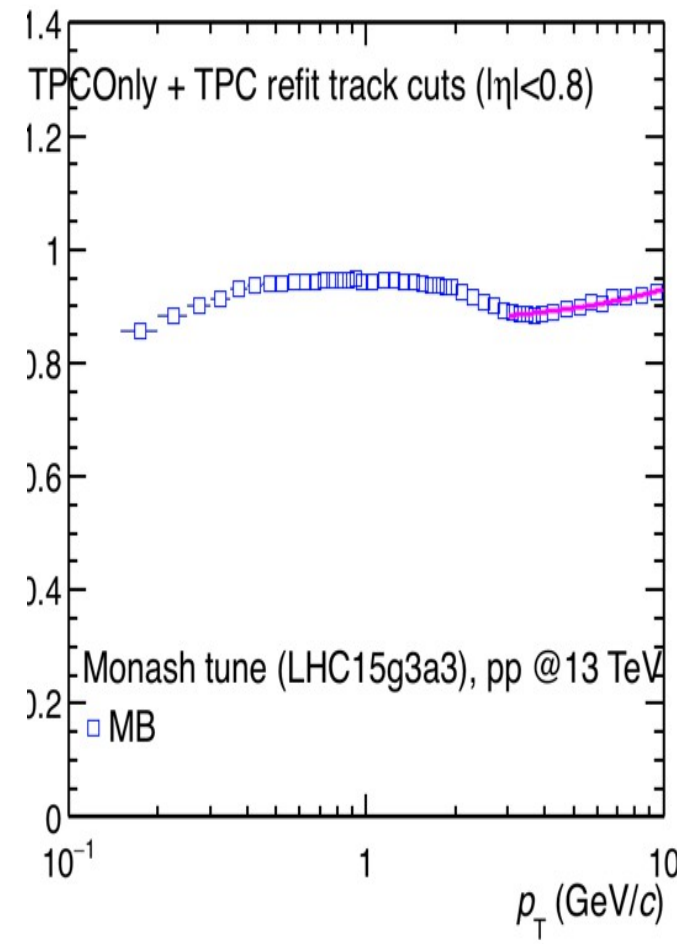
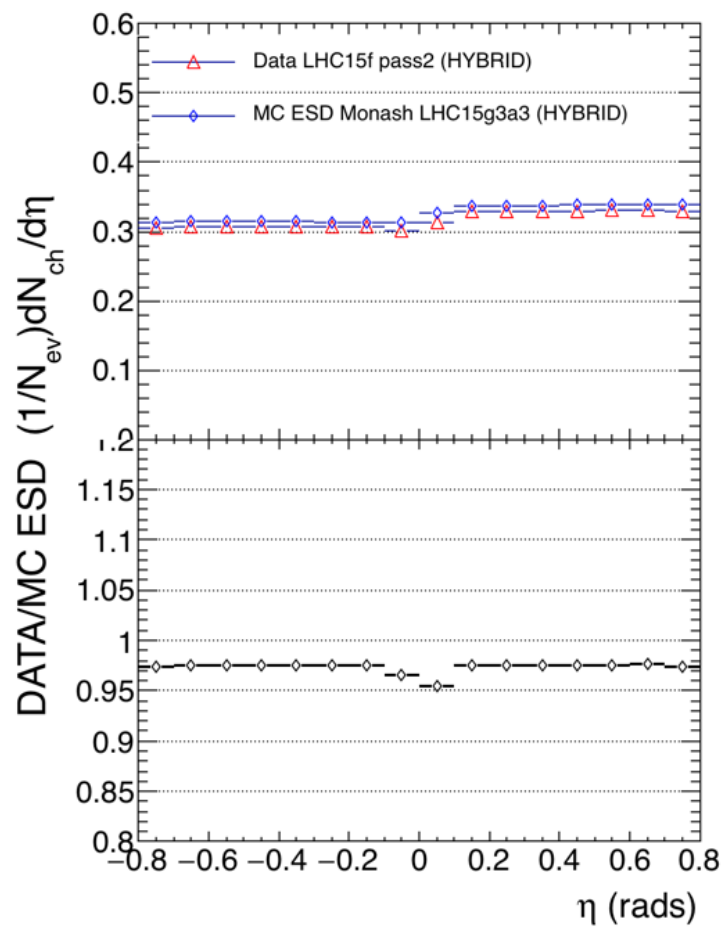
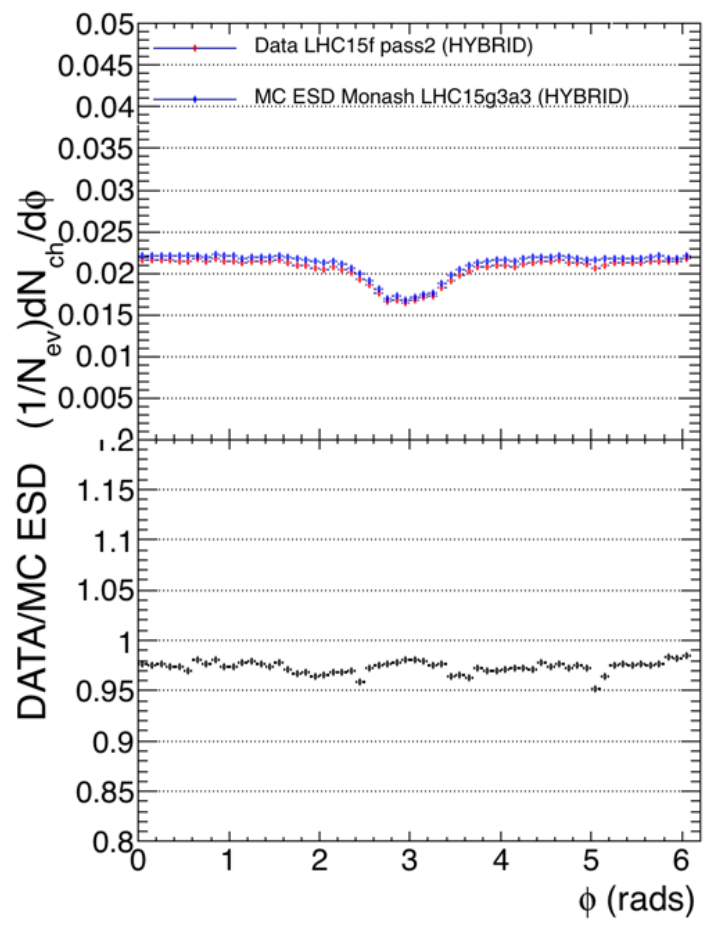
# To study MC/DATA dependence for different cuts: TPC Only DATA vs MC



