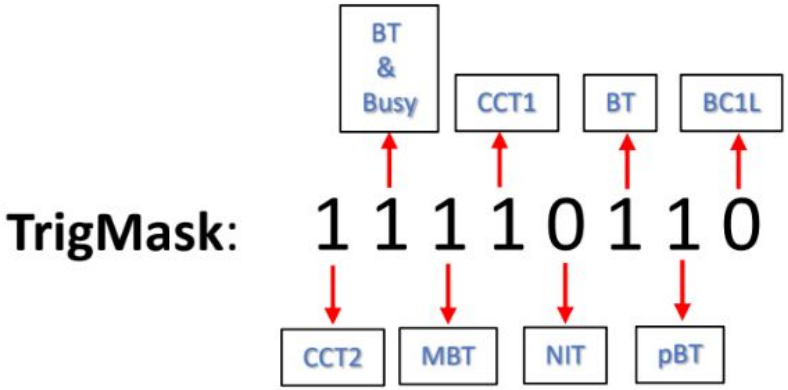
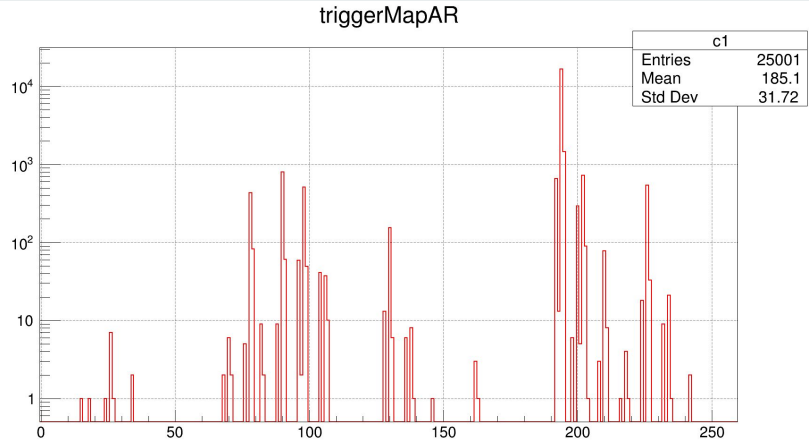
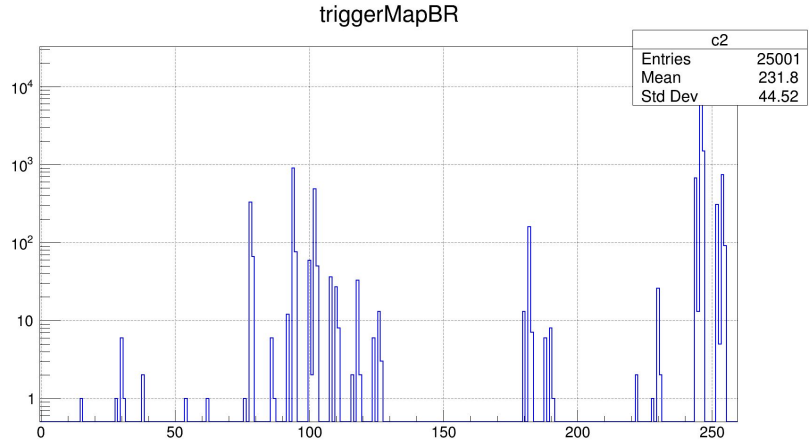


triggerMapAR = **194_{10} -> 11000010_2**
triggerMapBR = **246_{10} -> 11110110_2**

```
root [13] t->Draw("triggerMapAR", "", "goff", 1, 1000);
root [14] cout << "triggerMapAR: " << bitset<8>((unsigned
int)t->GetVal(0)[0]) << endl;
triggerMapAR: 11000010
root [15] t->Draw("triggerMapBR", "", "goff", 1, 1000);
root [16] cout << "triggerMapBR: " << bitset<8>((unsigned
int)t->GetVal(0)[0]) << endl;
triggerMapBR: 11110110
```

111_{10} -> 01101111_2 ??
108_{10} -> 01101100_2 ??
…





Trig. Efficiency

CCT2 (or CCT) = MBT x BD(n>=4);

CCT1 = BT x BD(n>=4)

Eff(BT) = 100%

Eff(cct2) = Eff(BD) * Eff(FD)

$$\epsilon_{\mathrm{BD}} = \frac{N(\mathrm{BD} \geqslant 4 \wedge \mathrm{MBT})}{N(\mathrm{MBT})}.$$

$$\epsilon_{\mathrm{FD}} = \frac{N(\mathrm{FD} \wedge \mathrm{CCT1})}{N(\mathrm{CCT1})}$$

Eff(BD):

- nTrVtxMpd >=2
- Vtx |Z| < 1cm
- Vtx R < 1.5 cm
- plp
- MBT mask
- For numerator:
  - BD(n>=4) (or CCT2)

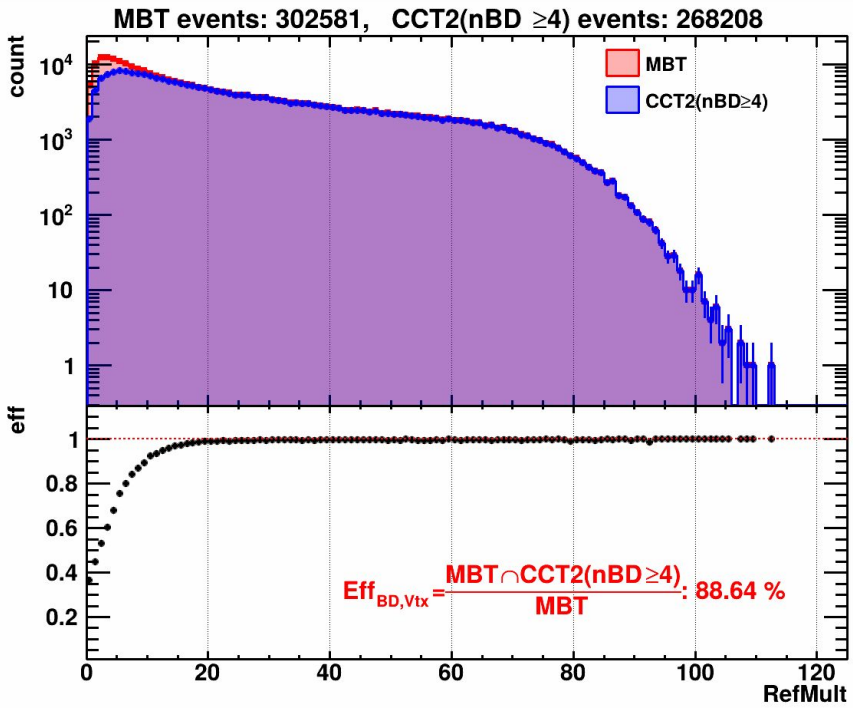
Eff(FD):

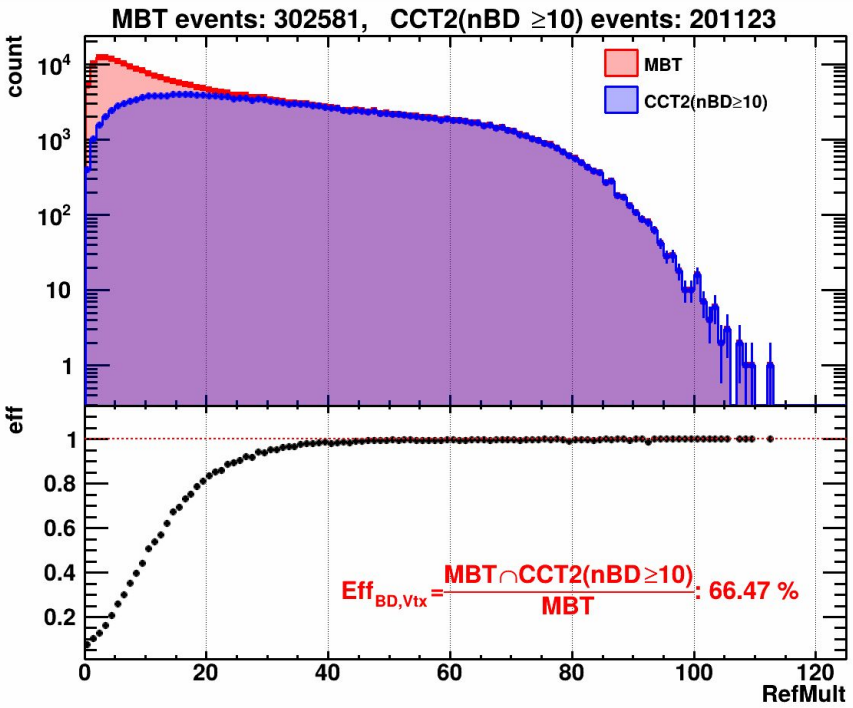
- nTrVtxMpd >=2
- Vtx |Z| < 1cm
- Vtx R < 1.5 cm
- plp
- CCT1 mask
- For numerator:
  - Amp FD < 4300 (or CCT2)

