Multiplicity corrections: shift

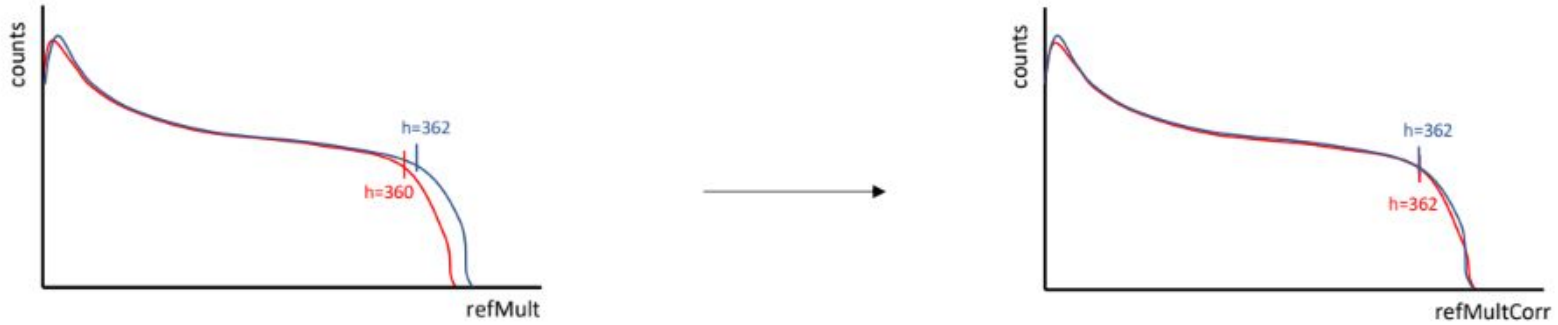
Procedure:

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

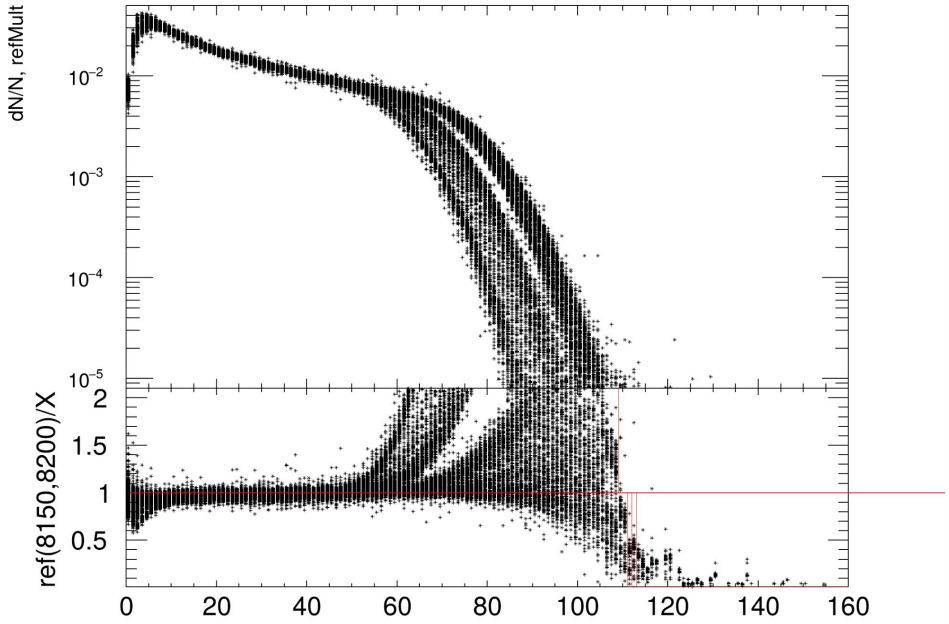
  f(refMult) = A*Erf(-σ*(refMult-h)) + A
- refMult can then be corrected by:

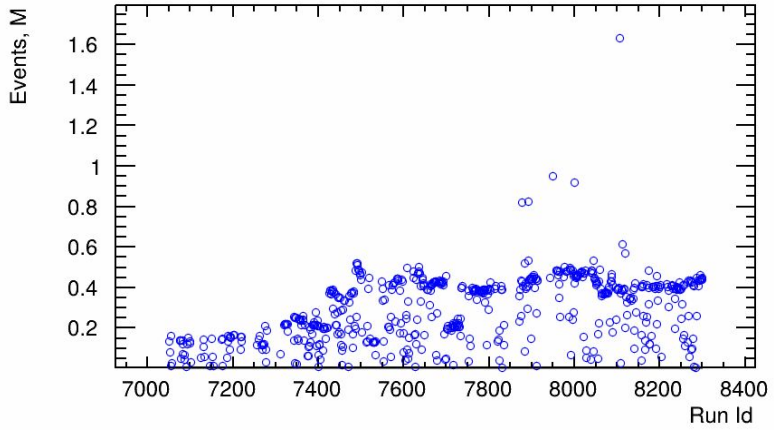
  RunId_CorrFactor = 1 / h

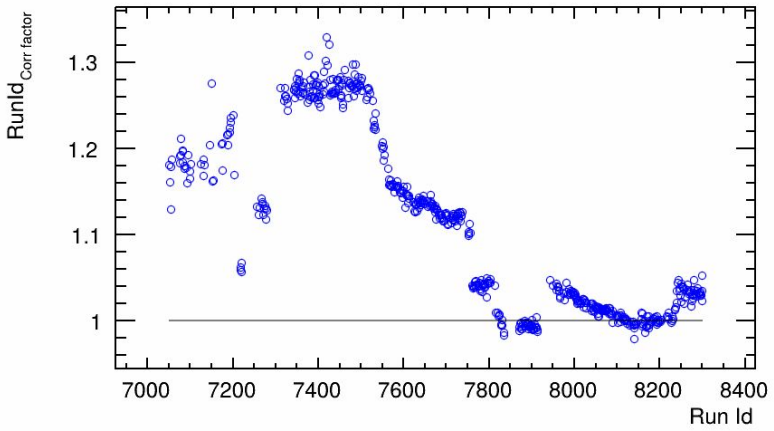
  refMultCorr = refMult * RunId_CorrFactor



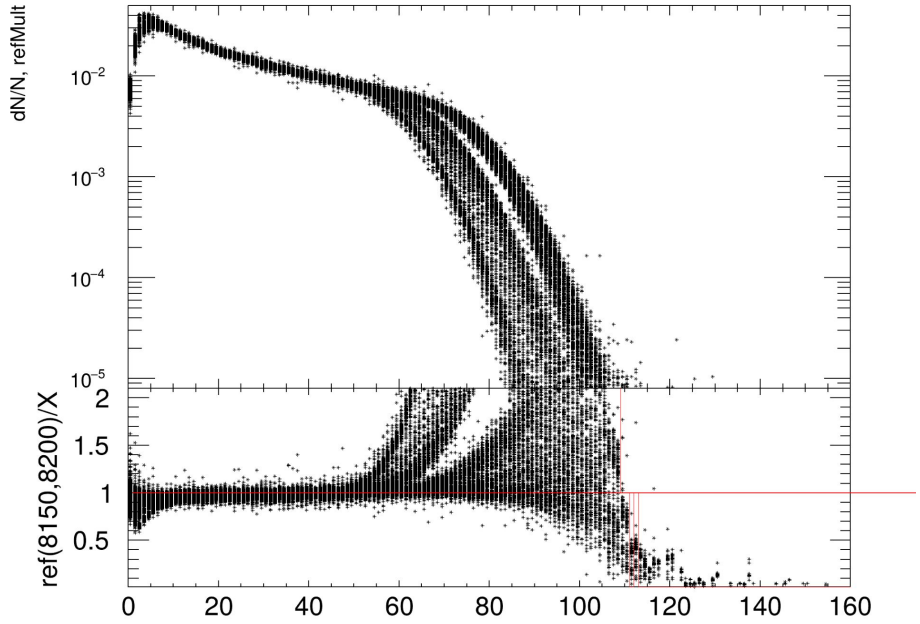
Multiplicity corrections: shift

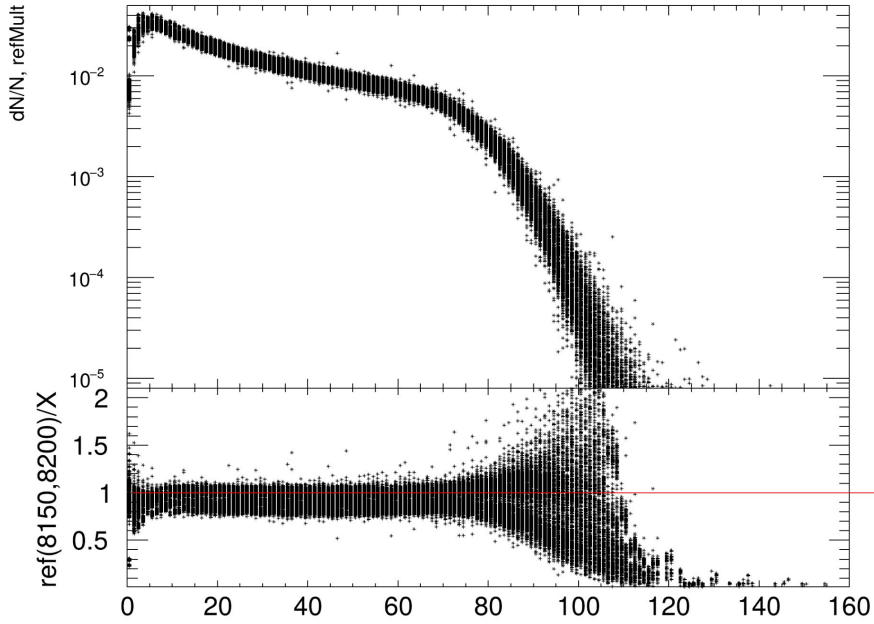






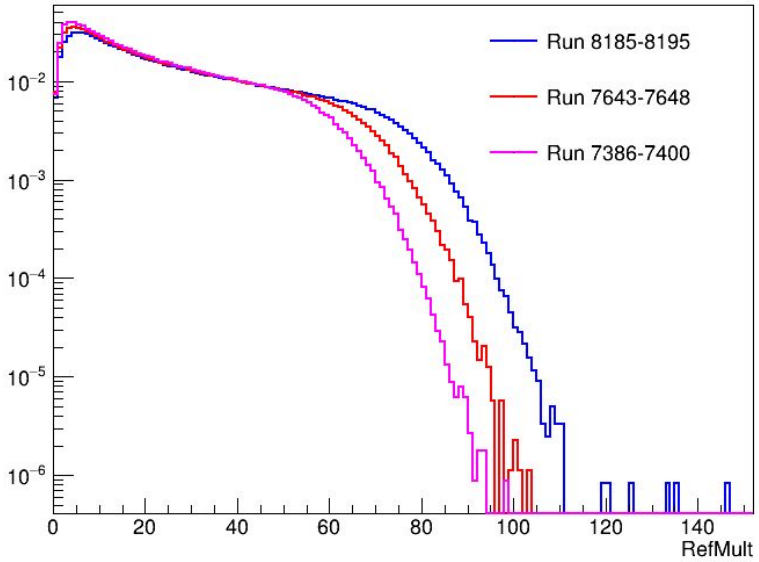
Multiplicity corrections: shift

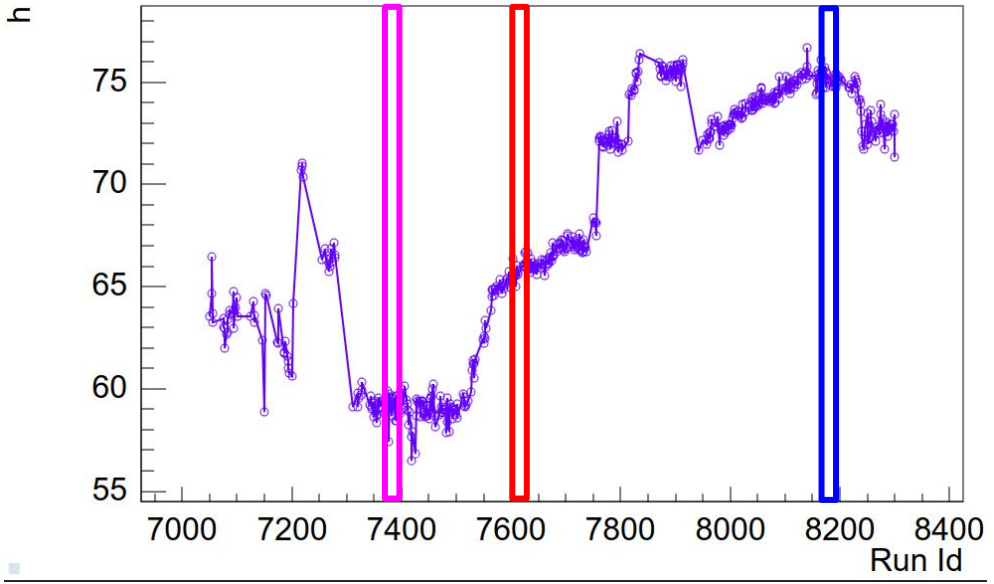




Various reference RunId (for RefMult)