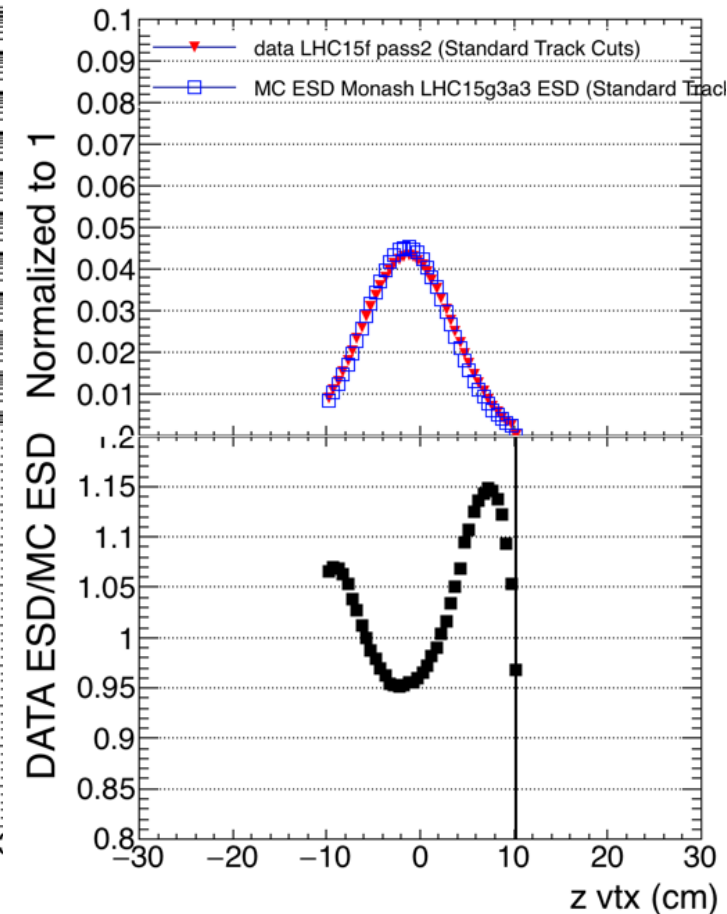
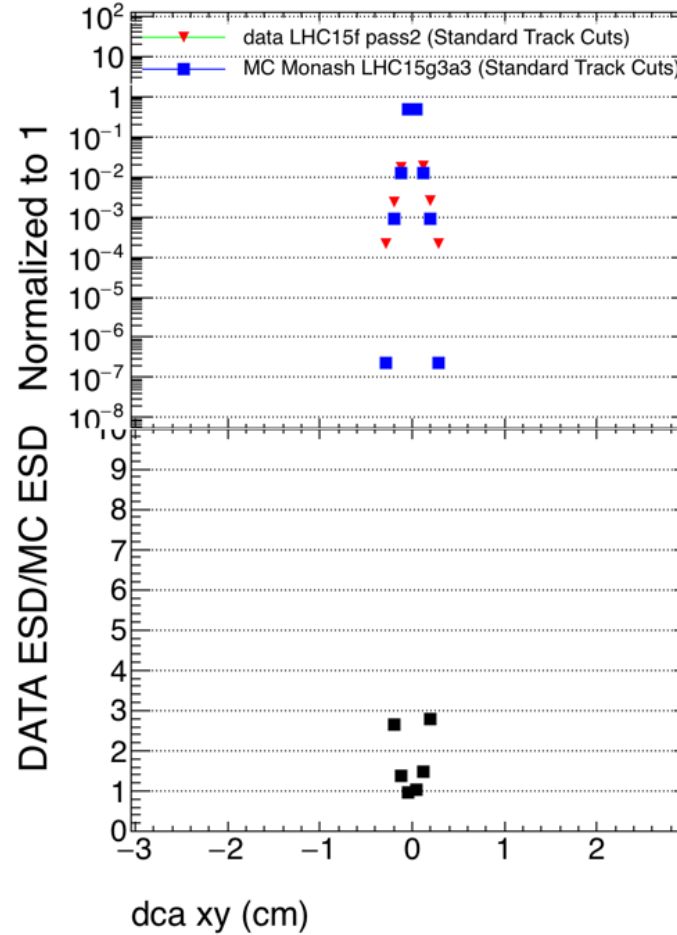
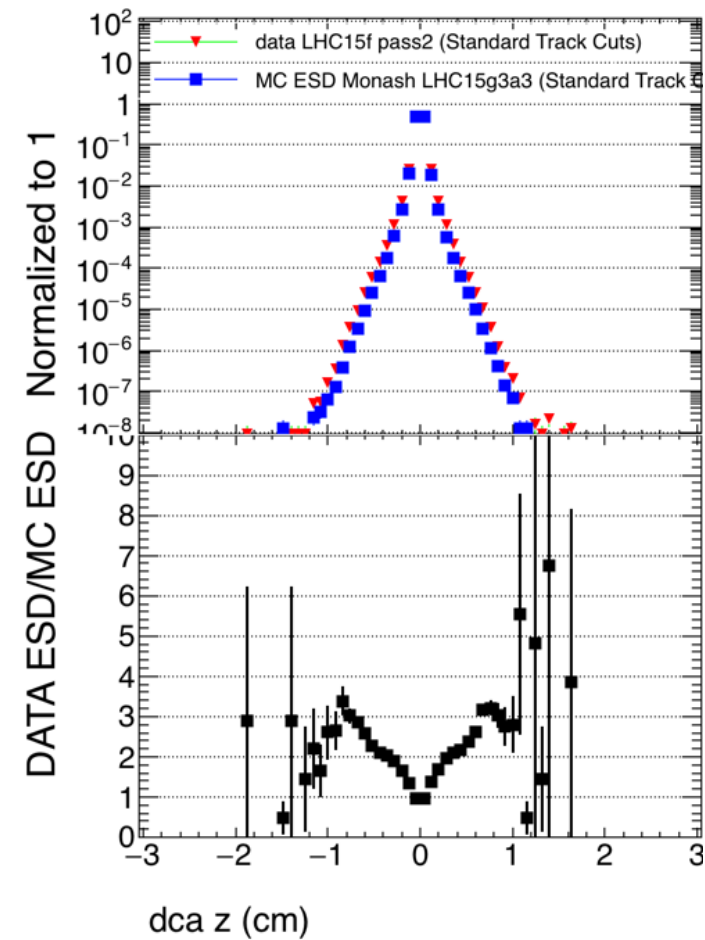
# To study MC/DATA dependence for different cuts: TPC Only+TPC refit DATA vs MC