RefMult:

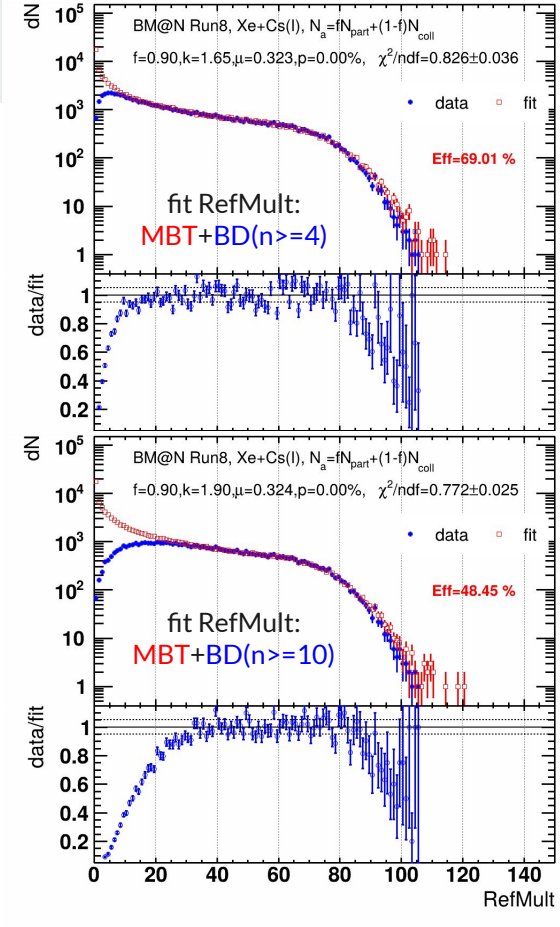
- 0.7<eta<2.5
- 0.05<p_T<2.0 GeV/c
- $DCA_{x,y}$<1 cm

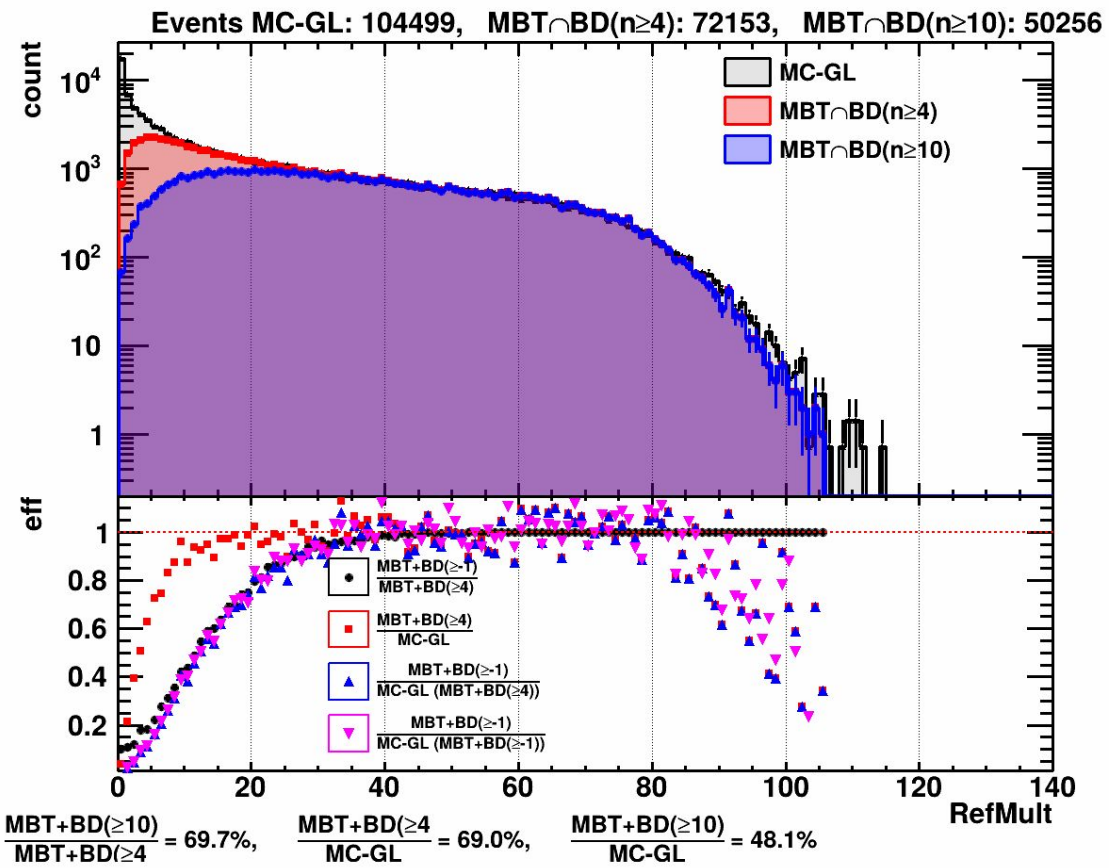
RefMult (RunId 8150-8200)





Run Id 7865-7890

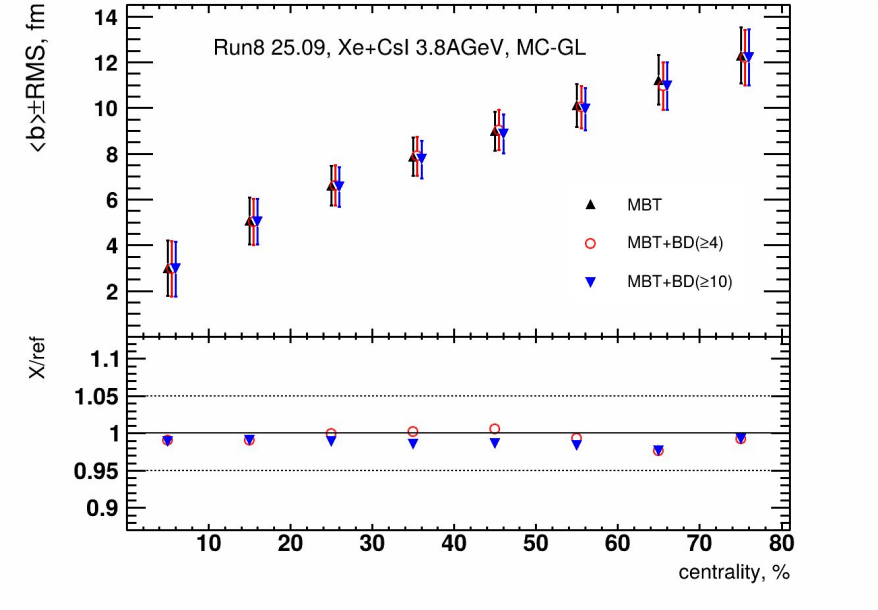




Из данных (CCT(nBD>10)/CCT): 69.7%

Из Глаубера (CCT(nBD>10)/CCT): 0.4845/0.6901 = 0.702 (70.2%)

cent, %	0	10	20	30	40	50	60	70	100
MBT	107	56	39	27	18	11	6	3	0
MBT+nBD>=4	107	56	39	26	17	10	6	3	0
MBT+nBD>=10	107	56	39	27	18	11	6	3	0