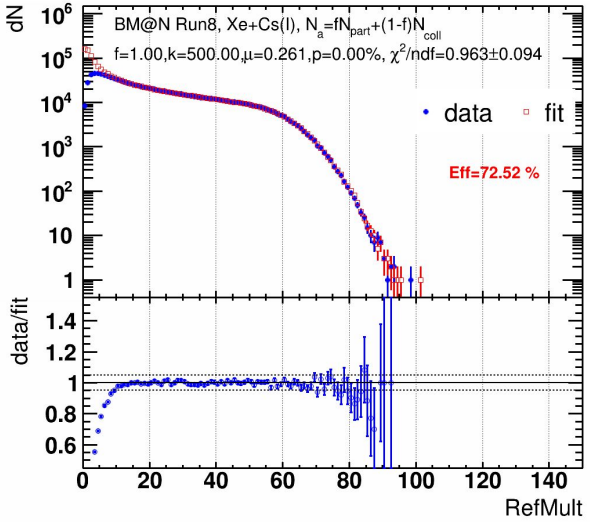
RefMult:
- $0.05<p_T<2.0$
- $0.7<eta<2.5$
- $DCA_R<1.0$ cm



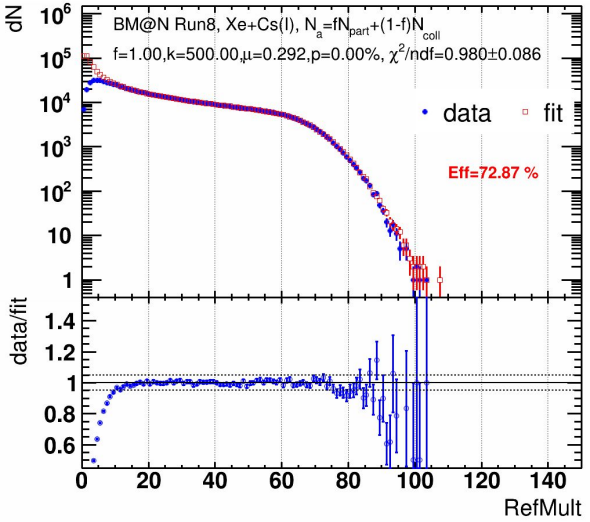


Fit various reference RunId (for RefMult)

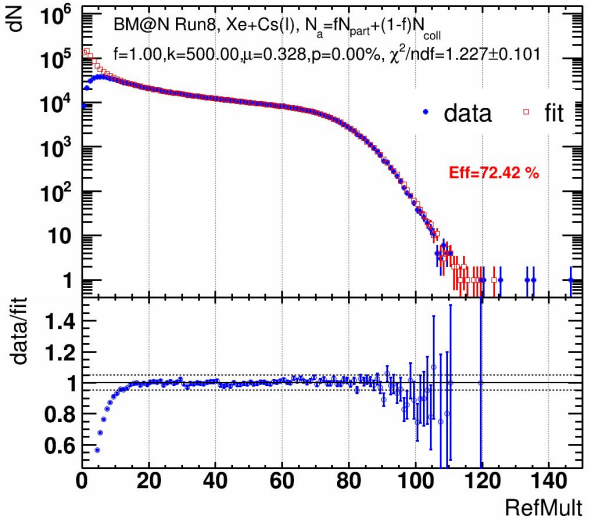
7386-7400

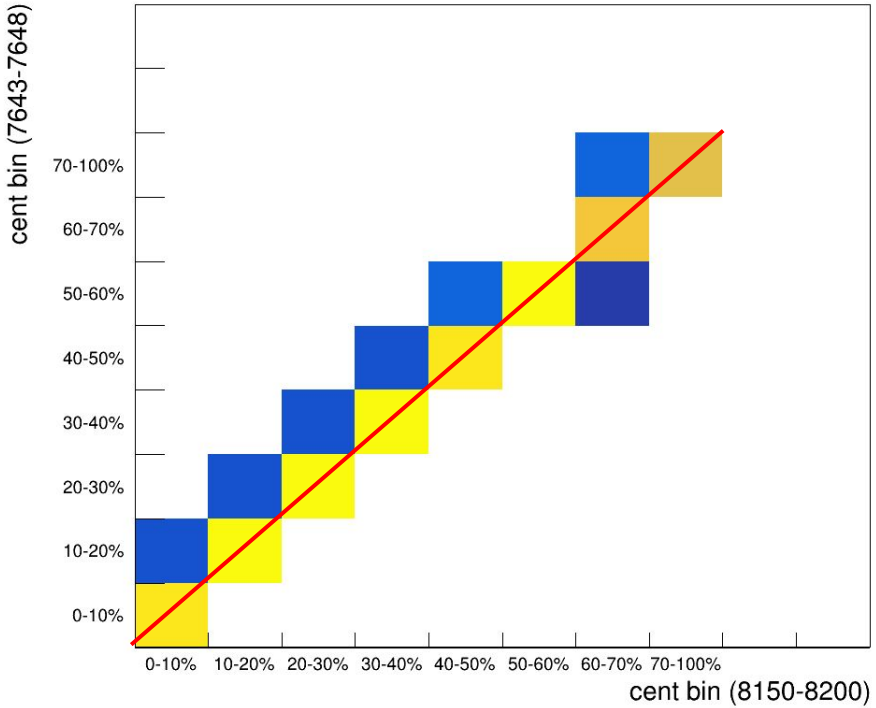


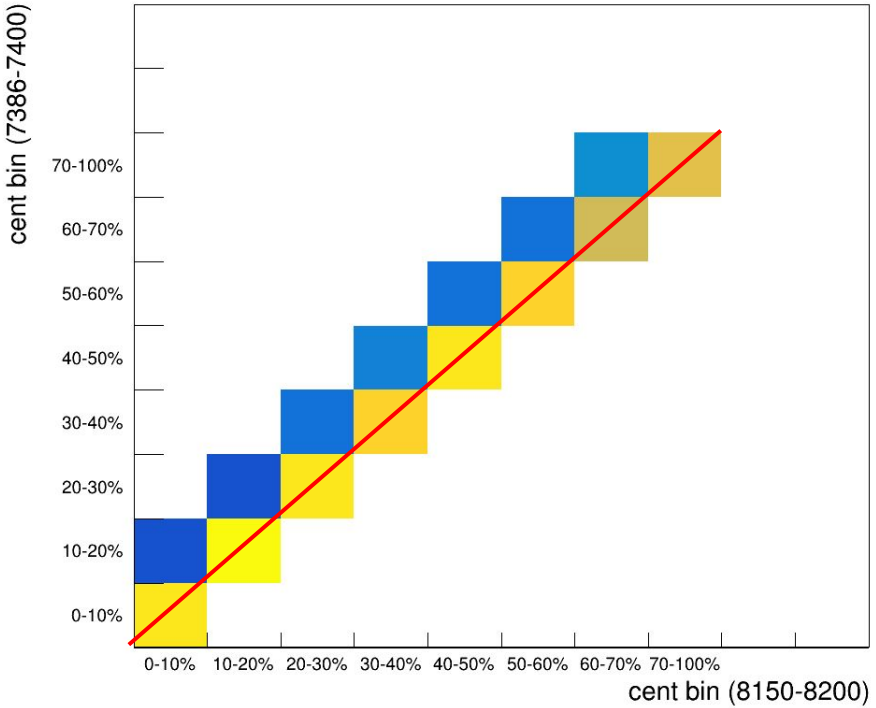
7643-7648



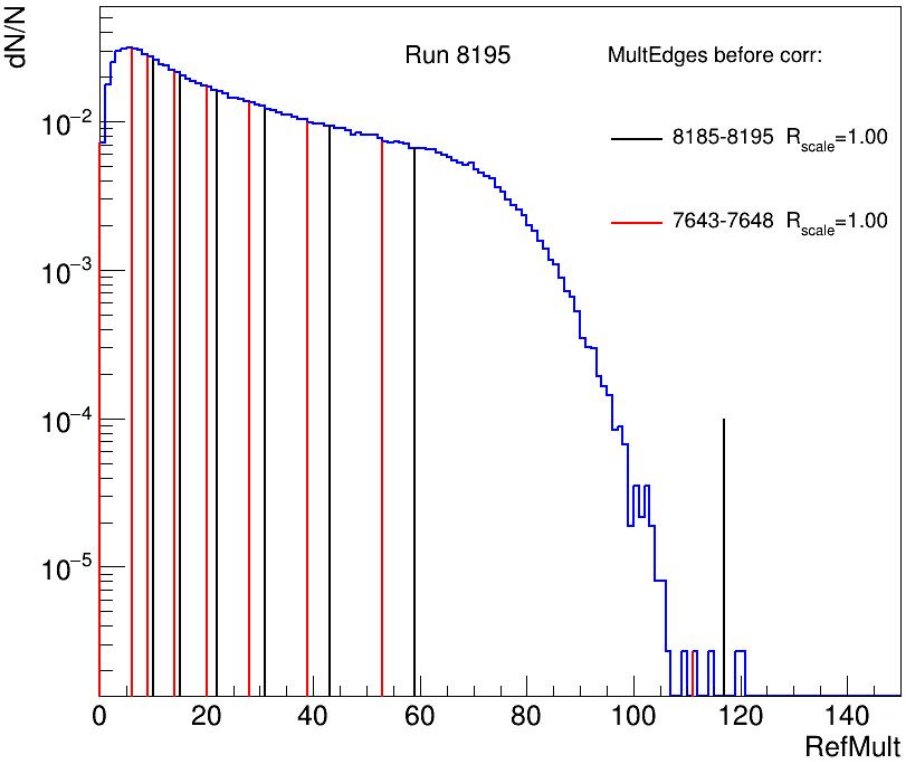
8185-8195
(8150-8200)