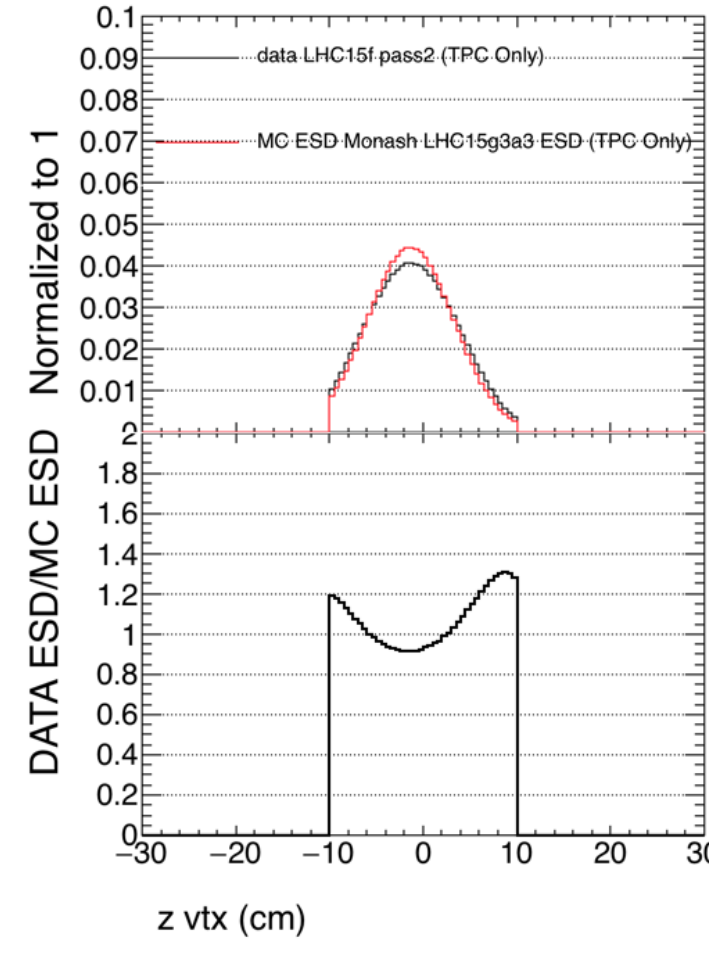
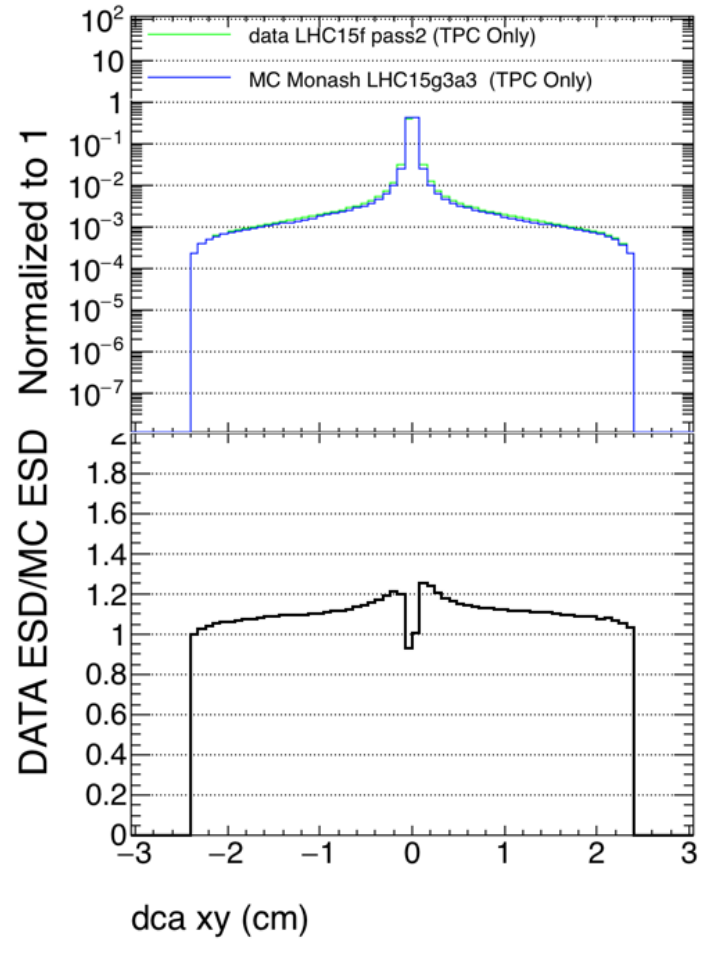
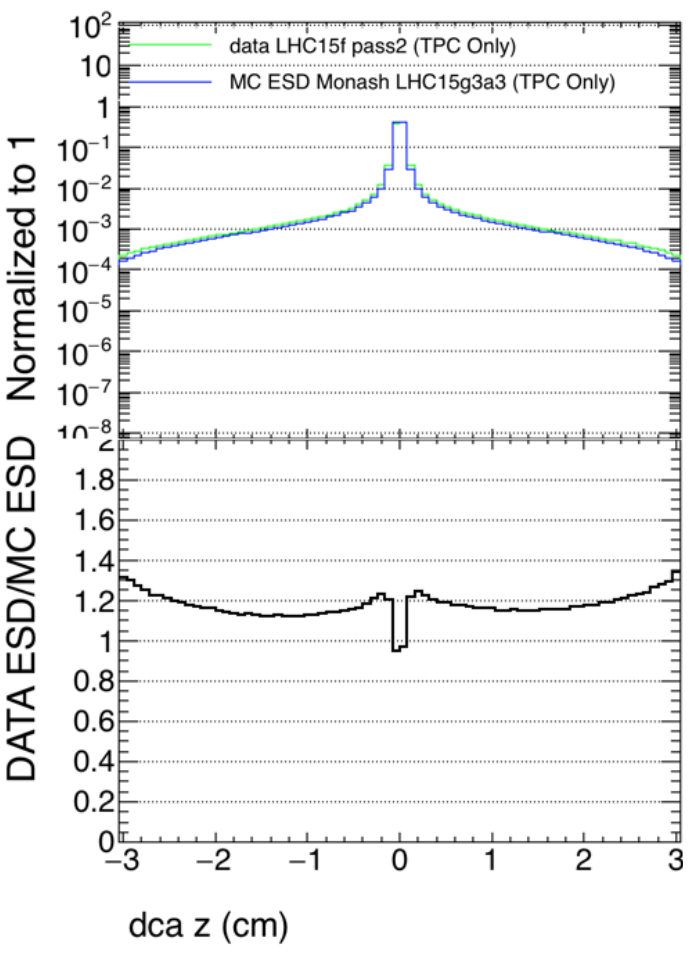
# To study MC/DATA dependence for different cuts: HYBRID track cuts DATA vs MC