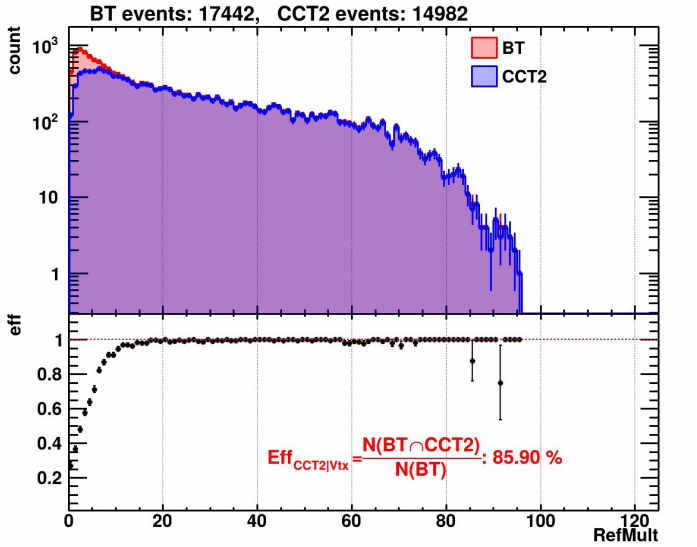
Anchor Point:

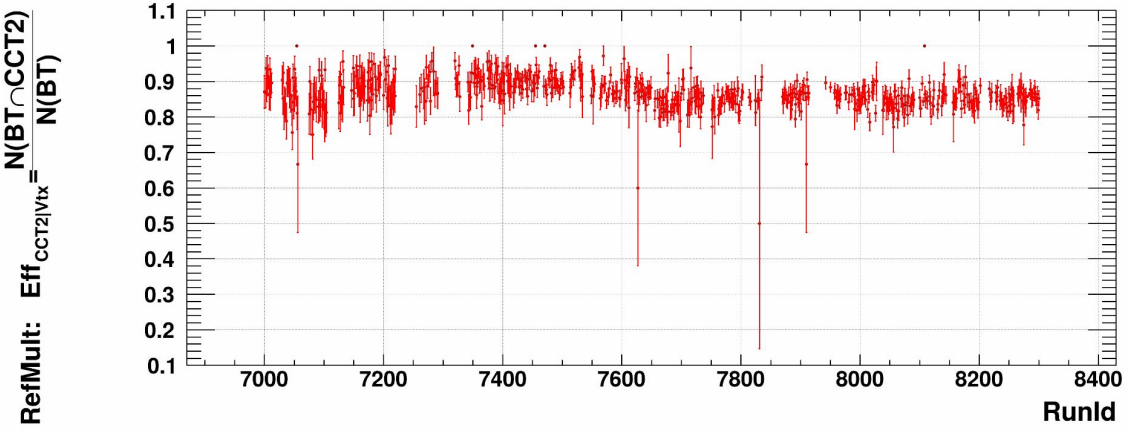
- MBT ~ 9 (50-60%)
- MBT+BD(4) ~ 17 (30-40% - 40-50%)
- MBT+BD(10) ~ 30 (20-30%)

Eff (RefMult, RunId) by trigger masks (in progress)

$Eff_{CCT2|Vtx}$ = N(CCT2) / N(BT)

- nTrVtxMpd >=2
- |Vtx Z| < 1cm
- Vtx R < 1.5 cm
- plp cut

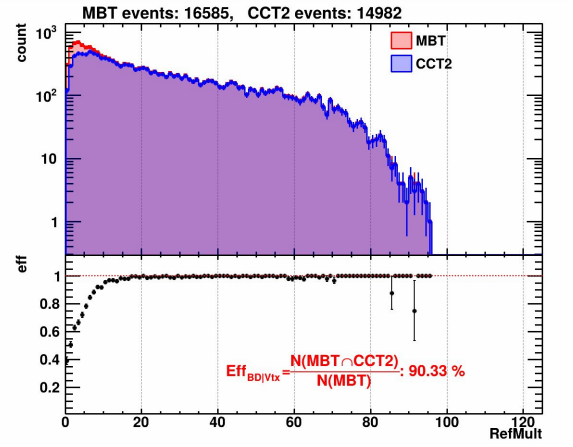


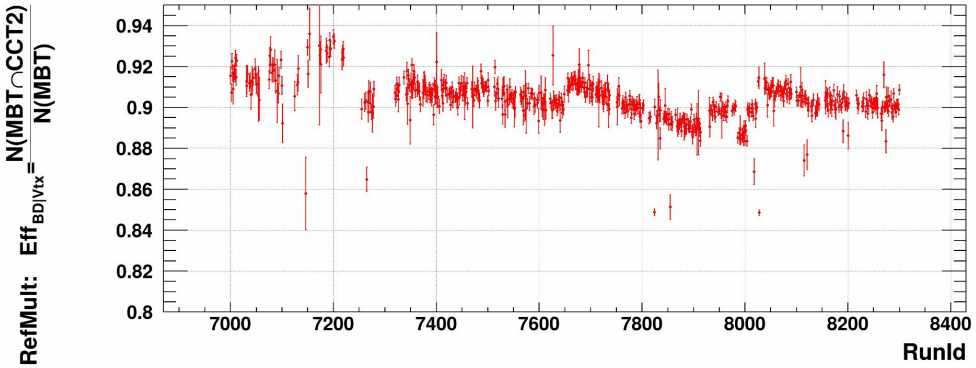


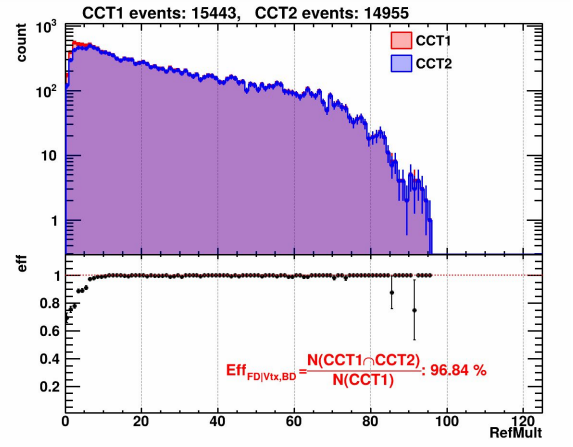
Check the correct application of the plp-cut

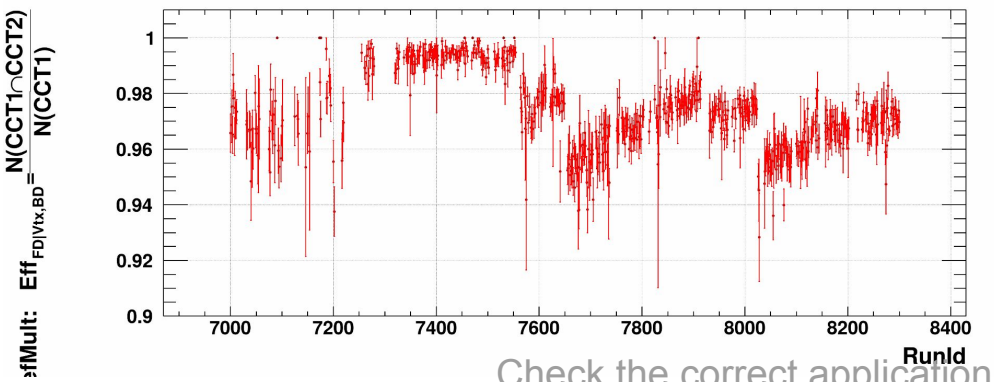
Eff (RefMult, RunId) by trigger masks (in progress)

$Eff_{BD|Vtx}$ = N(CCT2) / N(MBT)
$Eff_{FD|Vtx,BD}$ = N(CCT2) / N(CCT1)
$Eff_{CCT2|Vtx}$ = $Eff_{BD|Vtx}$ * $Eff_{FD|Vtx,BD}$