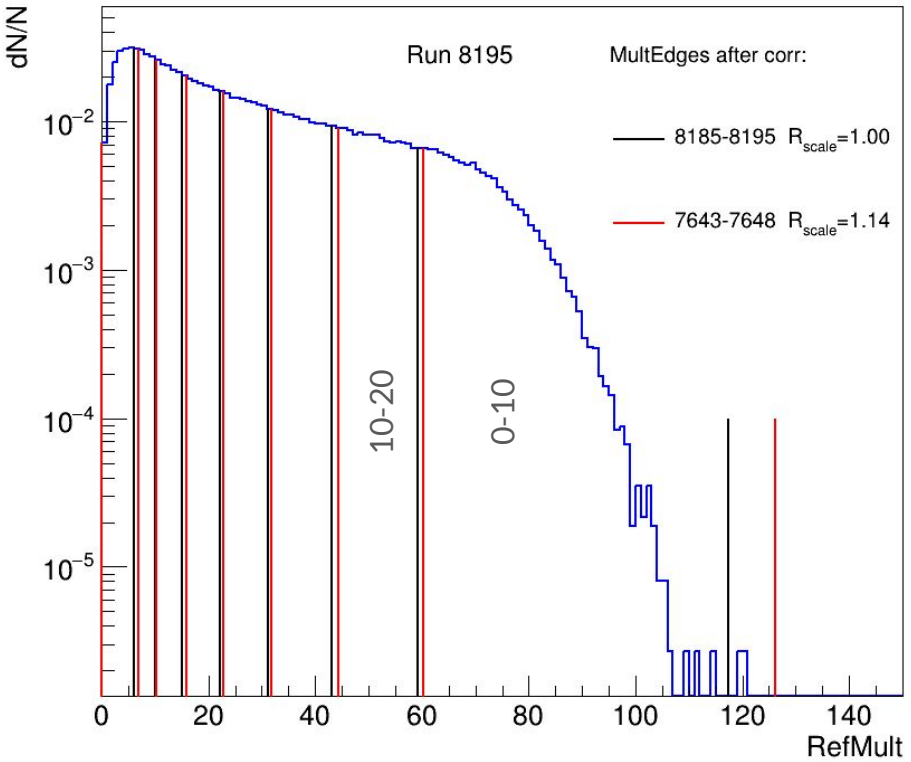


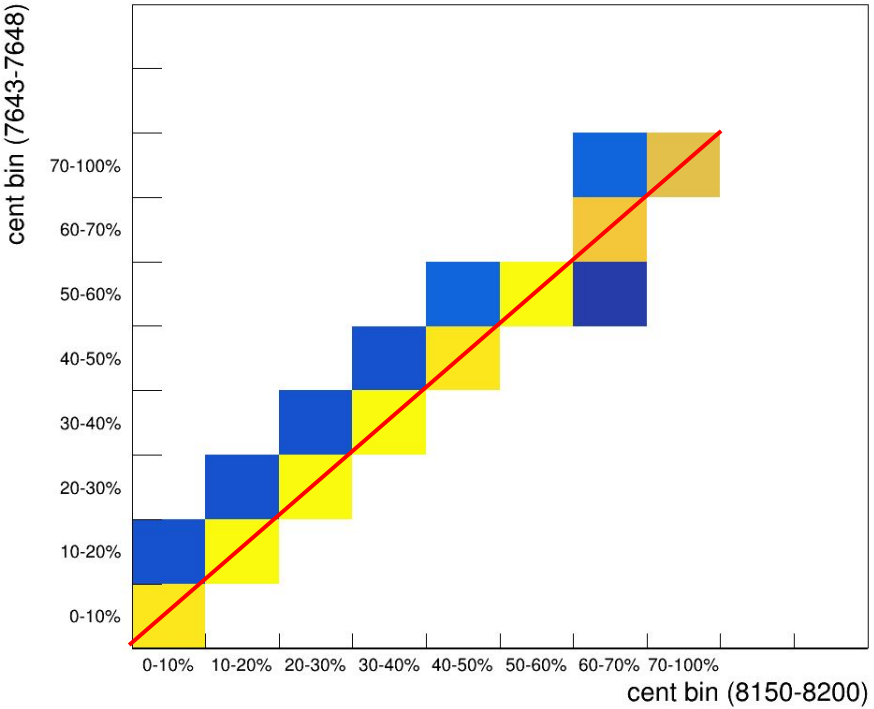


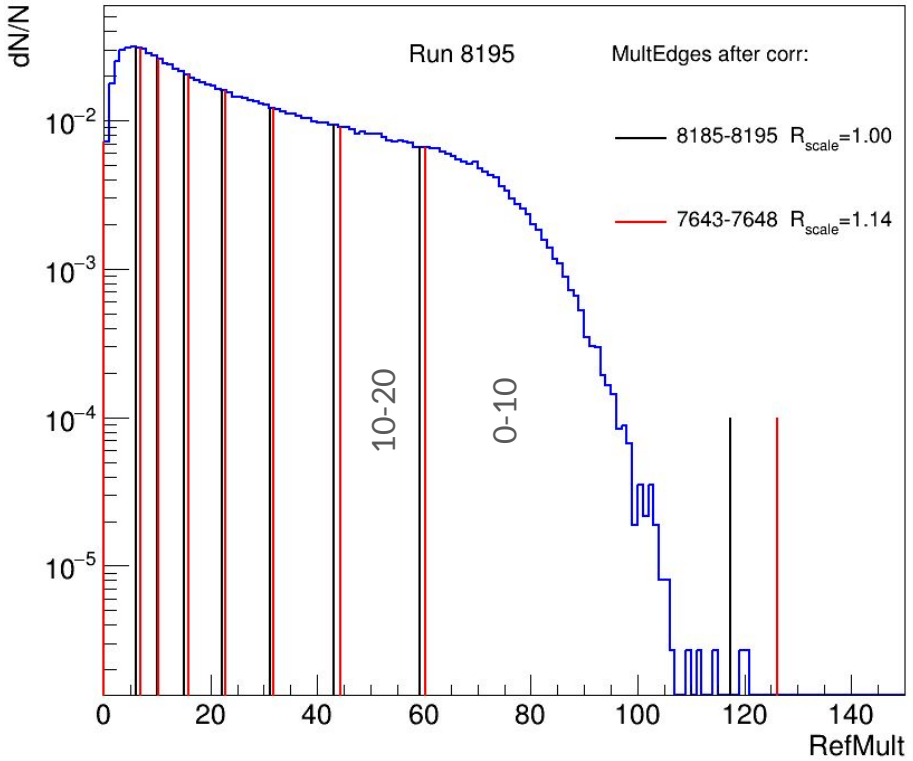


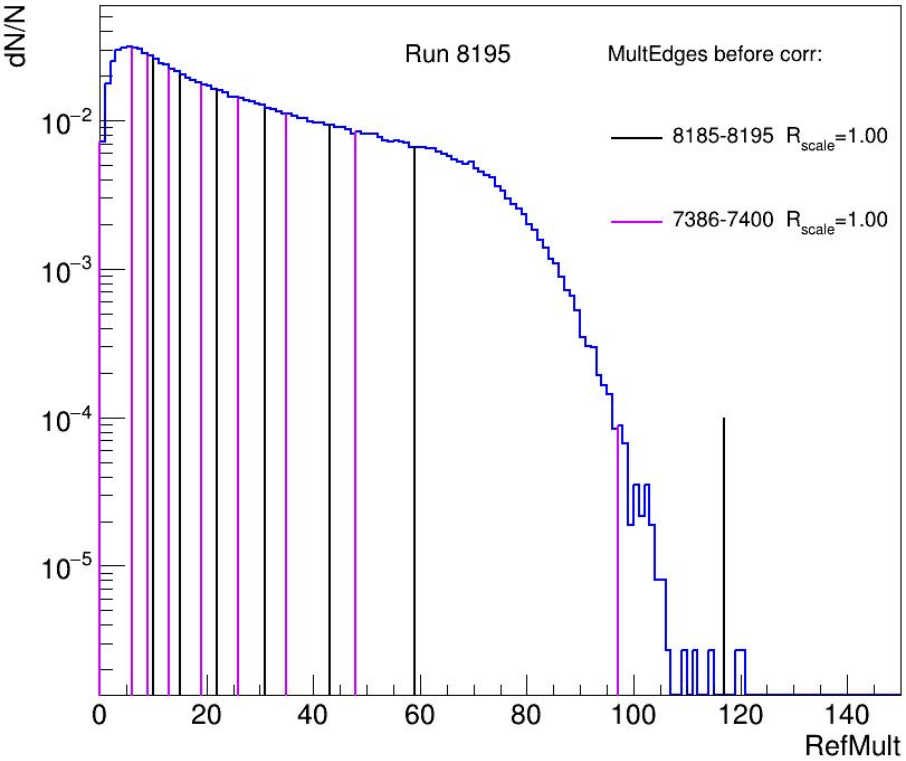
Наблюдается “перескакивание” бинов при разной эталонной группе ранов используемой для определения центральности: < 10%

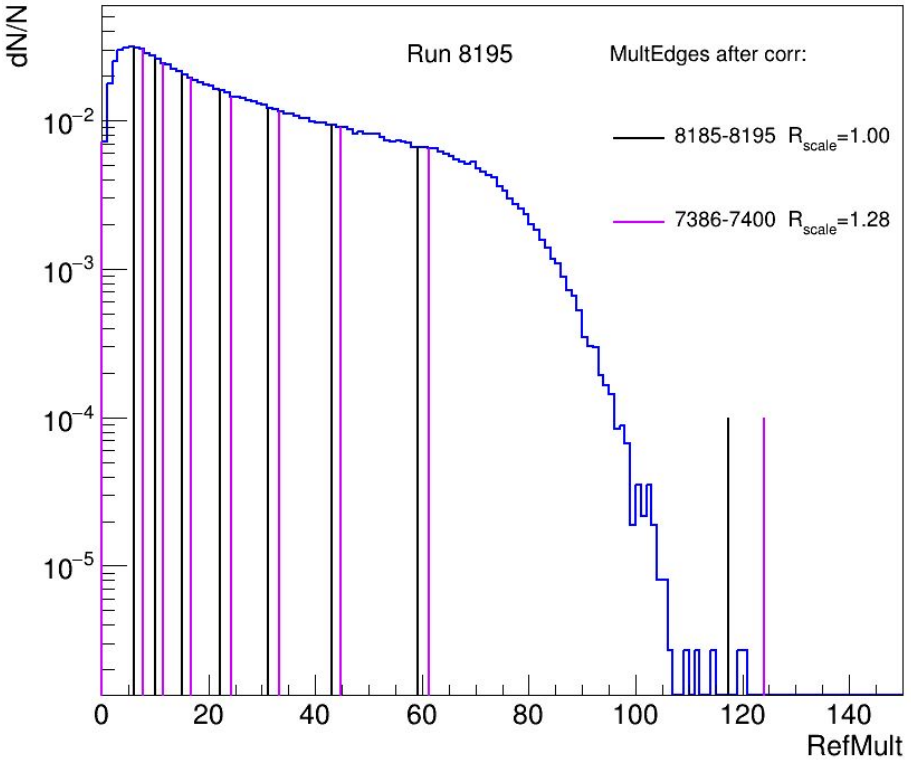

dN/N
Run 8195
MultEdges before corr:
8185-8195 R_scale=1.00
7643-7648 R_scale=1.00
10^-2
10^-3
10^-4
10^-5
0
20
40
60
80
100
120
140
RefMult

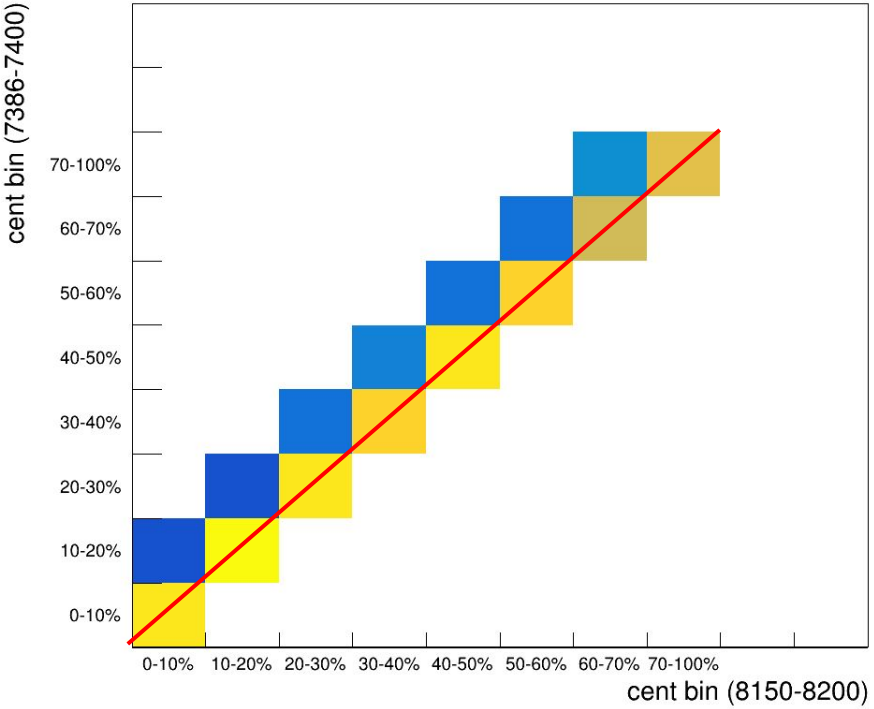

dN/N
Run 8195
MultEdges after corr:
8185-8195 R_scale=1.00
7643-7648 R_scale=1.14
10-20
0-10
10^-2
10^-3
10^-4
10^-5
0
20
40
60
80
100
120
140
RefMult

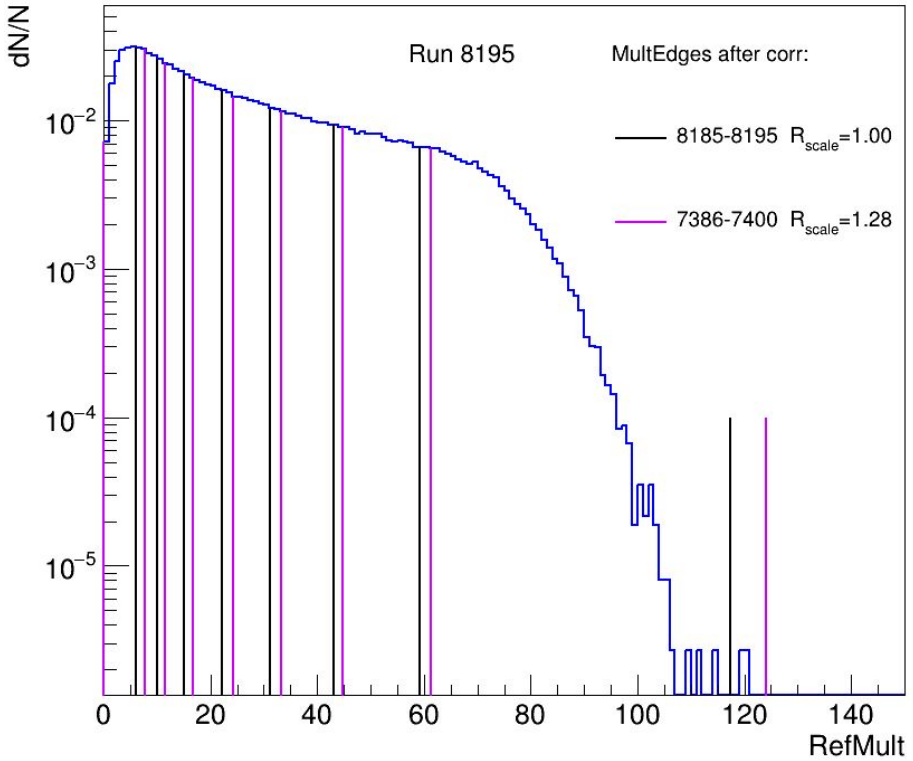

cent bin (7643-7648)
70-100%
60-70%
50-60%
40-50%
30-40%
20-30%
10-20%
0-10%
0-10% 10-20% 20-30% 30-40% 40-50% 50-60% 60-70% 70-100%
cent bin (8150-8200)


dN/N
Run 8195
MultEdges after corr:
8185-8195 R_scale=1.00
7643-7648 R_scale=1.14
10^-2
10^-3
10^-4
10^-5
10-20
0-10
0 20 40 60 80 100 120 140
RefMult