# To study MC/DATA dependence for different cuts: -ITSTPC2011 golden DATA vs MC

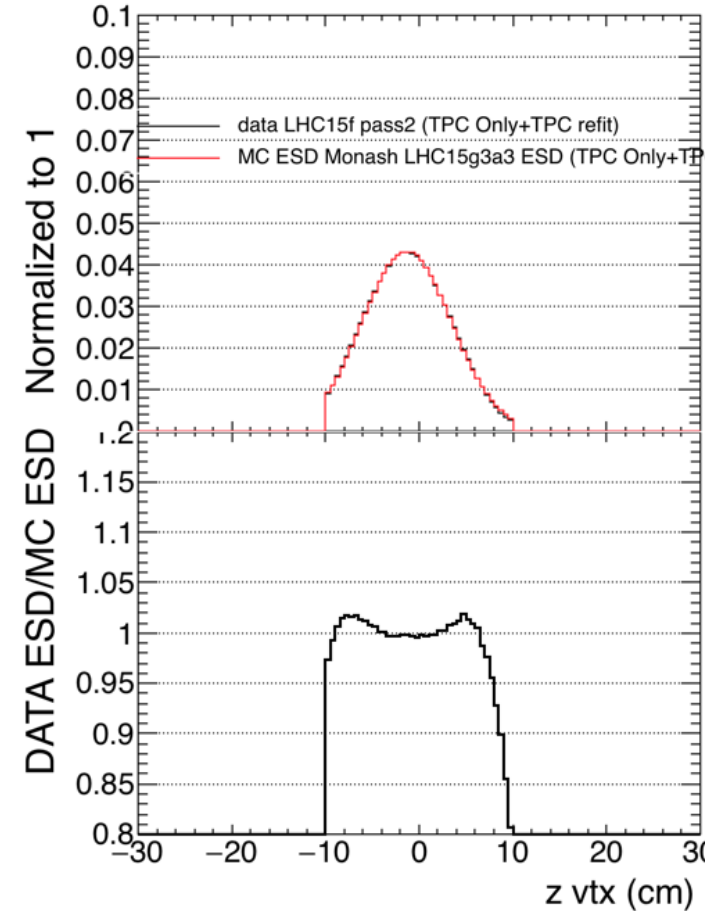
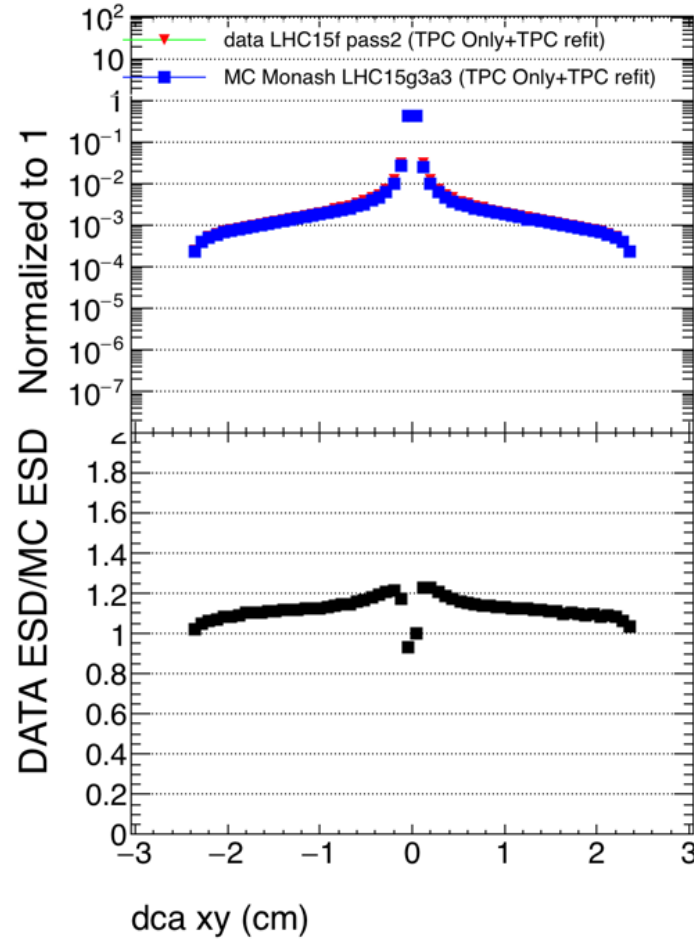
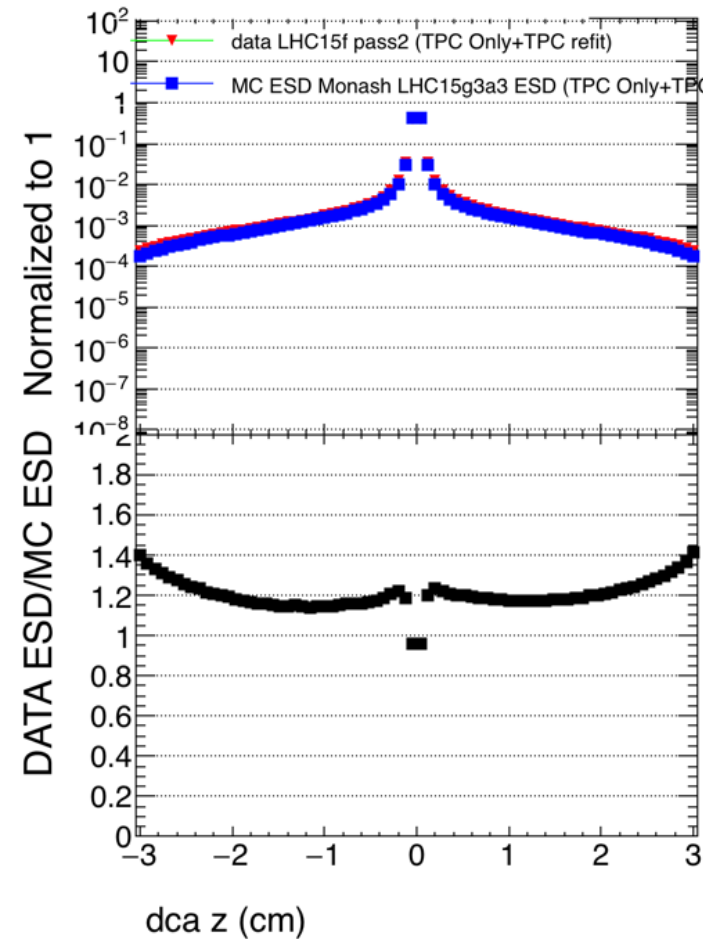