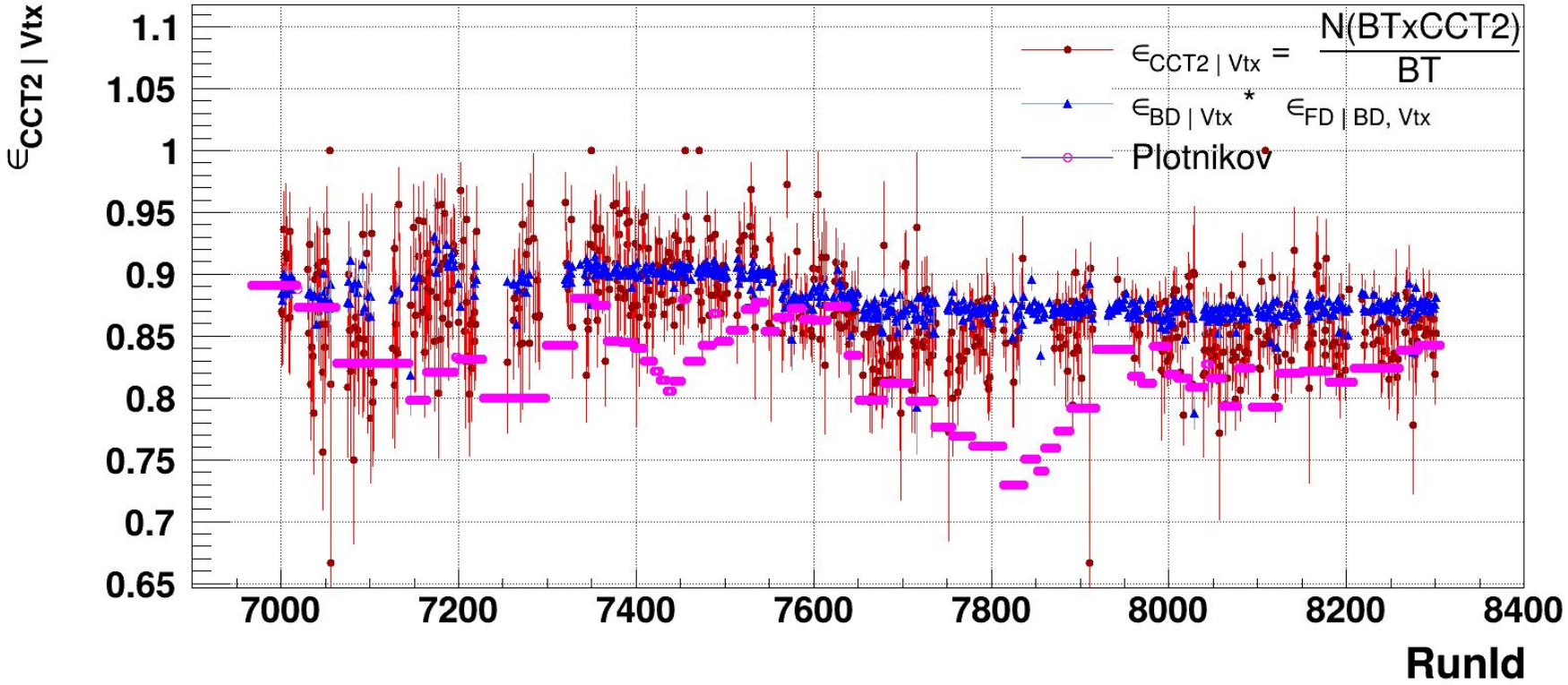






Check the correct application of the pIp-cut

Eff (RefMult, RunId) by trigger masks (in progress)



Check the correct application of the plp-cut

Multiplicity corrections: shift

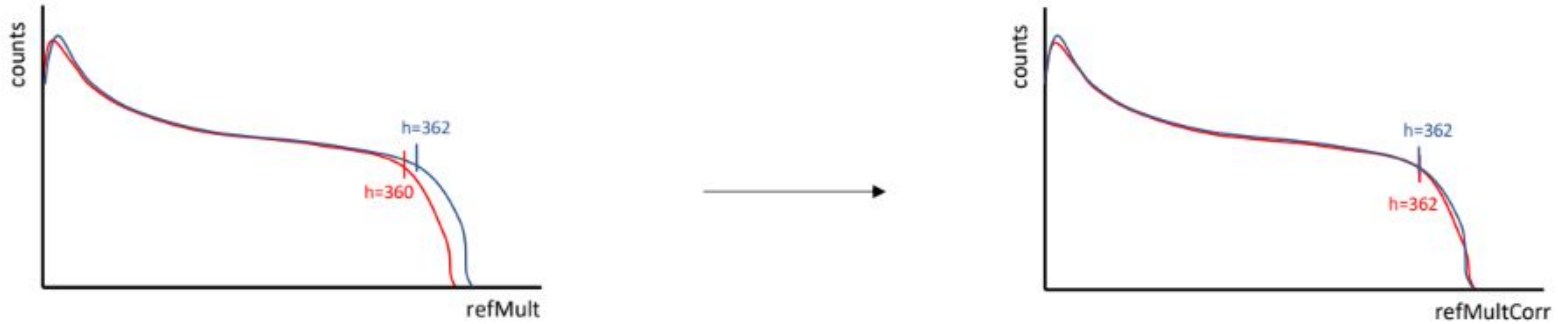
Procedure:

- $RunId_{ref}$: **8120-8170**
- Extract the high-end point of refMult distribution in each RunId via fitting the refMult tail by the function:

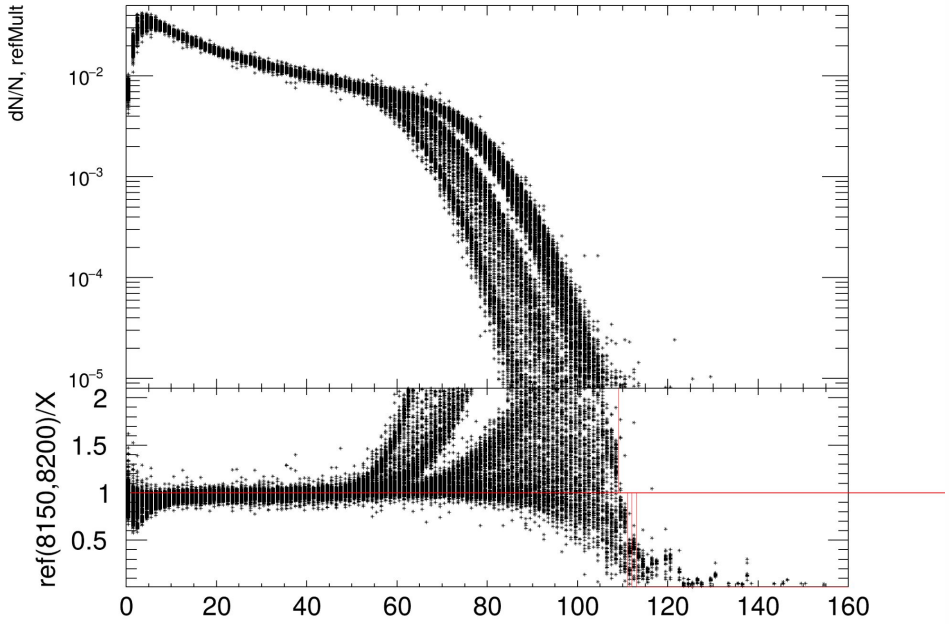
  f(refMult) = A*Erf(-σ*(refMult-h)) + A
- refMult can then be corrected by:

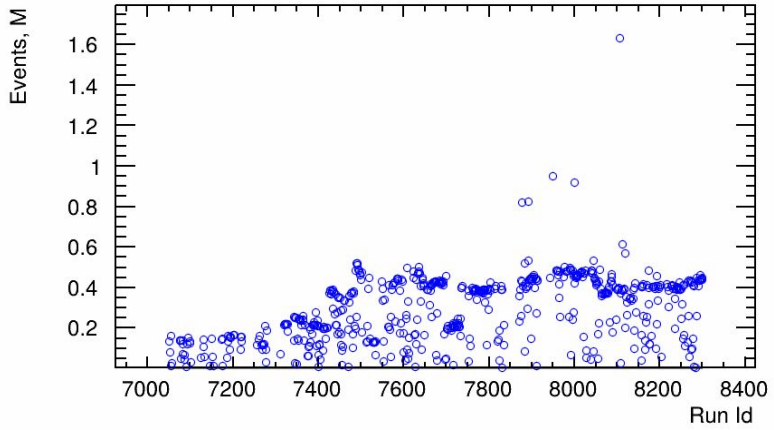
  RunId_CorrFactor = 1 / h

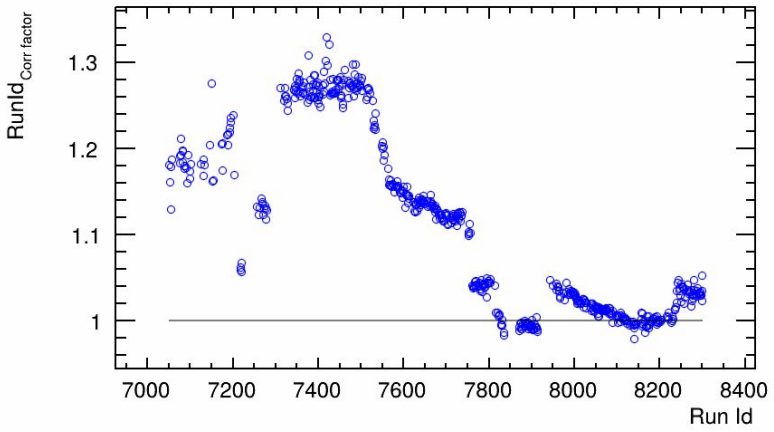
  refMultCorr = refMult * RunId_CorrFactor