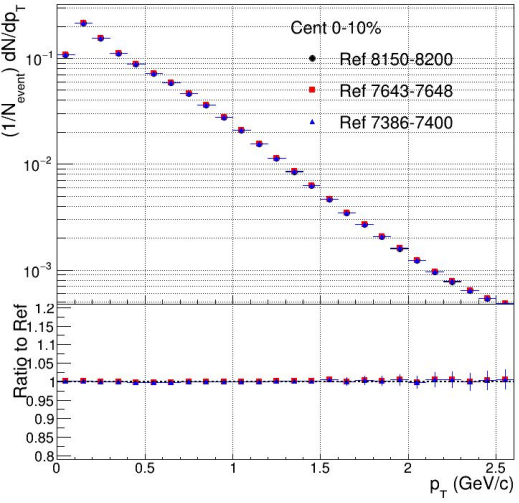

dN/N
Run 8195
MultEdges before corr:
8185-8195 R_scale=1.00
7386-7400 R_scale=1.00
10^-2
10^-3
10^-4
10^-5
0
20
40
60
80
100
120
140
RefMult

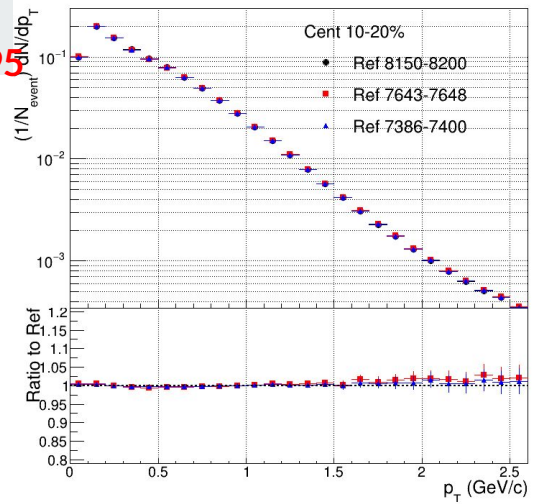

dN/N
Run 8195
MultEdges after corr:
8185-8195 R_scale=1.00
7386-7400 R_scale=1.28
10^-2
10^-3
10^-4
10^-5
0
20
40
60
80
100
120
140
RefMult

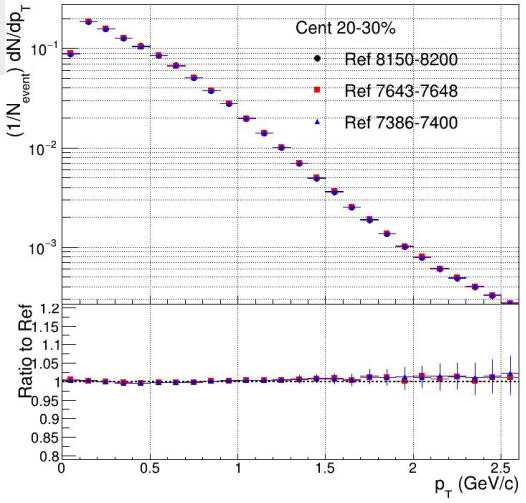

cent bin (7386-7400)
70-100%
60-70%
50-60%
40-50%
30-40%
20-30%
10-20%
0-10%
0-10% 10-20% 20-30% 30-40% 40-50% 50-60% 60-70% 70-100%
cent bin (8150-8200)

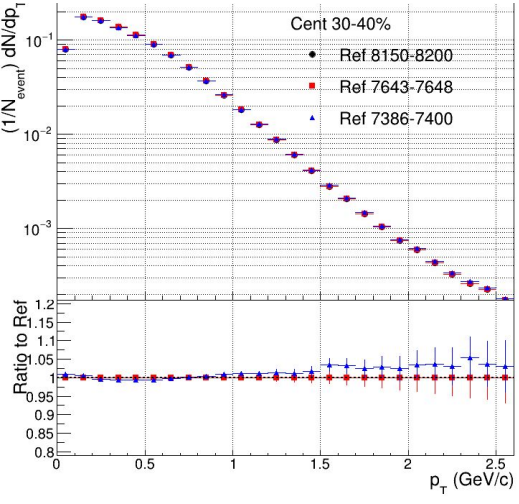

dN/N
Run 8195
MultEdges after corr:
8185-8195 R_scale=1.00
7386-7400 R_scale=1.28
10^-2
10^-3
10^-4
10^-5
0 20 40 60 80 100 120 140
RefMult