# To study MC/DATA dependence for different cuts: -TPC Only Data vs MC

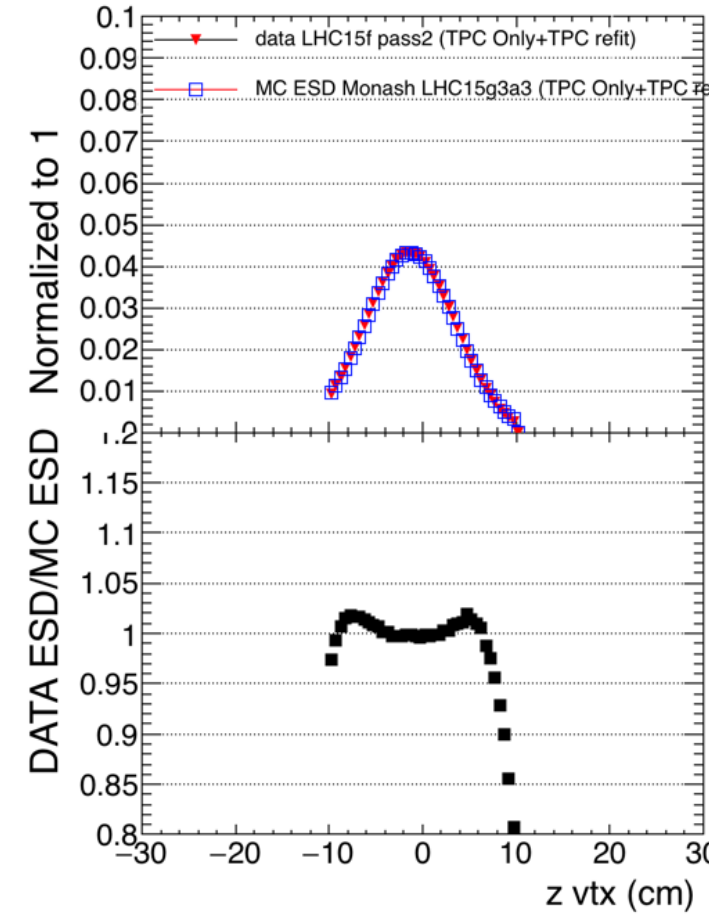
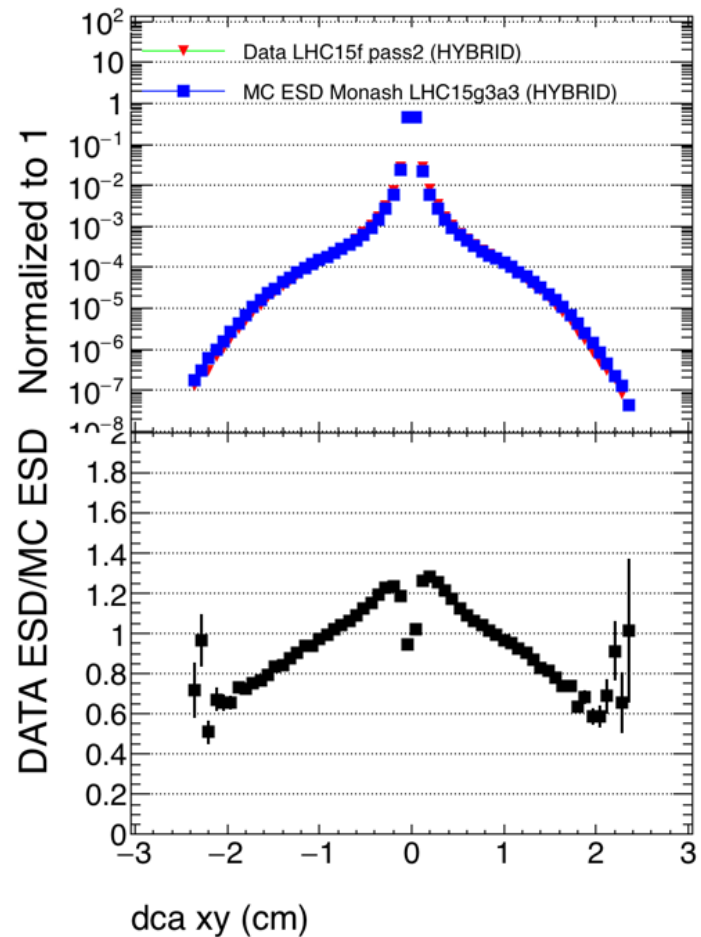
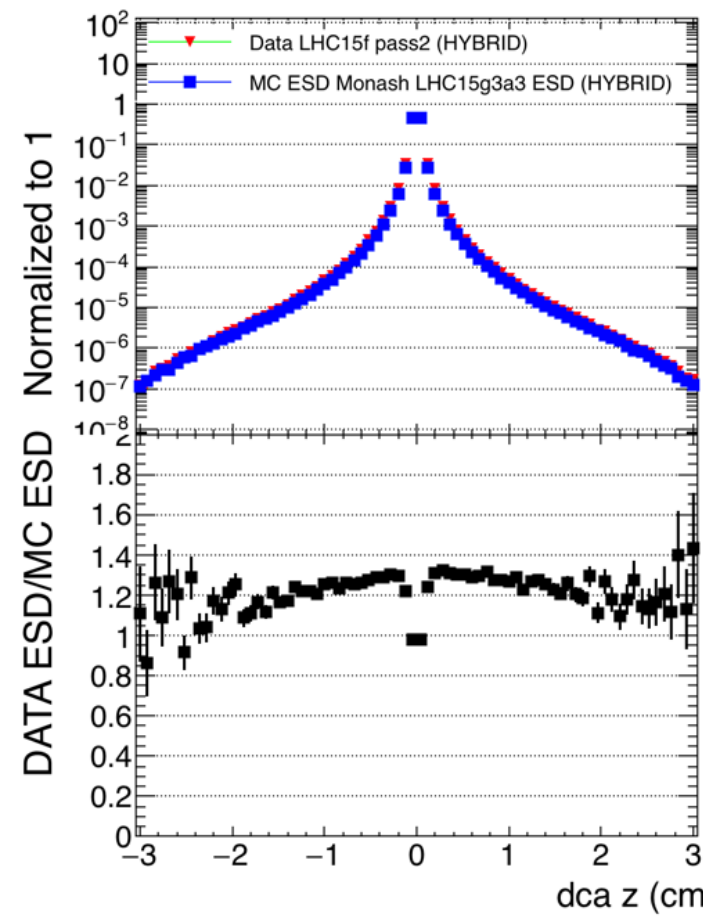