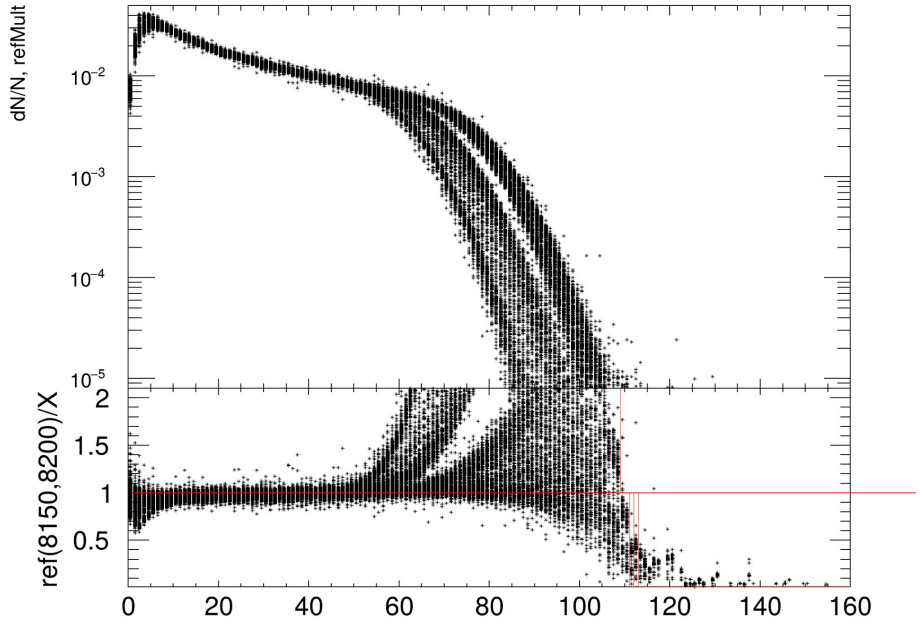
Multiplicity corrections: shift

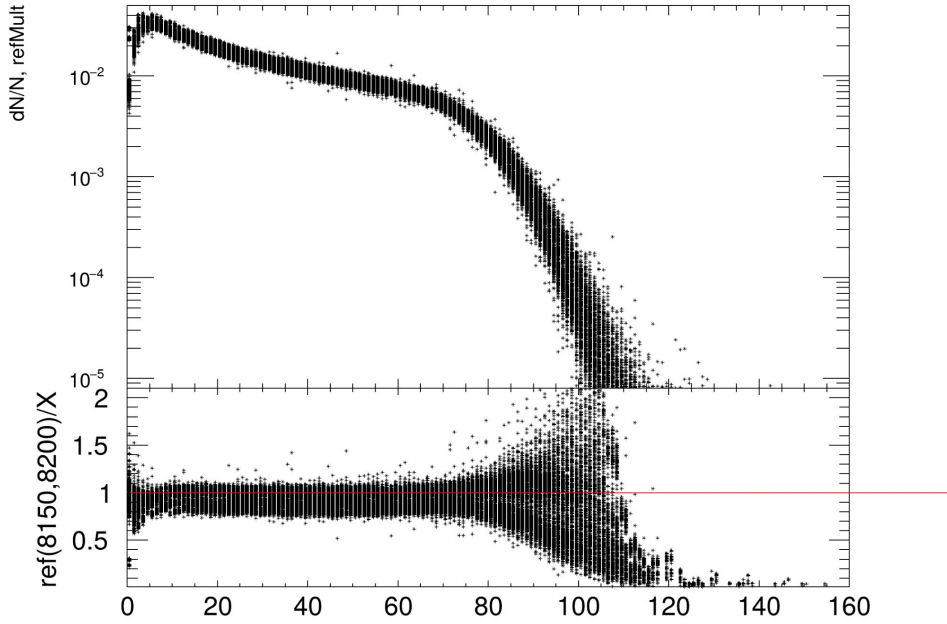


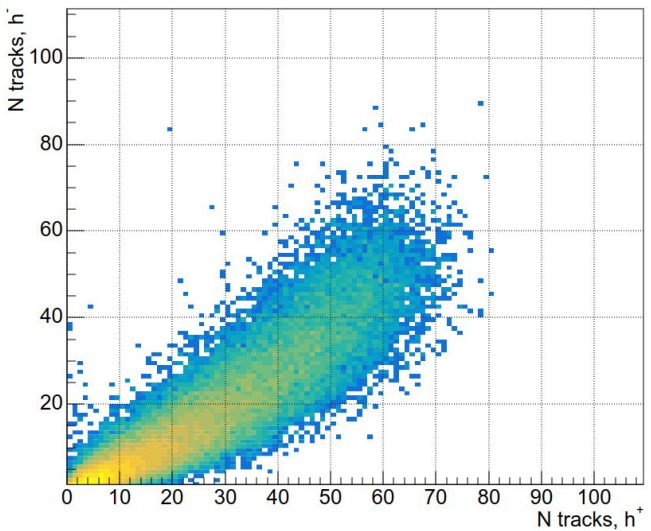


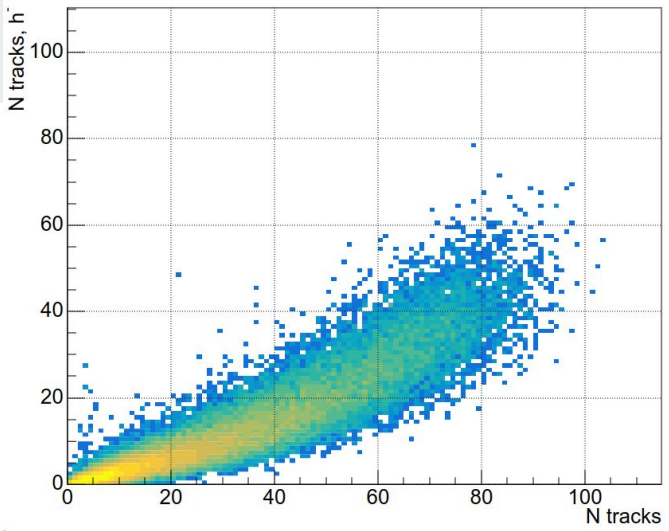


Multiplicity corrections: shift

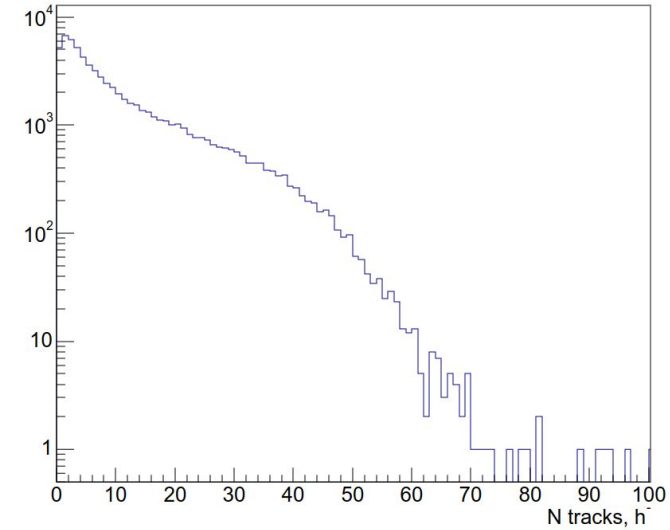


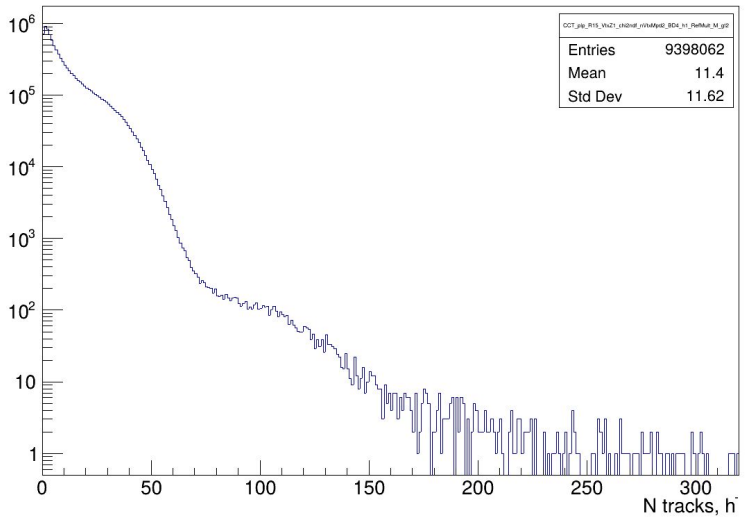


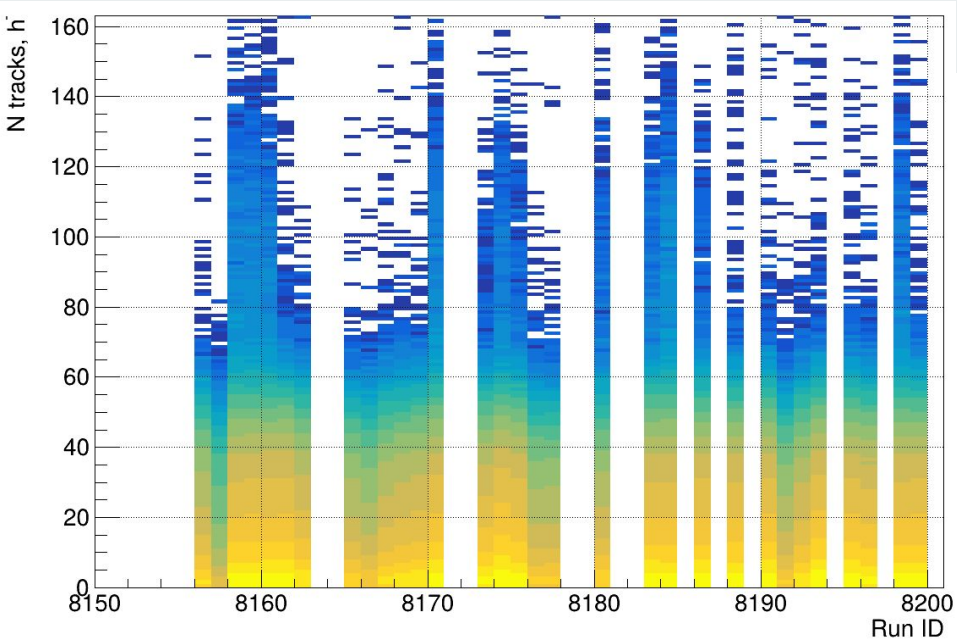


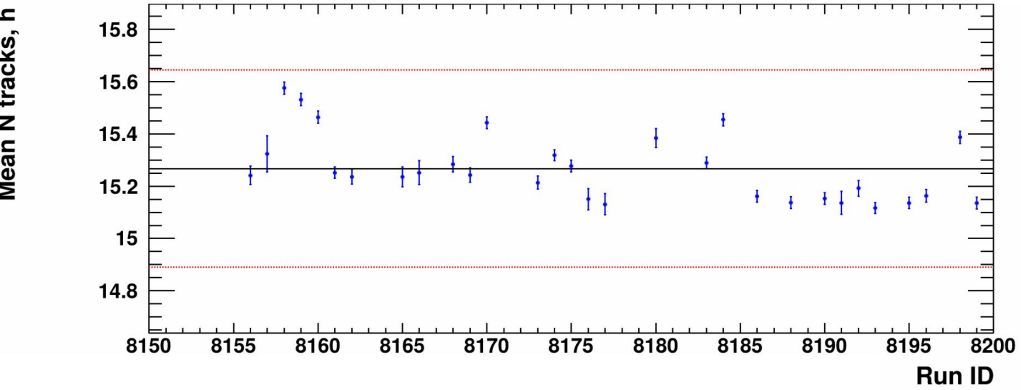


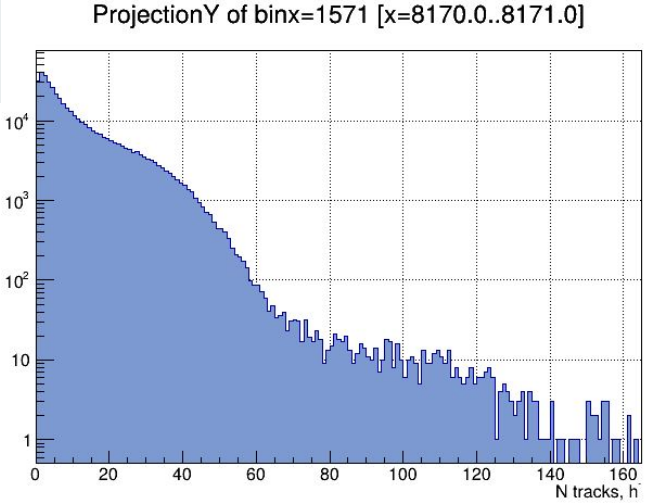
- ch<0
- eta<2.5
- $0.05<p_T<2.0$ GeV/c

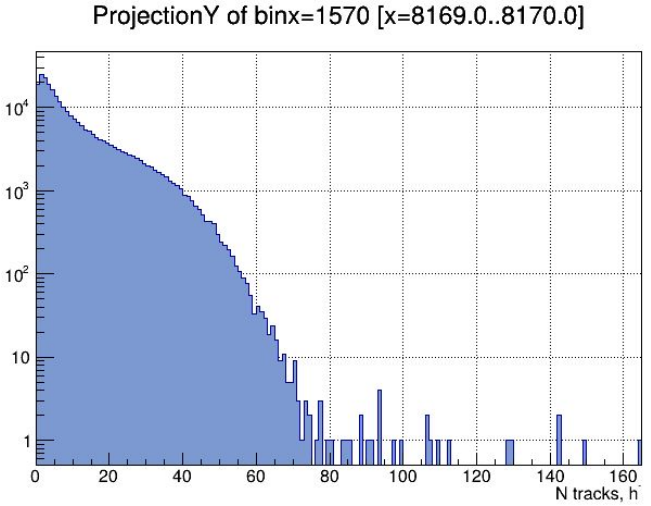


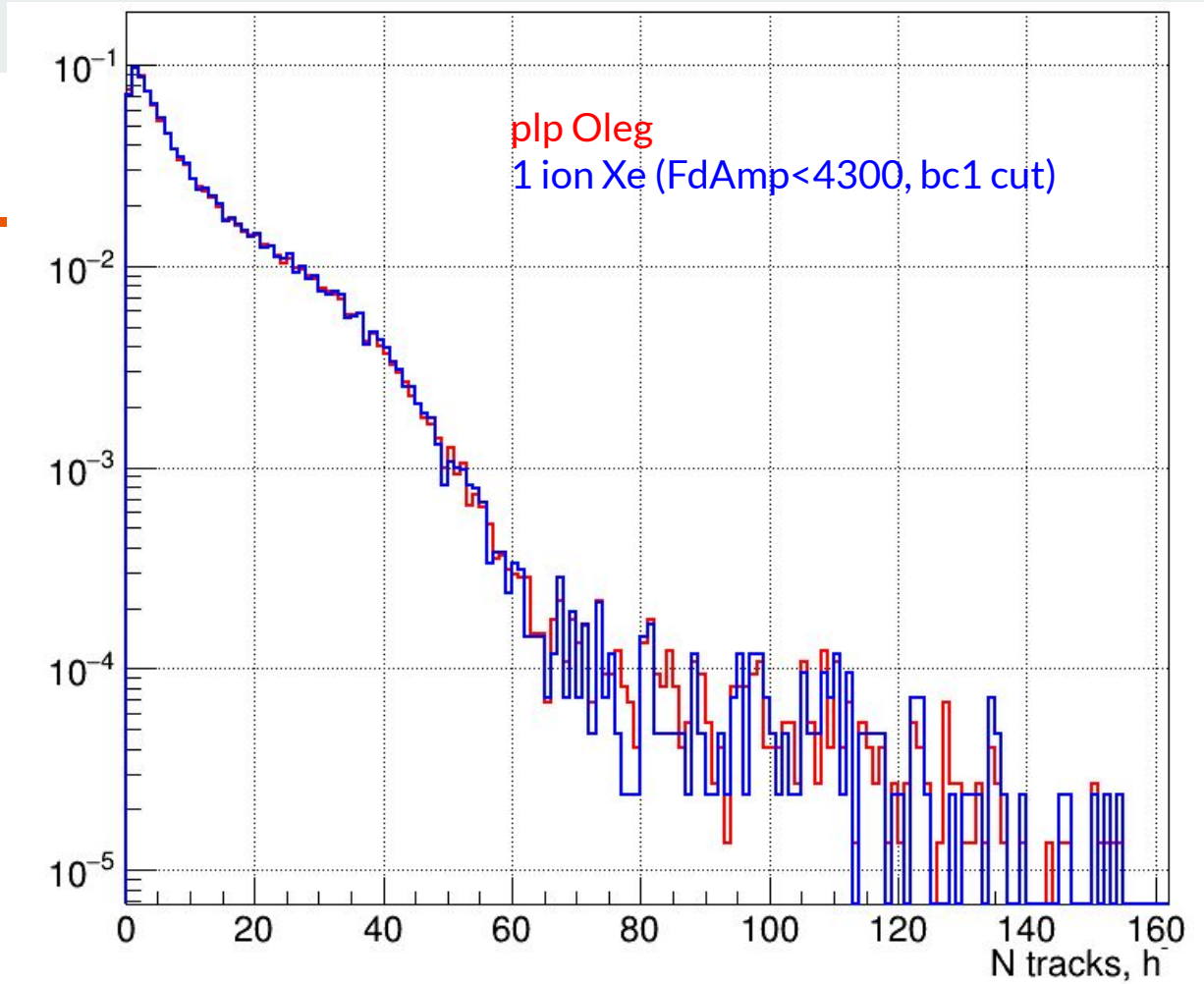


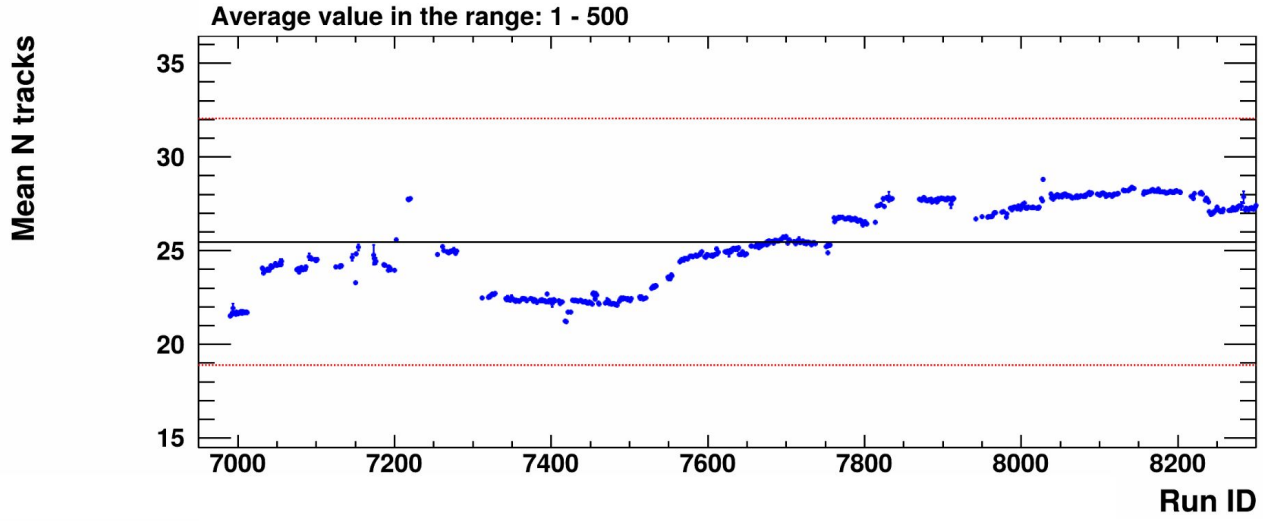

N tracks, h
Run ID

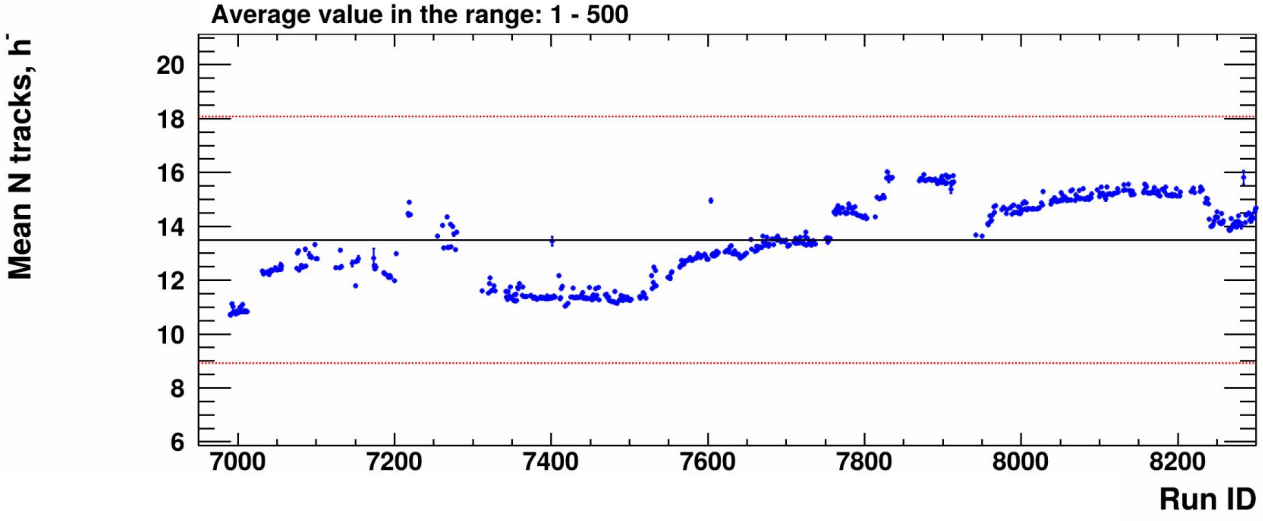

Mean N tracks, h
Run ID


ProjectionY of binx=1571 [x=8170.0..8171.0]
N tracks, h

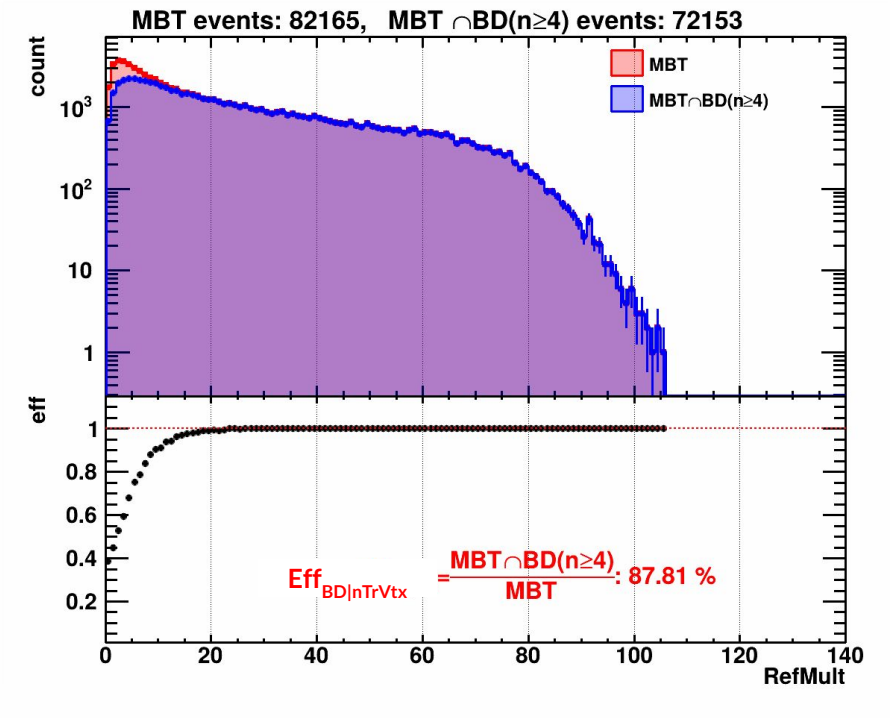

ProjectionY of binx=1570 [x=8169.0..8170.0]
N tracks, h

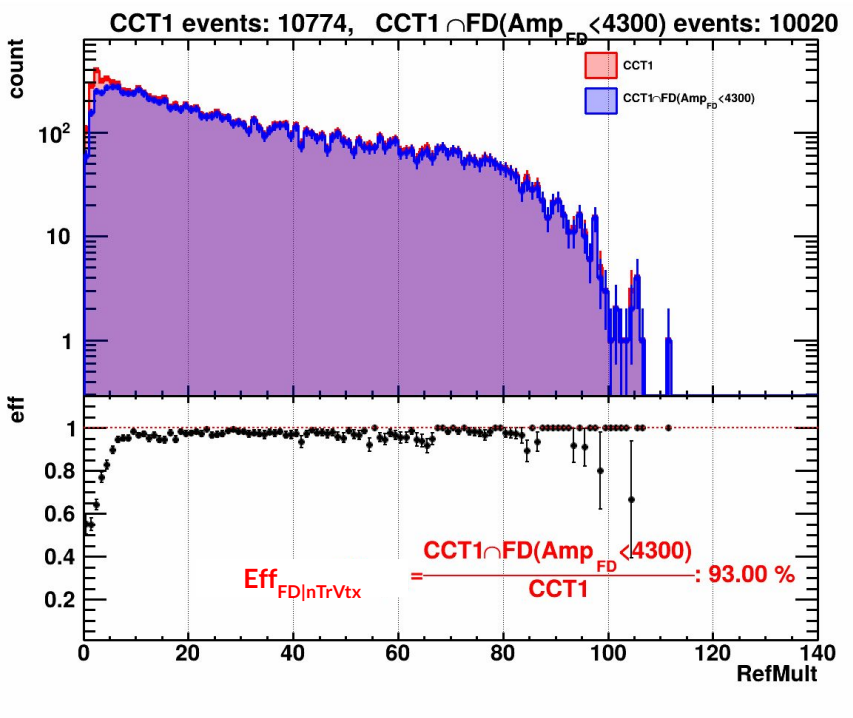

plp Oleg
1 ion Xe (FdAmp<4300, bc1 cut)
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
0
20
40
60
80
100
120
140
160
N tracks, h⁻


Average value in the range: 1 - 500
Mean N tracks
35
30
25
20
15
7000
7200
7400
7600
7800
8000
8200
Run ID