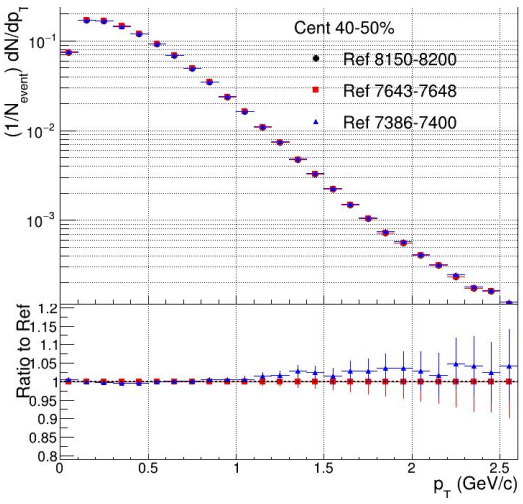
All ch
Run 8195

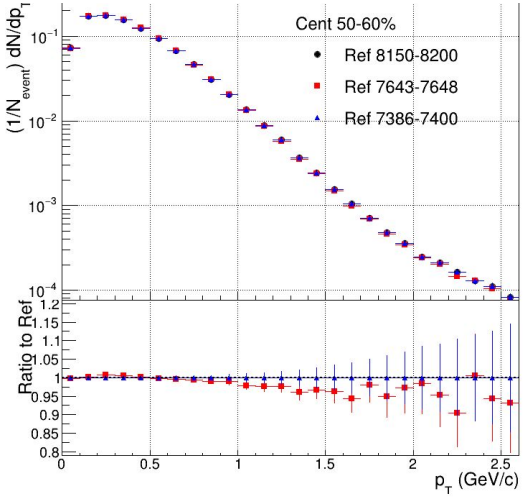




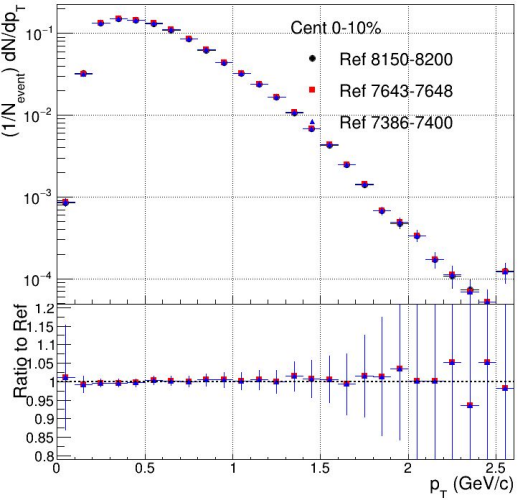


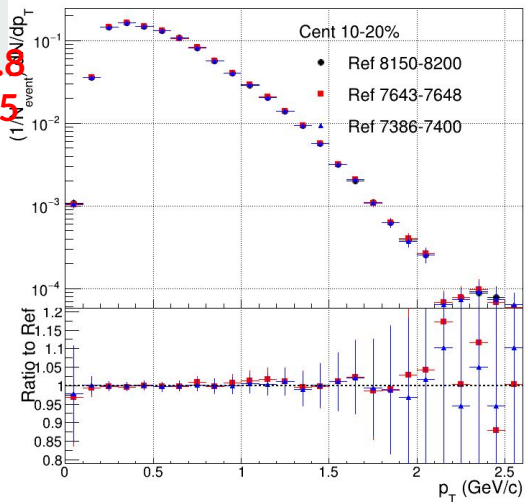


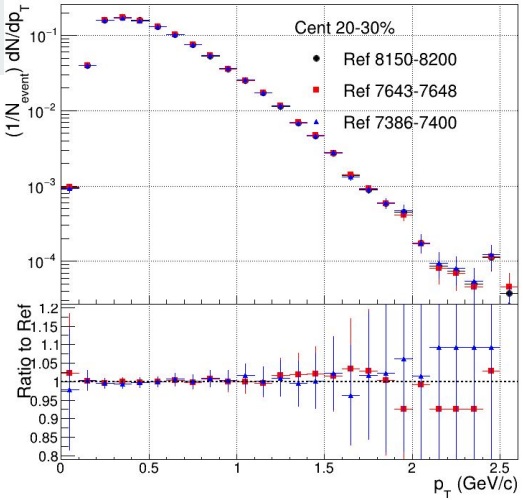


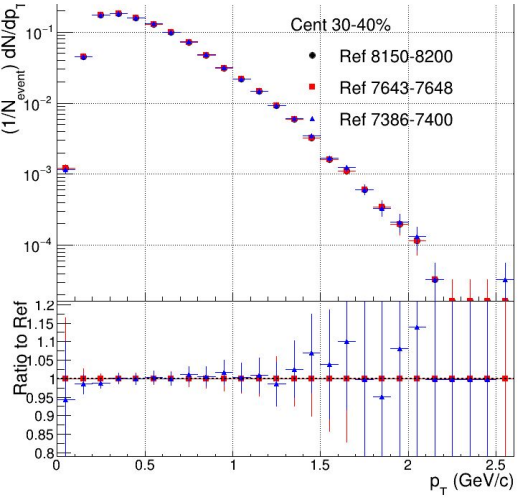


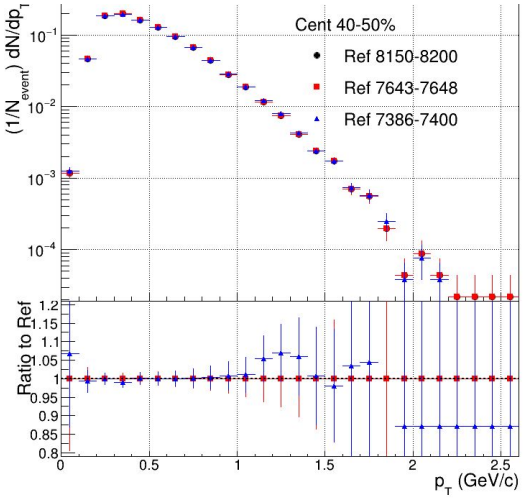
Proton
0.4<y<0.8
Run 8195

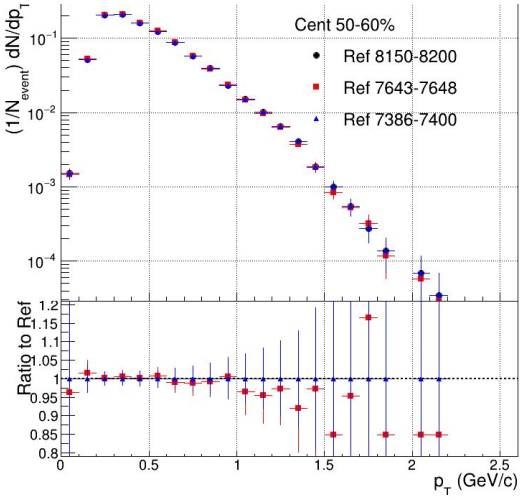




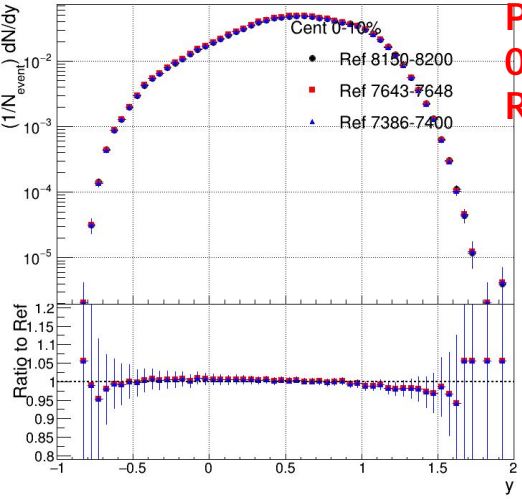


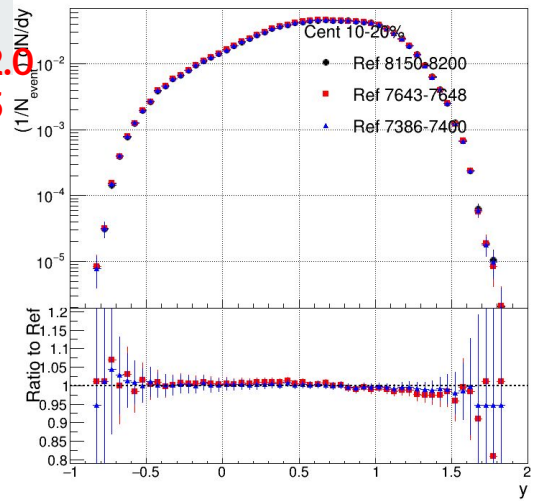


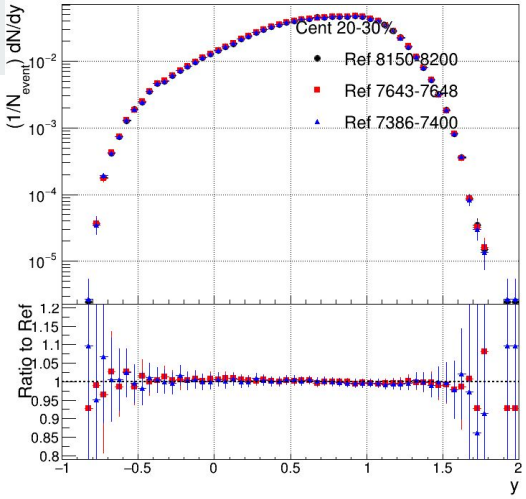


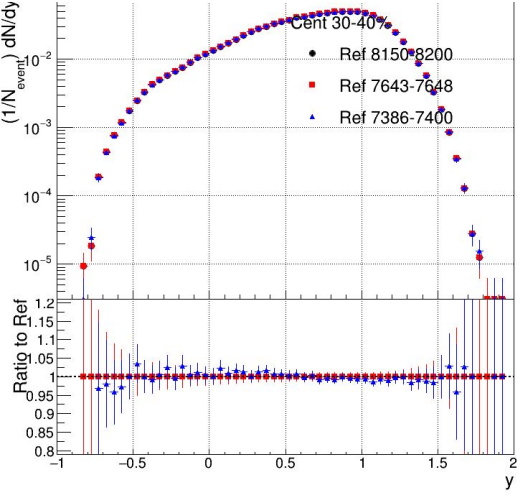


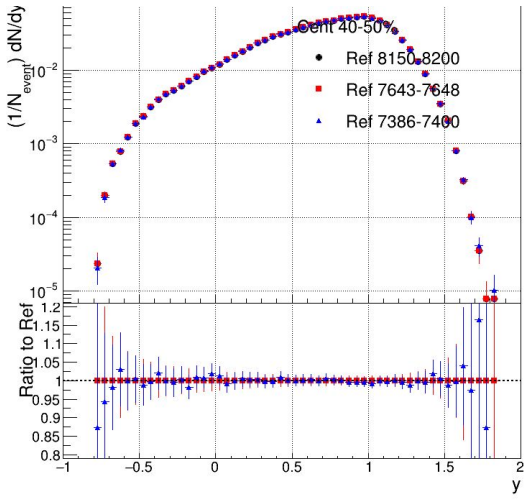
Proton
0.4<pT<2.0
Run 8195

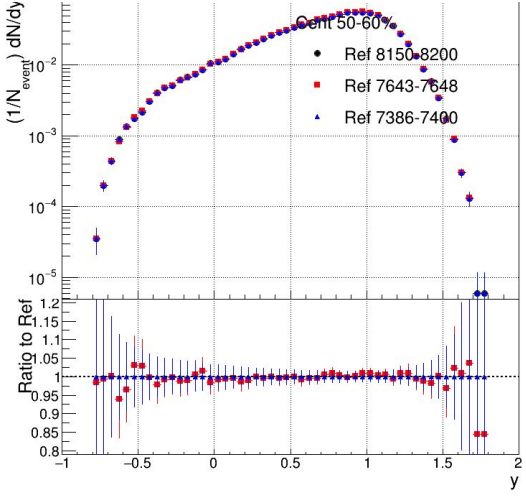












Fit gMult and RefMult: RunId 8185-8195 (8150-8200)

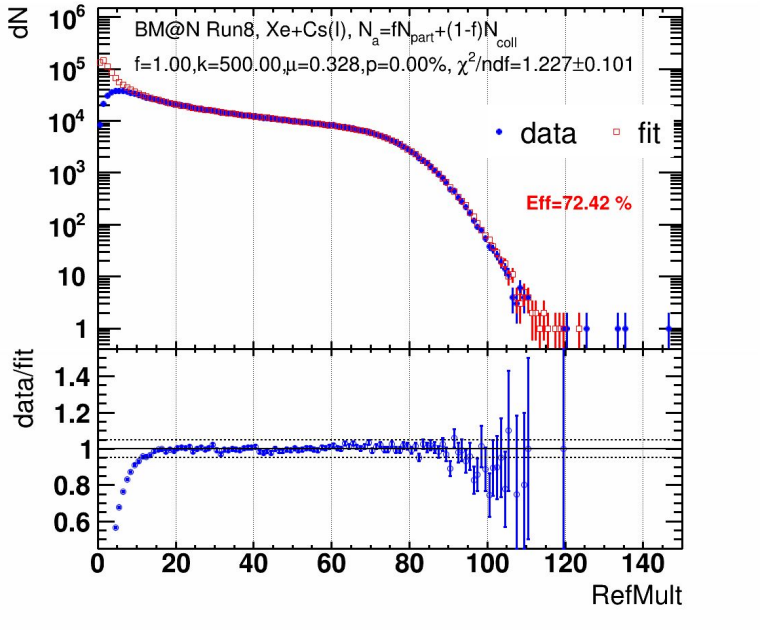
RefMult:

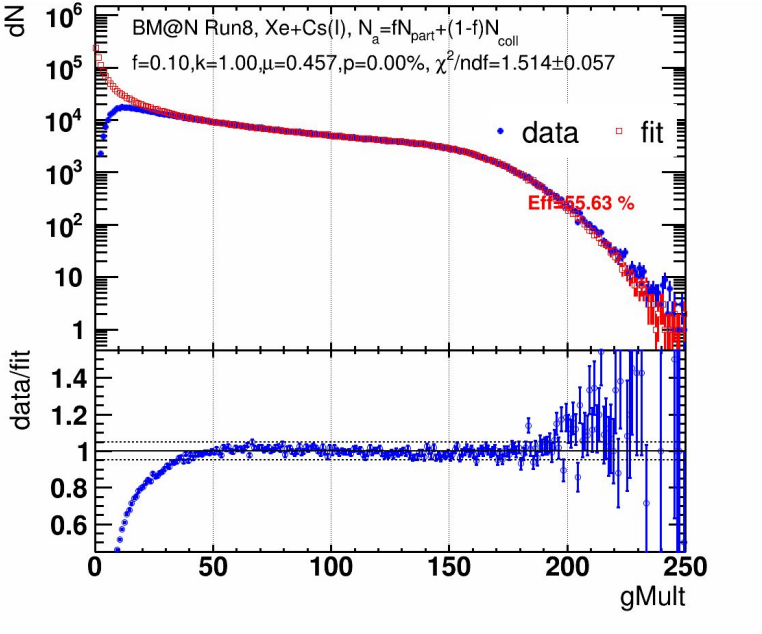
- $0.05<p_T<2.0$
- $0.7<eta<2.5$
- $DCA_R<1.0$ cm

gMult:

- all ch tracks

bad Fit





Fit gMult and RefMult: RunId 7386-7400

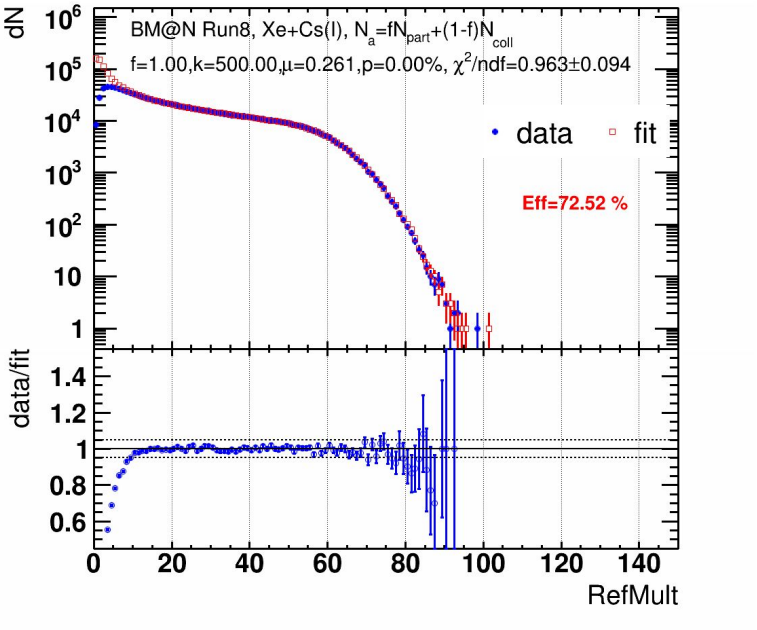
RefMult:

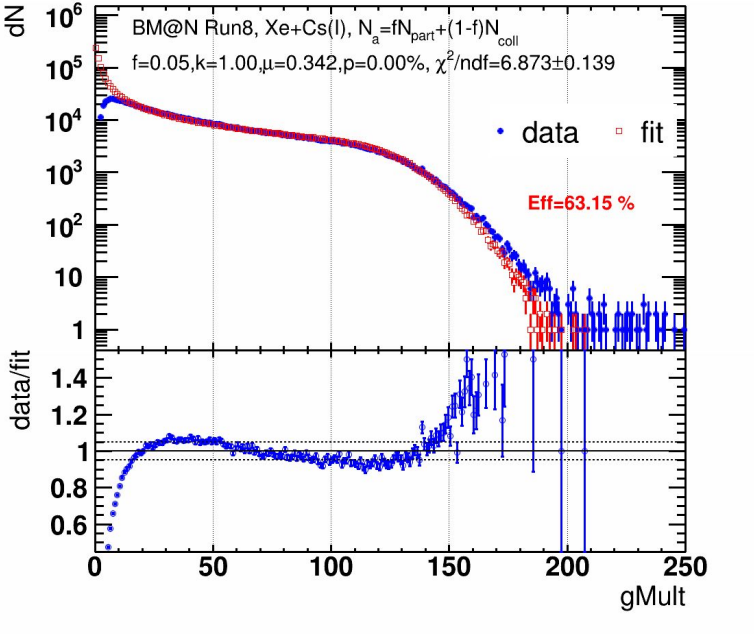
- $0.05<p_T<2.0$
- $0.7<eta<2.5$
- $DCA_R<1.0$ cm

gMult:

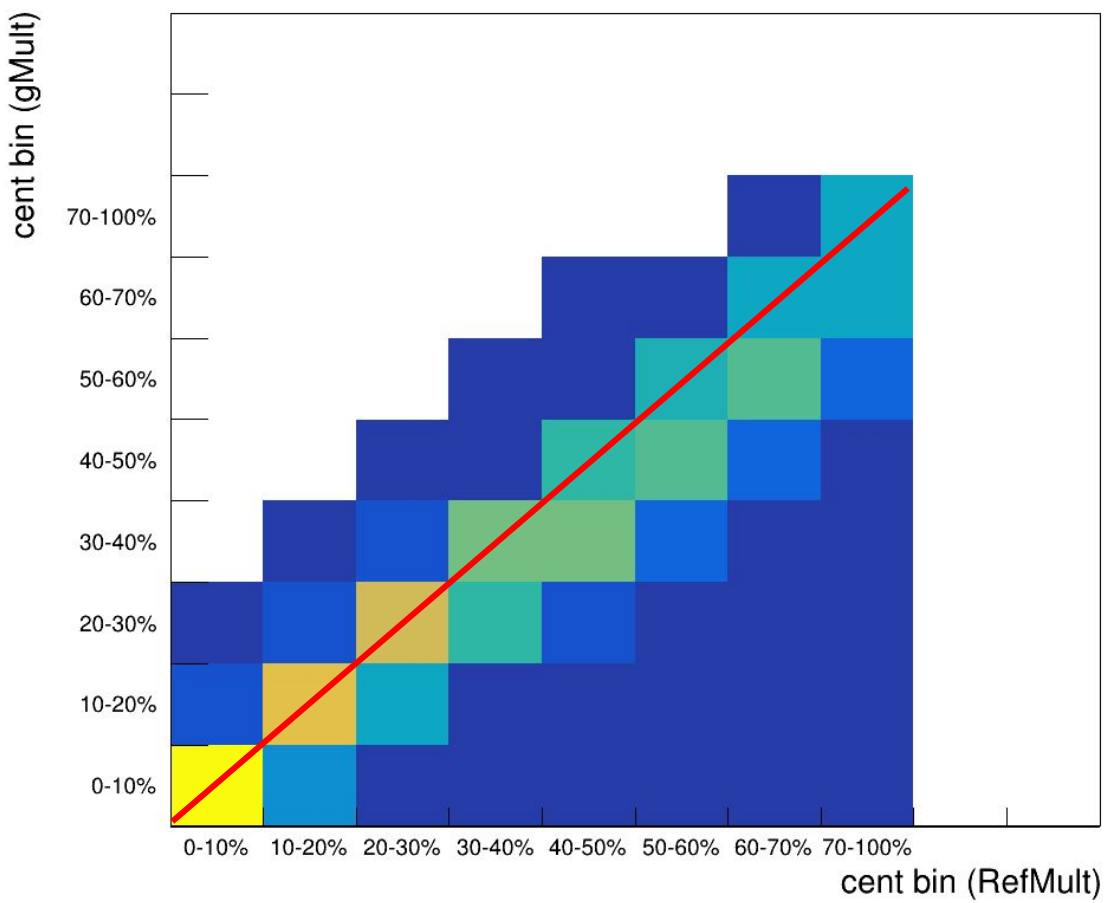
- all ch tracks

bad Fit

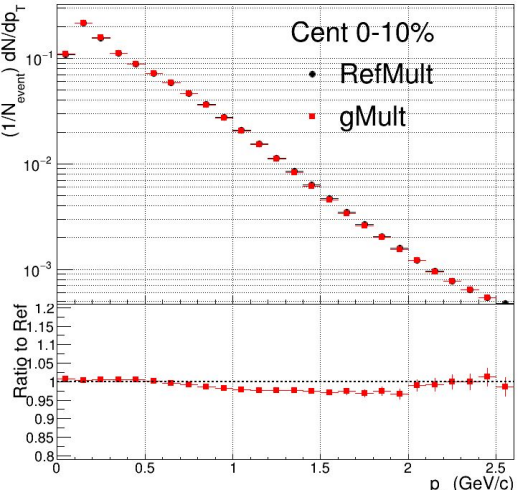


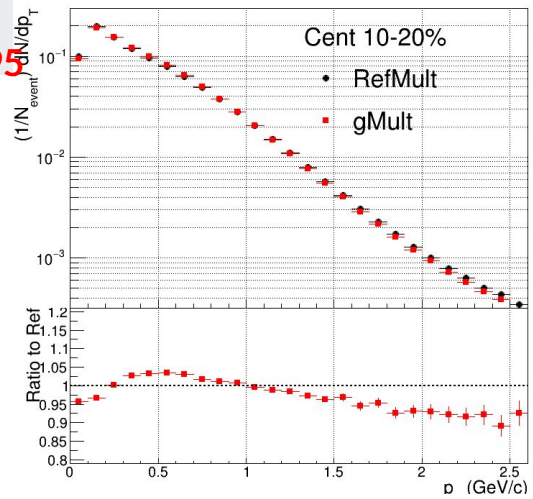


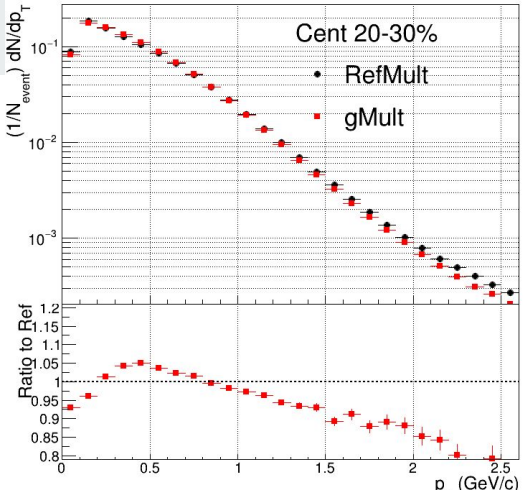
RunId 8150-8200

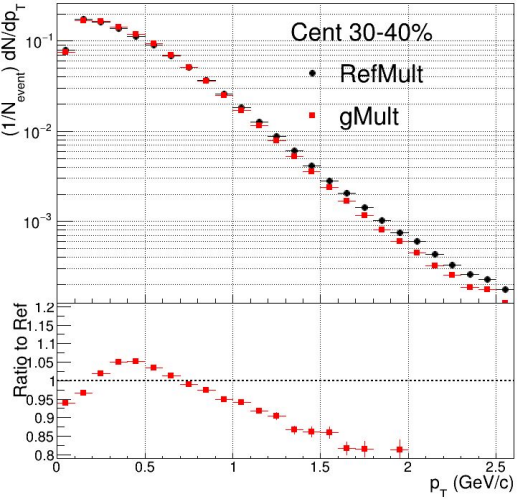


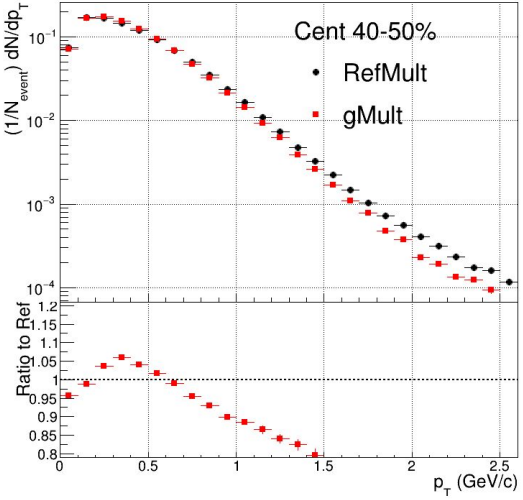
All ch
Run 8195

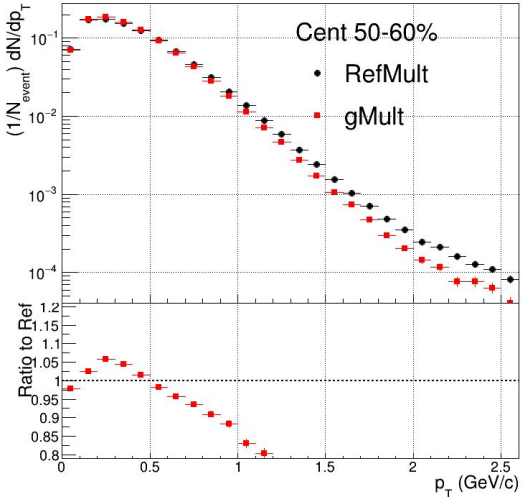


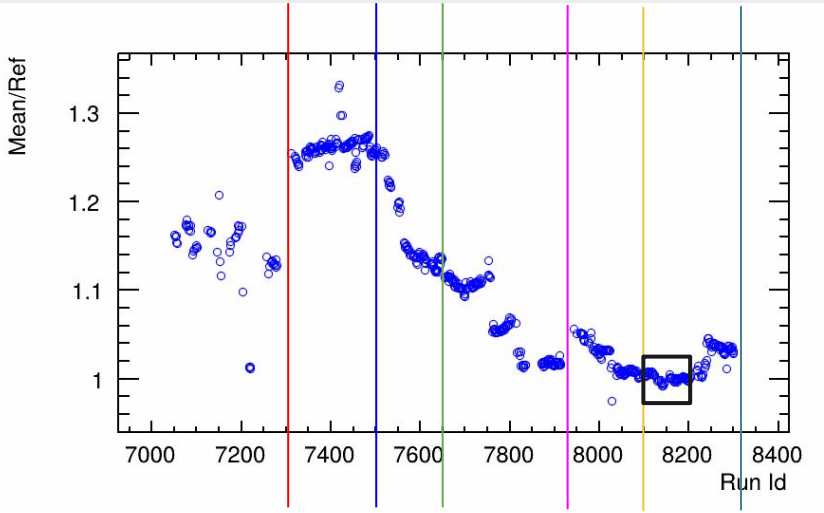




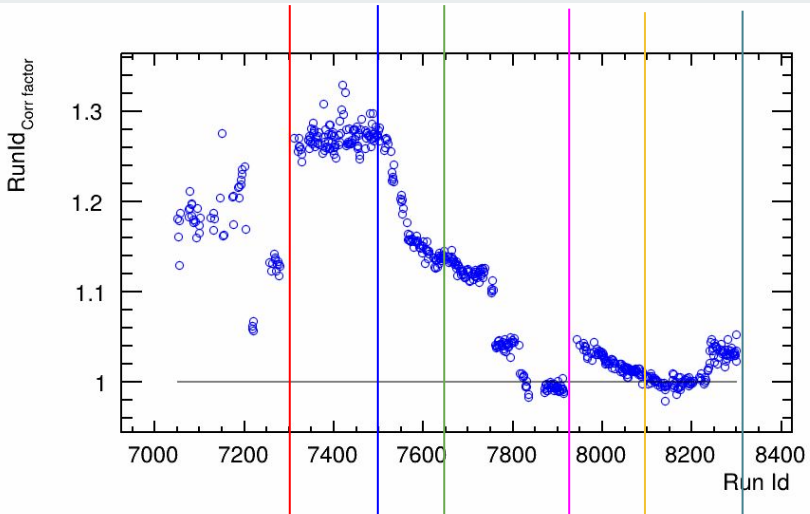


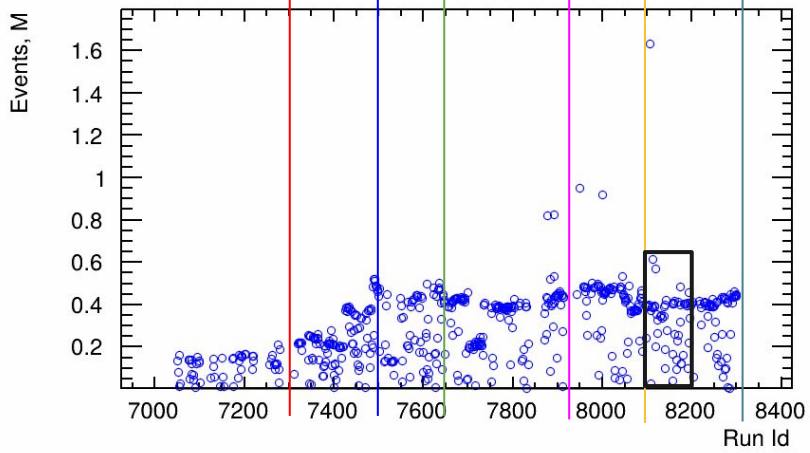





Mean/Ref
1.3
1.2
1.1
1
7000
7200
7400
7600
7800
8000
8200
8400
Run Id


8150-8200 Ref
7050-7300
7300-7550
7550-7650
7760-7930
7930-8100
8100-8312

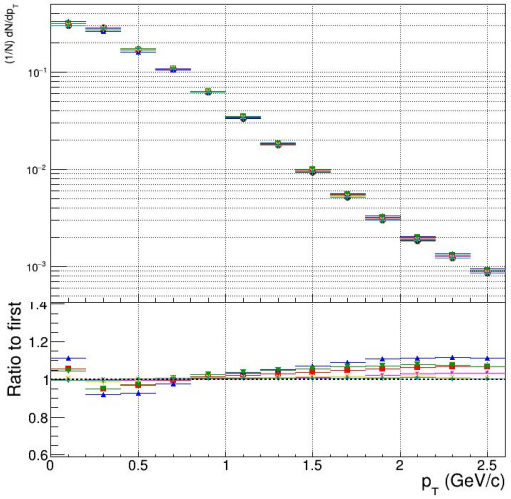

RunId$_{Corr\ factor}$
1.3
1.2
1.1
1
7000
7200
7400
7600
7800
8000
8200
8400
Run Id


Events, M
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
7000
7200
7400
7600
7800
8000
8200
8400
Run Id

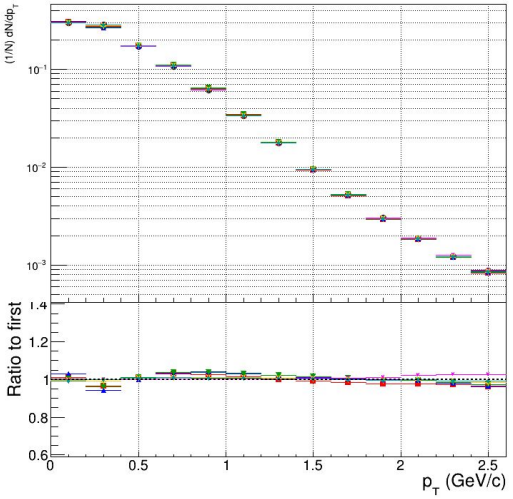
pT, all ch 10-20%

w/o weight (pT,eta<phi,RunId)