# To study MC/DATA dependence for different cuts:

## -TPC Only + TPC refit Data vs MC

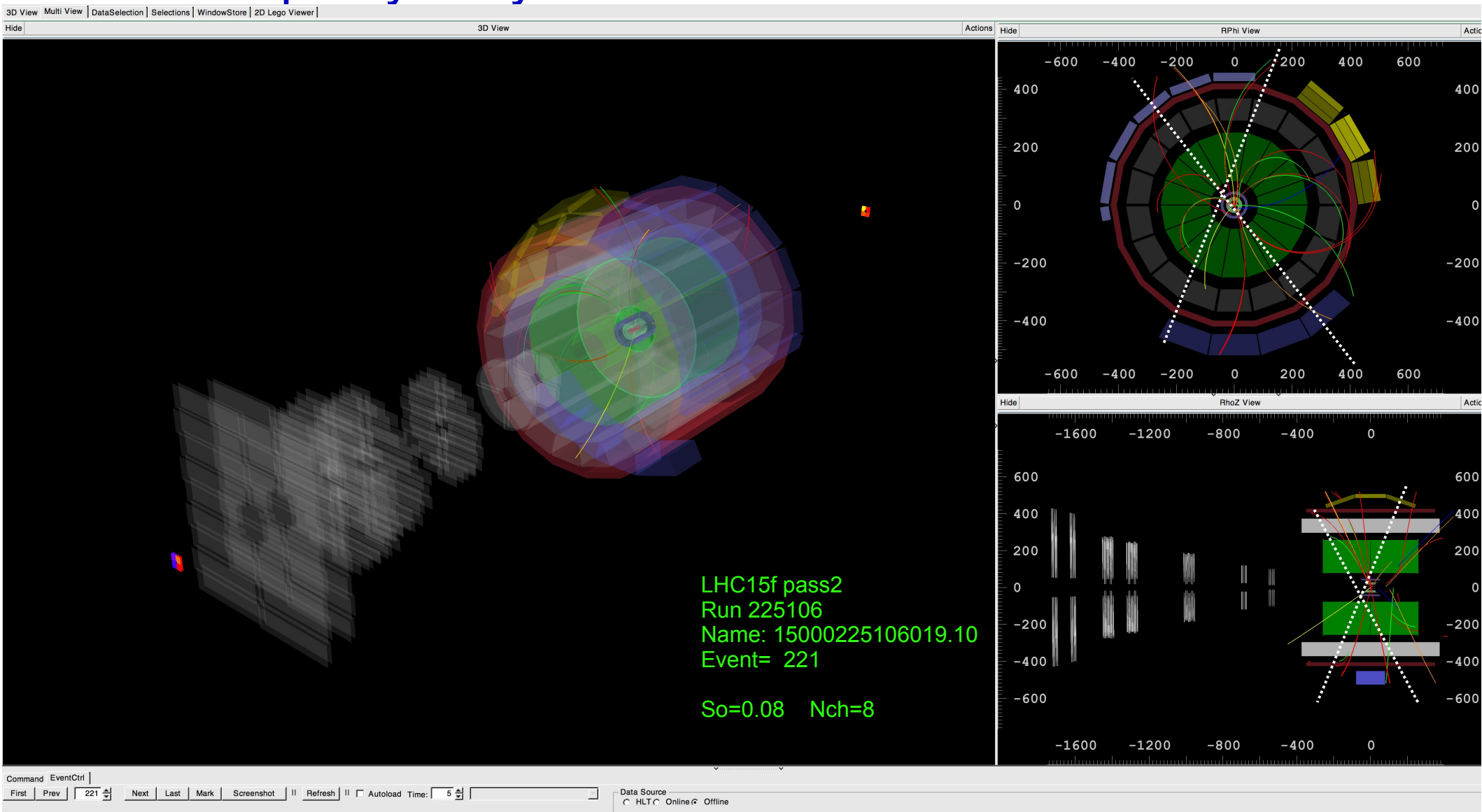


# To study MC/DATA dependence for different cuts: -HYBRID track cuts Data vs MC



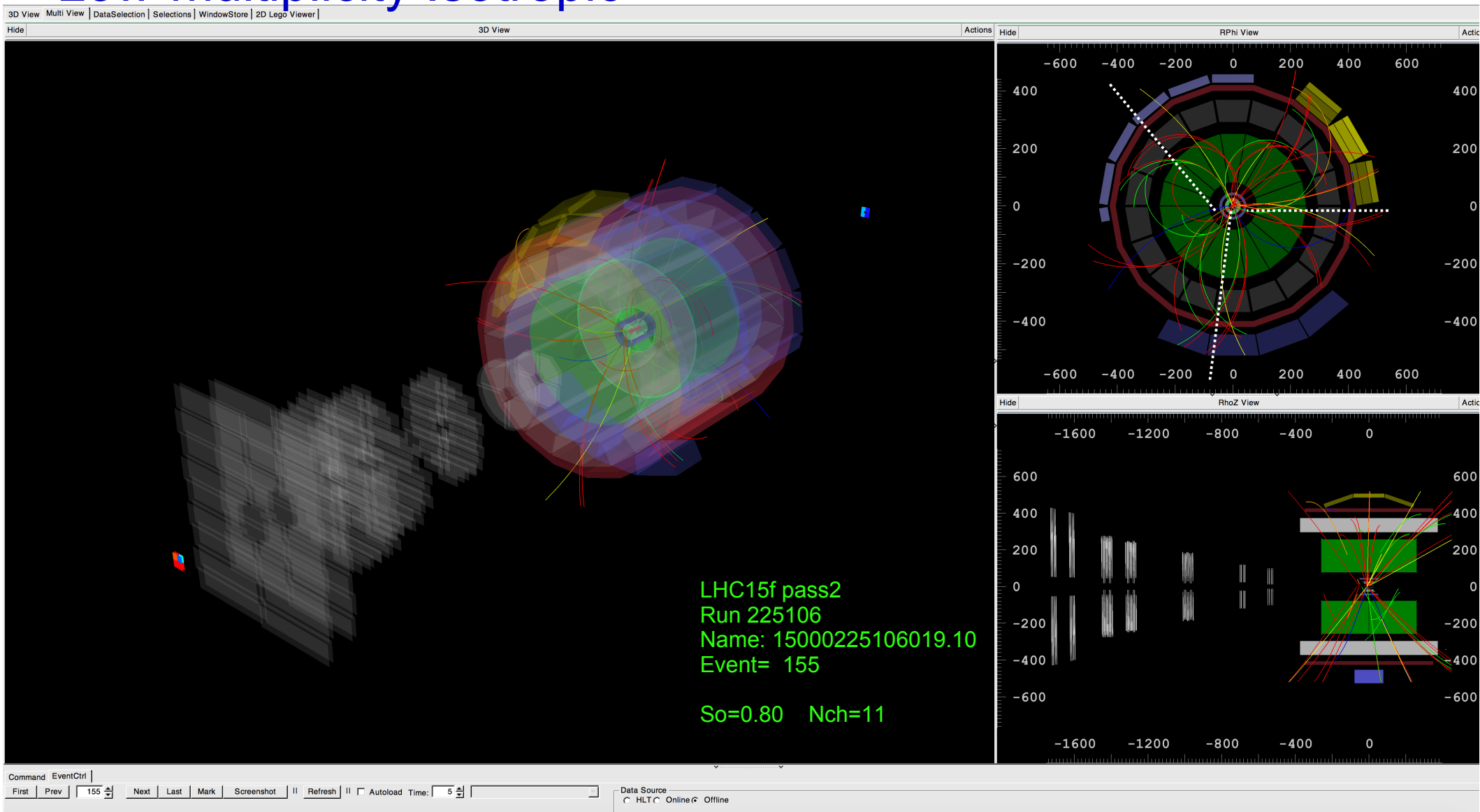
# Visualization for events selected with Sphericity:

## Low-multiplicity Jetty



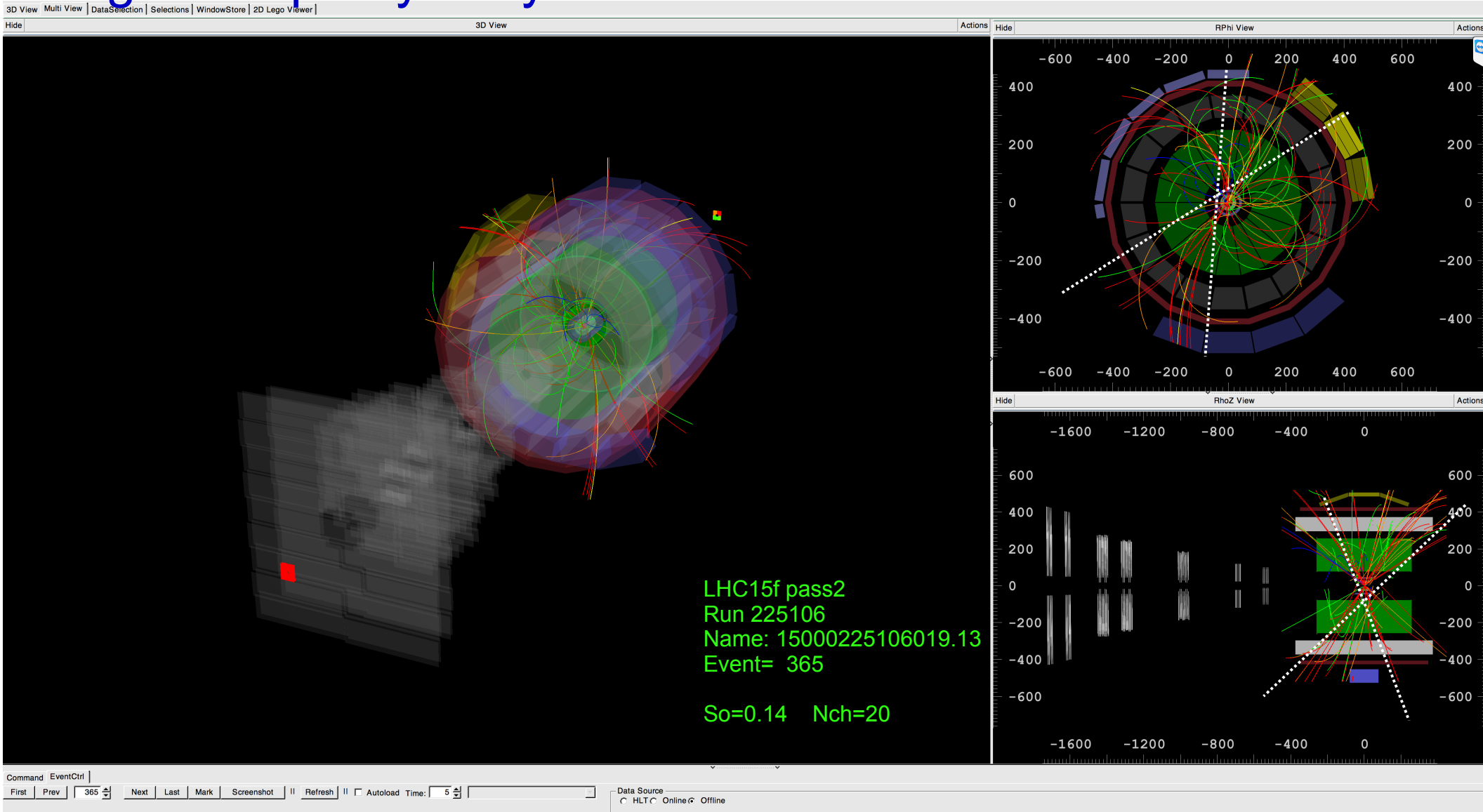


# Visualization for events selected with Sphericity: Low-multiplicity Isotropic

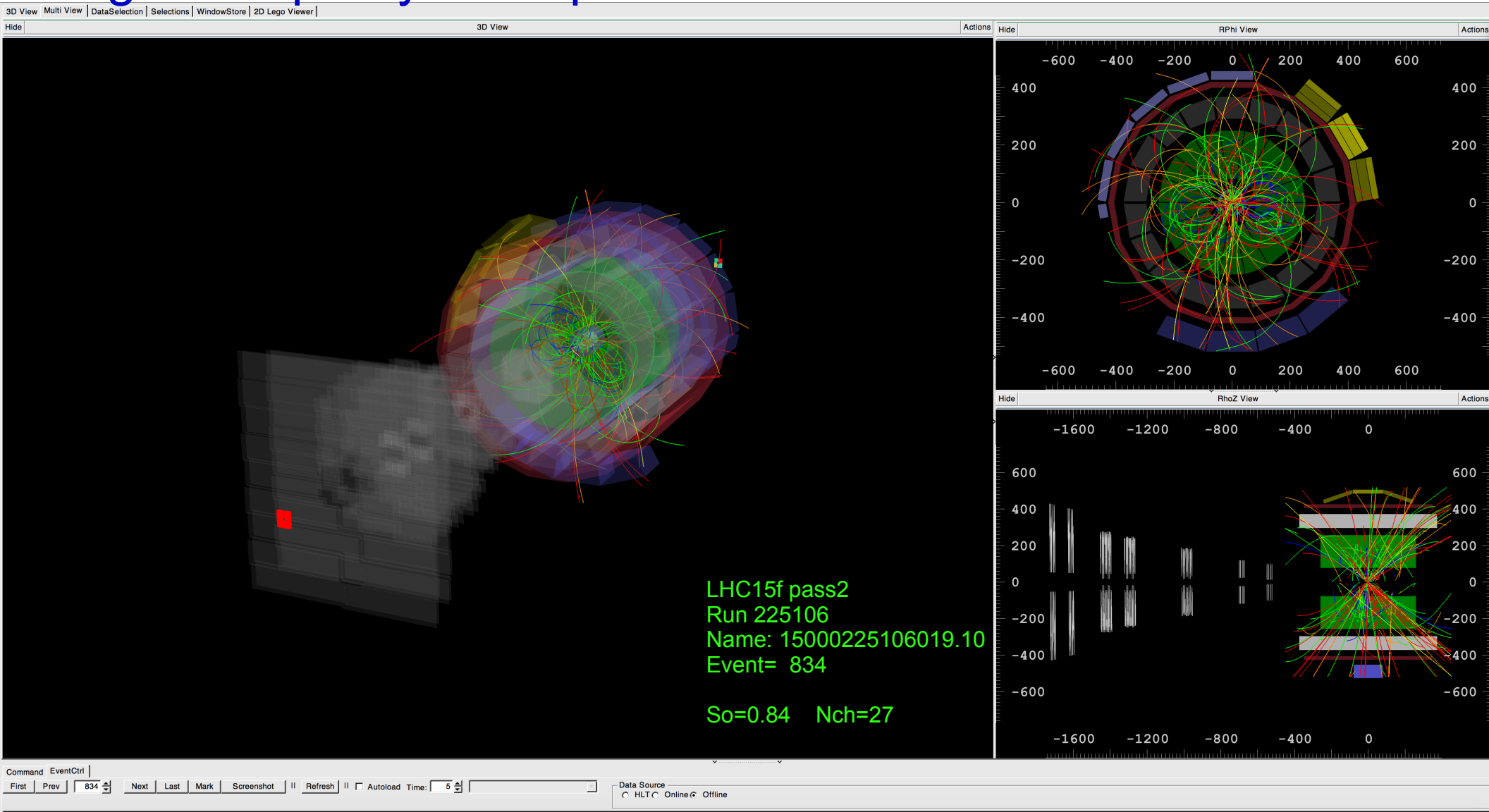


# Visualization for events selected with Sphericity:

High multiplicity Jetty Not so High Mult its difficult to find an event Prob=2/70000