Average value in the range: 1 - 500
Mean N tracks, h⁻
20
18
16
14
12
10
8
6
7000
7200
7400
7600
7800
8000
8200
Run ID

1 Xe (BC1)


MBT events: 82165, MBT ∩BD(n≥4) events: 72153
count
MBT
MBT∩BD(n≥4)
eff
Eff_BD|nTrVtx = MBT∩BD(n≥4) / MBT : 87.81 %
RefMult


CCT1 events: 10774, CCT1 ∩FD(Amp_FD<4300) events: 10020
count
CCT1
CCT1∩FD(Amp_FD<4300)
eff
Eff_FD|nTrVtx = CCT1∩FD(Amp_FD<4300) / CCT1 : 93.00 %
RefMult

Model data

name	imfo	bmnroot	statistic (reco)	path to reco (/nica/mpd1/demanov/bmn_monte_carlo/output/)
dcmqgsm	xe cs 3.26gev	25.09.0	~ 0.8 M	dcmqgsm_xecs_3.26gev_parfenov_bmnroot_25.09.0
jam2_cascade_coalesc	xe cs 3.26gev	25.09.0	~ 1M	jam2_cascade_coalesc_xecs_3.26gev_bmnroot_25.09.0
jam2_cascade_WoCoalesc	xe cs 3.26gev	25.09.0	~ 0.6 M	jam2_cascade_WoCoalesc_xecs_3.26gev_bmnroot_25.09.0
jam2_md2_coalesc	xe cs 3.26gev	25.09.0	~ 0.6 M	jam2_md2_coalesc_xecs_3.26gev_bmnroot_25.09.0
jam2_md2_coalesc	xe cs 3.26gev	26.02.0	~ 0.6 M	jam2_md2_coalesc_xecs_3.26gev_bmnroot_26.02.0
jam2_ns1_WoCoalesc	xe cs 3.26gev	25.09.0	~ 0.6 M	jam2_ns1_WoCoalesc_xecs_3.26gev_bmnroot_25.09.0
jam2_ns2_WoCoalesc	xe cs 3.26gev	25.09.0	~ 0.6 M	jam2_ns2_WoCoalesc_xecs_3.26gev_bmnroot_25.09.0