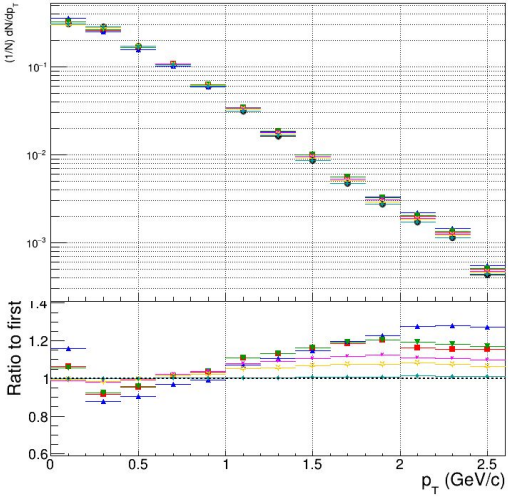
8150-8200 Ref
7050-7300
7300-7550
7550-7650
7760-7930
7930-8100
8100-8312



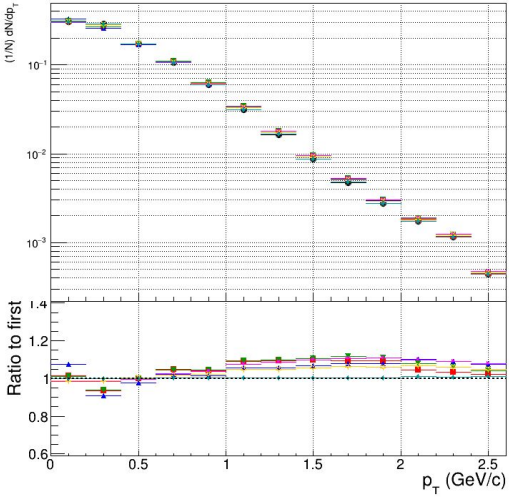
w/o weight (pT,eta<phi,RunId) +RefMult corr



with weight (pT,eta<phi,RunId)



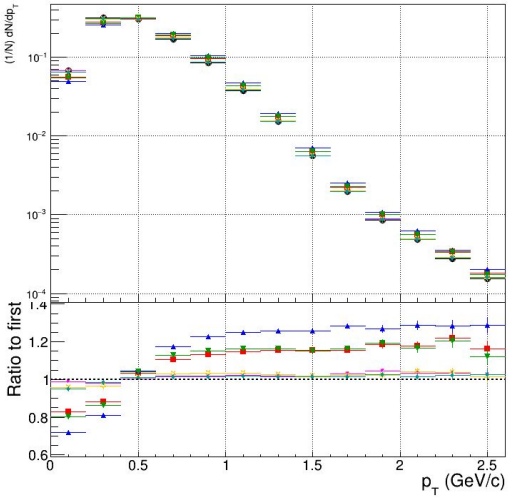
with weight (pT,eta<phi,RunId) +RefMult corr



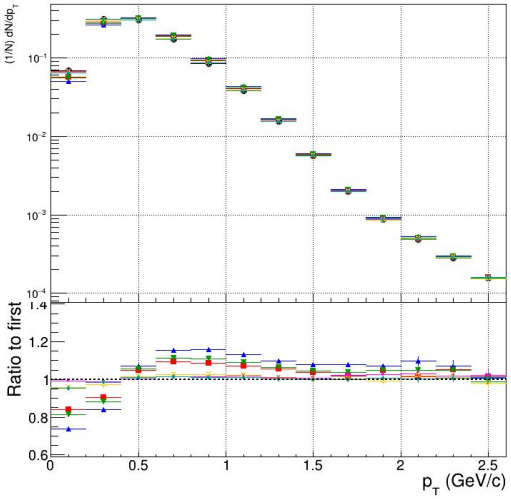
pT, proton
10-20%
-0.5<y<1.0

w/o weight
(pT,eta<phi,RunId)

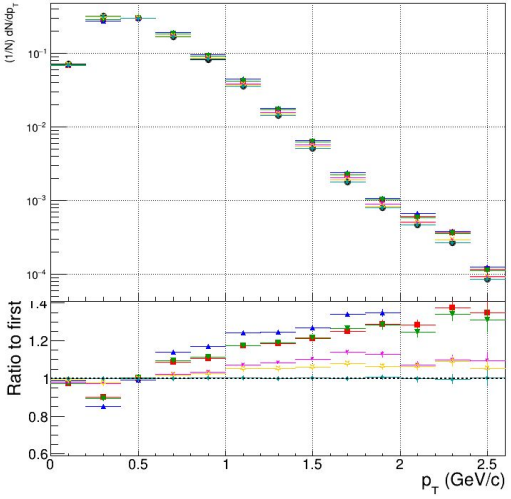
- 8150-8200 Ref
- 7050-7300
- 7300-7550
- 7550-7650
- 7760-7930
- 7930-8100
- 8100-8312



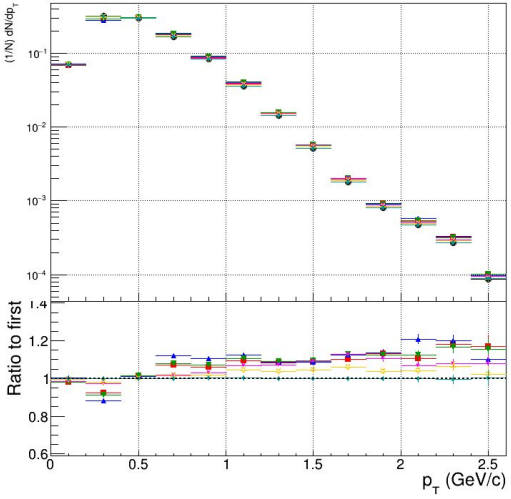
w/o weight
(pT,eta<phi,RunId)
+RefMult corr



with weight
(pT,eta<phi,RunId)



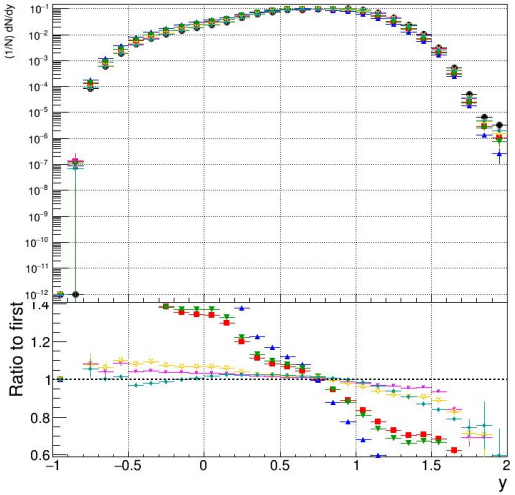
with weight
(pT,eta<phi,RunId)
+RefMult corr



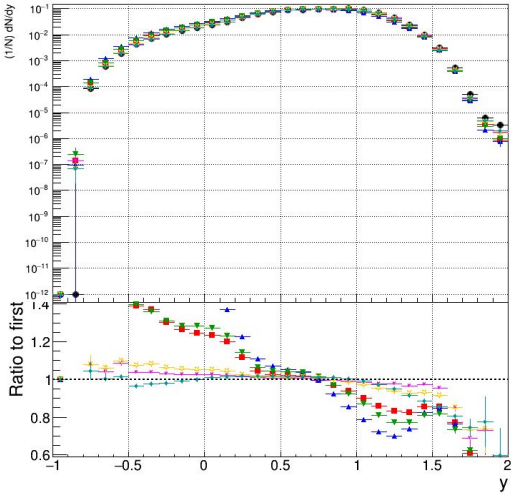
y, proton
10-20%
0.4<pT<2.0

w/o weight
(pT,eta<phi,RunId)

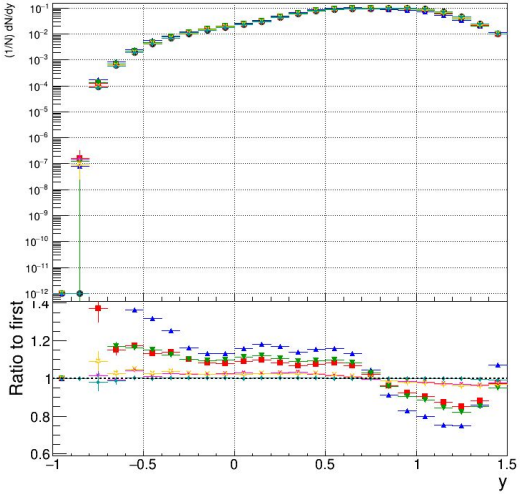
8150-8200 Ref
7050-7300
7300-7550
7550-7650
7760-7930
7930-8100
8100-8312



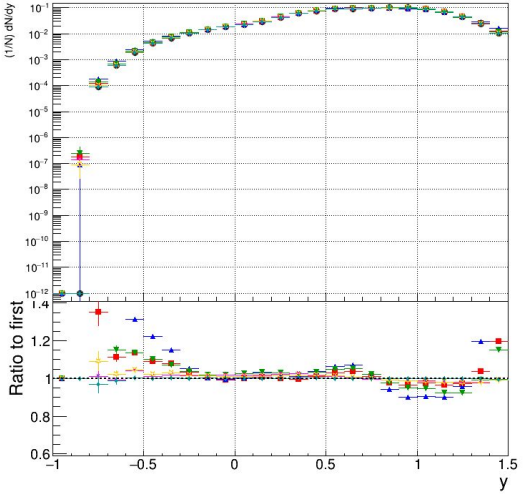
w/o weight
(pT,eta<phi,RunId)
+RefMult corr



with weight
(pT,eta<phi,RunId)



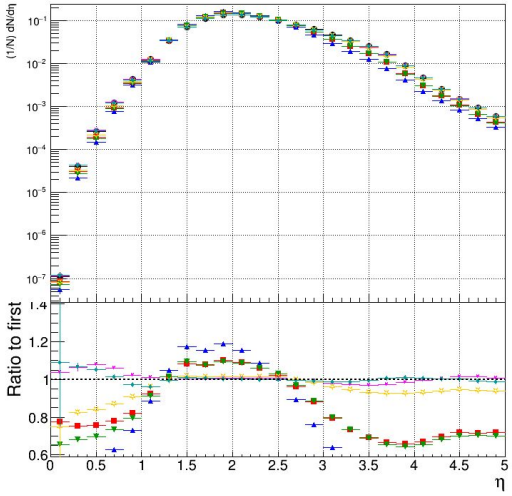
with weight
(pT,eta<phi,RunId)
+RefMult corr



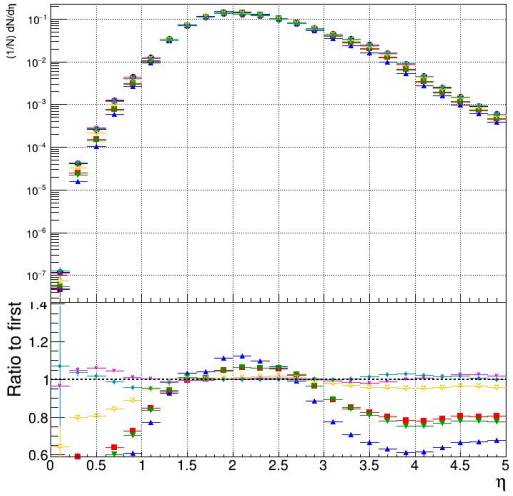
all ch
10-20%
0.4<pT<2.0

w/o weight
(pT,eta<phi,RunId)

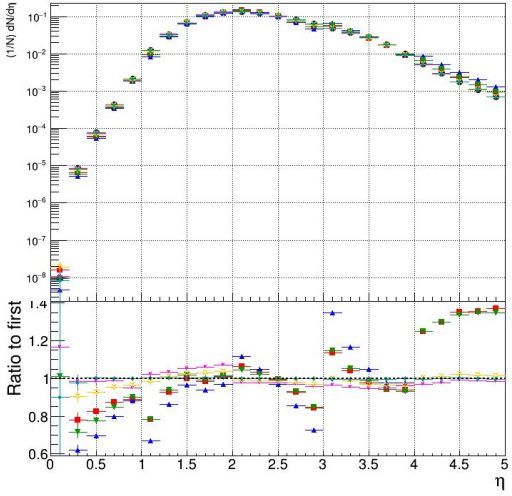
8150-8200 Ref
7050-7300
7300-7550
7550-7650
7760-7930
7930-8100
8100-8312