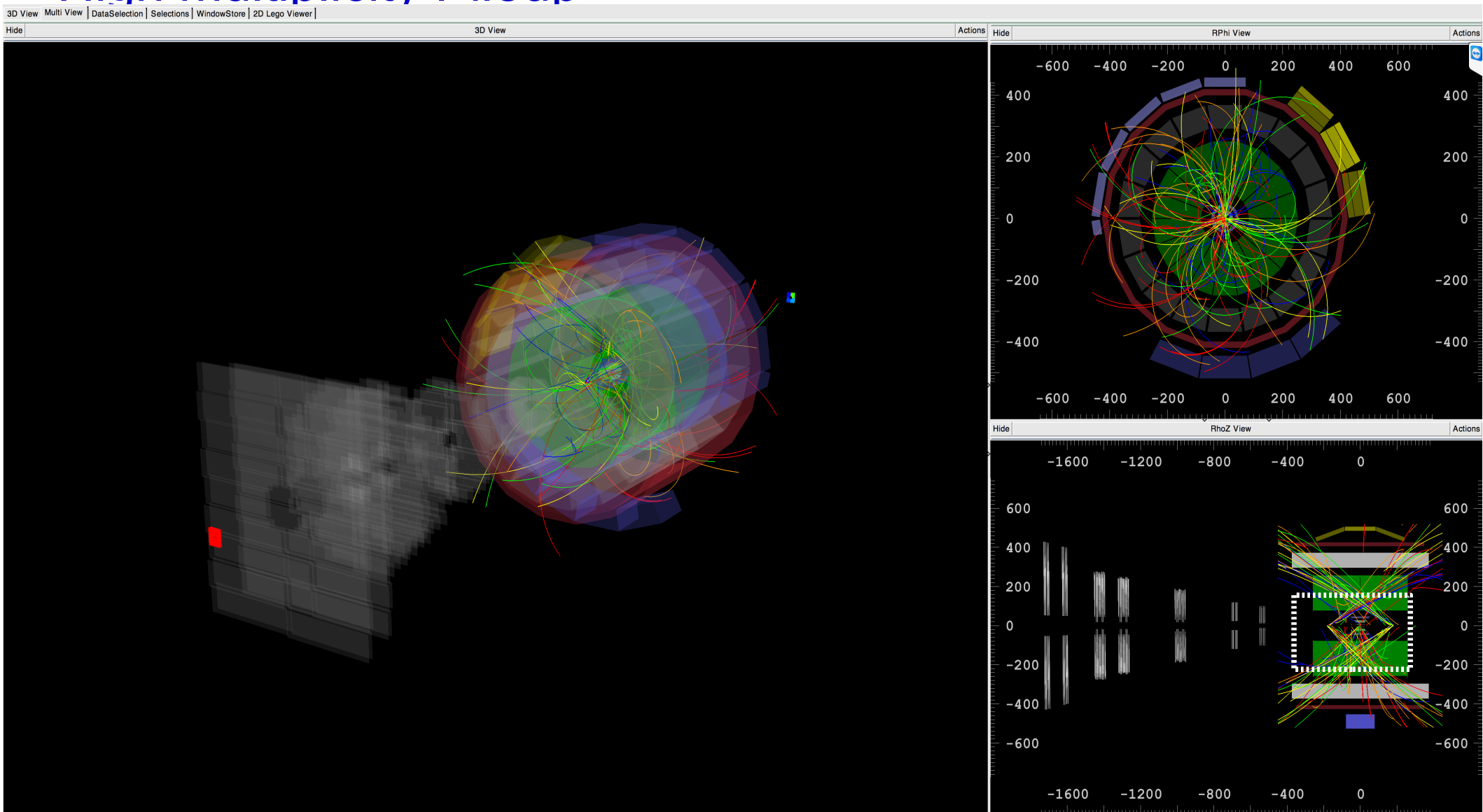


# Visualization for events selected with Sphericity: High multiplicity Isotropic



# Visualization for events selected with Sphericity:

## High multiplicity Pileup



To do:

-Modify Task for update in Aliroot