smash_cascade	xe csi 3.26gev	25.09.0	~ 1.2 M	smash_xecsi_3.26gev_cascade_bmnroot_25.09.0
urqmd3x_cascade	xe cs 3.26gev	25.09.0	~ 0.8 M	urqmd3x_xecs_ws_3.26gev_cascade_bmnroot_25.09.0
urqmd3x_cascade	xe cs 3.26gev	26.02.0	~ 0.8 M	urqmd3x_xecs_ws_3.26gev_cascade_bmnroot_26.02.0
urqmd_smm	xe cs	25.09.0	-	-
urqmd_smm	xe i	25.09.0	-	-

MC GL

TAG	TARGET	PROJECTILE	CROSS SECTION	SIGWIDTH	MIND	OMEGA	NODED
Glauber_Xe_Xe_Def_dmin09_w0p5	XeDef	XeDef	28	-1	0.9	0.5	0.9
Glauber_Xe_Xe_Def2_dmin09_w0p5	XeDef2	XeDef2	28	-1	0.9	0.5	0.9
Glauber_Xe_Xe_Def3_dmin09_w0p5	XeDef3	XeDef3	28	-1	0.9	0.5	0.9
Glauber_Xe_Xe_Def4_dmin09_w0p5	XeDef4	XeDef4	28	-1	0.9	0.5	0.9
Glauber_Xe_Xe_Def5_dmin09_w0p5	XeDef5	XeDef5	28	-1	0.9	0.5	0.9
Glauber_Xe_Xe_Def_dmin09_w0_sig29.5	XeDef	XeDef	29.5	-1	0.9	-1	0.9
Glauber_Xe_Xe_DCM_dmin09_w0_sig29.5	XeDCM	XeDCM	29.5	-1	0.9	-1	0.9
Name	fN	fR	fA	fW	fF	fZ	fMaxR
Xe	129	5.36	0.59	0	1	54	10.72
XeDef	129	5.36	0.54	0	1	54	10.72
XeDef2	129	5.26	0.54	0	1	54	10.72
XeDef3	129	5.46	0.54	0	1	54	10.72
XeDef4	129	5.36	0.59	0	1	54	10.72
XeDef5	129	5.36	0.49	0	1	54	10.72
XeDCM	129	5.336	0.545	0	1	54	6.94