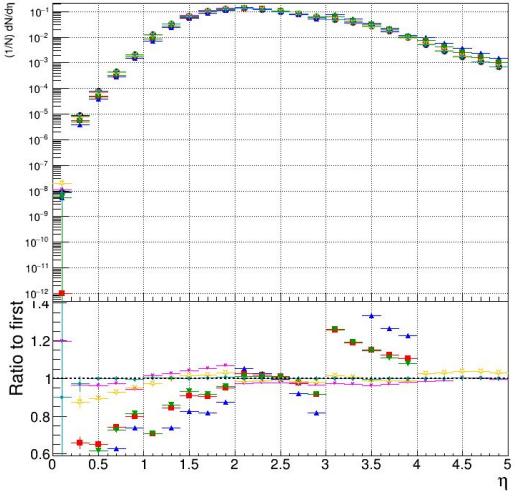
w/o weight
(pT,eta<phi,RunId)
+RefMult corr



with weight
(pT,eta<phi,RunId)



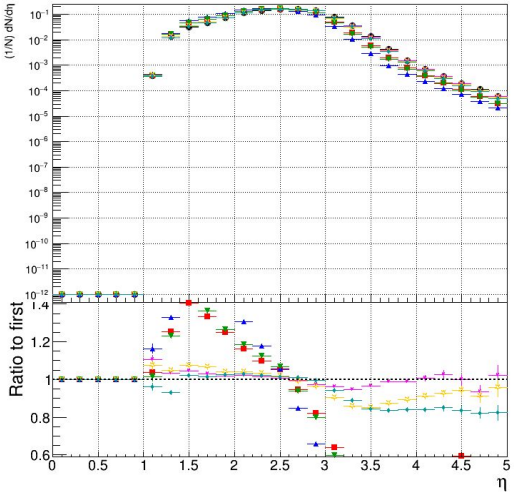
with weight
(pT,eta<phi,RunId)
+RefMult corr



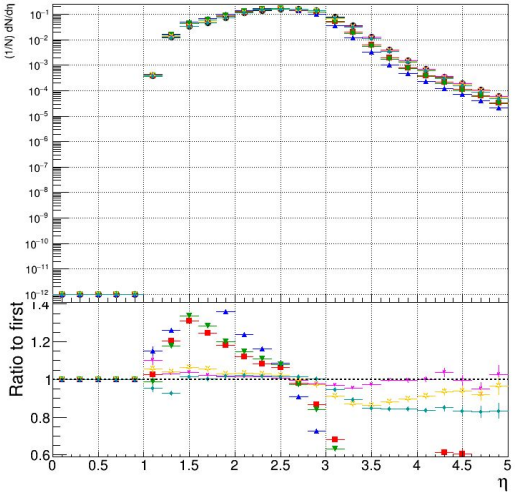
proton
10-20%
0.4<pT<2.0

w/o weight
(pT,eta<phi,RunId)

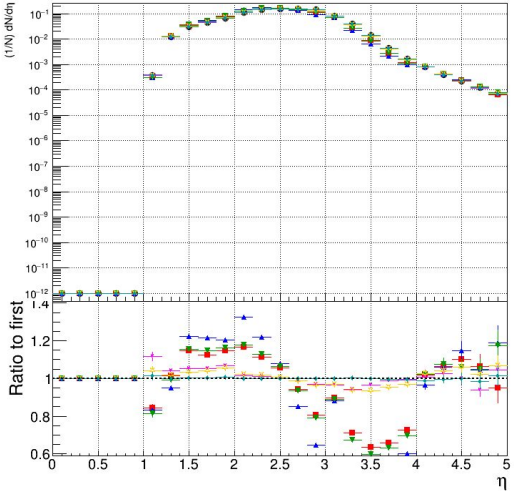
- 8150-8200 Ref
- 7050-7300
- 7300-7550
- 7550-7650
- 7760-7930
- 7930-8100
- 8100-8312



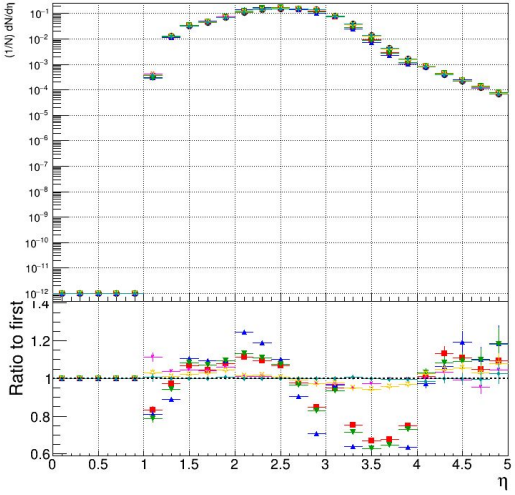
w/o weight
(pT,eta<phi,RunId)
+RefMult corr



with weight
(pT,eta<phi,RunId)



with weight
(pT,eta<phi,RunId)
+RefMult corr

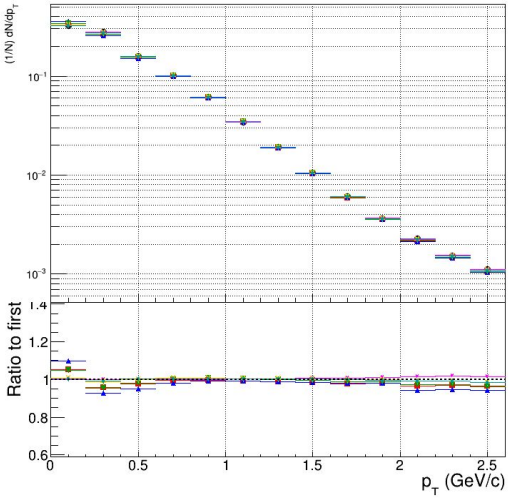


all ch

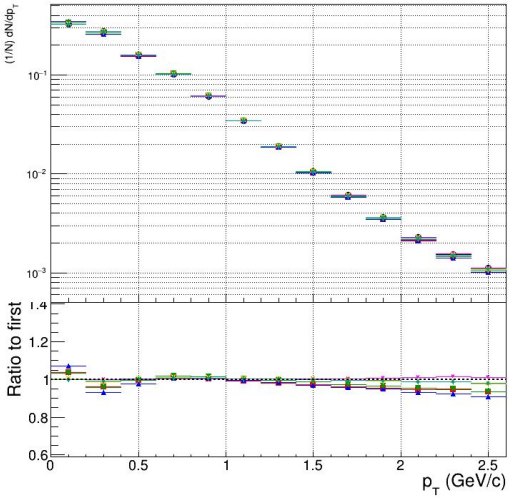
0-10%

w/o weight (pT,eta<phi,RunId)

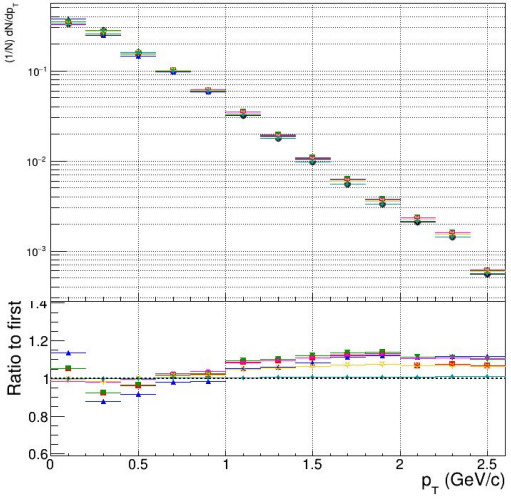
- 8150-8200 Ref
- 7050-7300
- 7300-7550
- 7550-7650
- 7760-7930
- 7930-8100
- 8100-8312



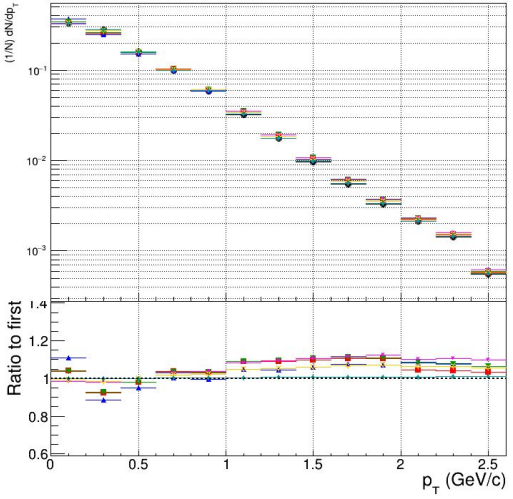
w/o weight (pT,eta<phi,RunId) +RefMult corr



with weight (pT,eta<phi,RunId)

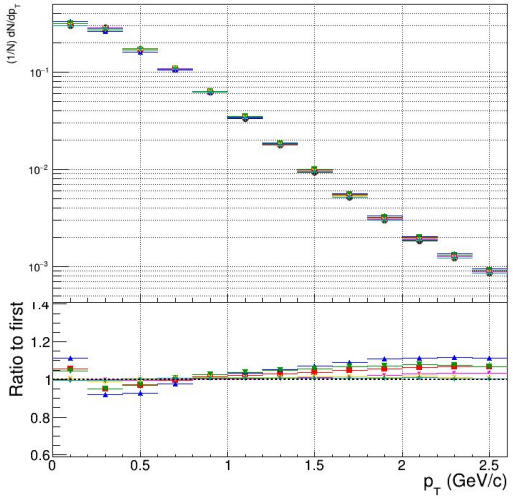


with weight (pT,eta<phi,RunId) +RefMult corr



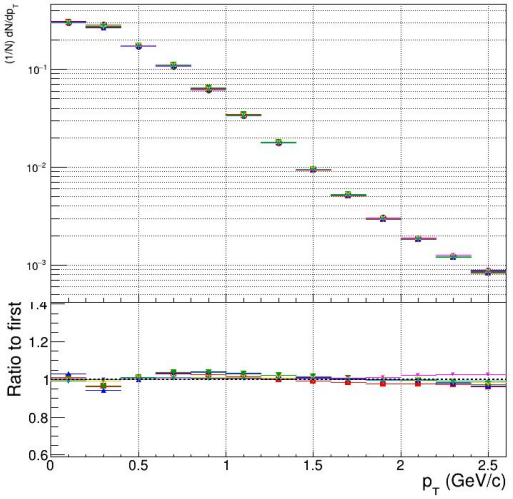
10-20%

w/o weight (pT,eta<phi,RunId)

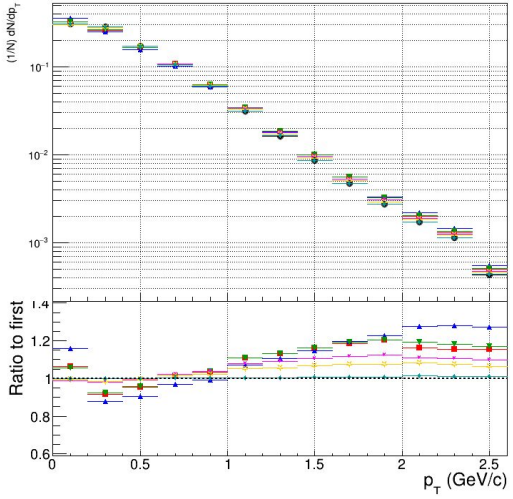


8150-8200 Ref
7050-7300
7300-7550
7550-7650
7760-7930
7930-8100
8100-8312

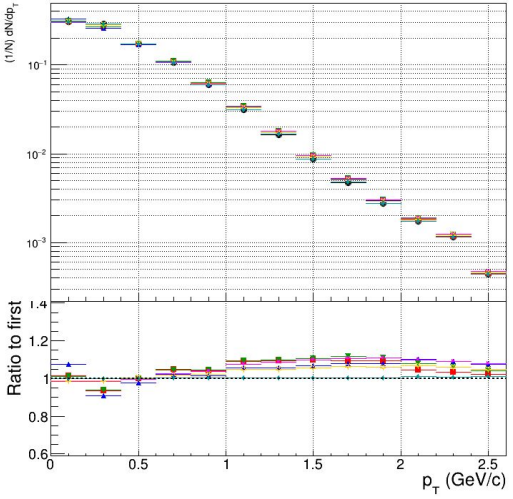
w/o weight (pT,eta<phi,RunId) +RefMult corr



with weight (pT,eta<phi,RunId)



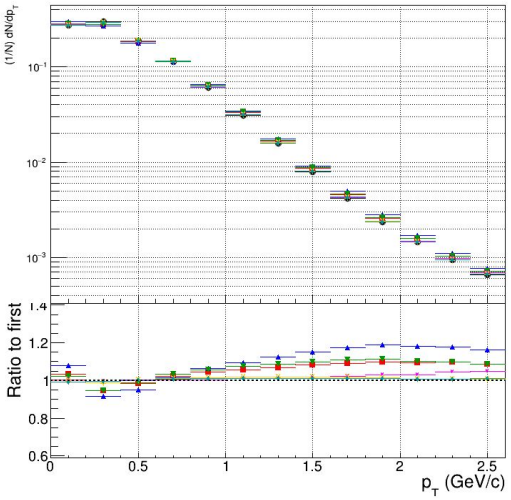
with weight (pT,eta<phi,RunId) +RefMult corr



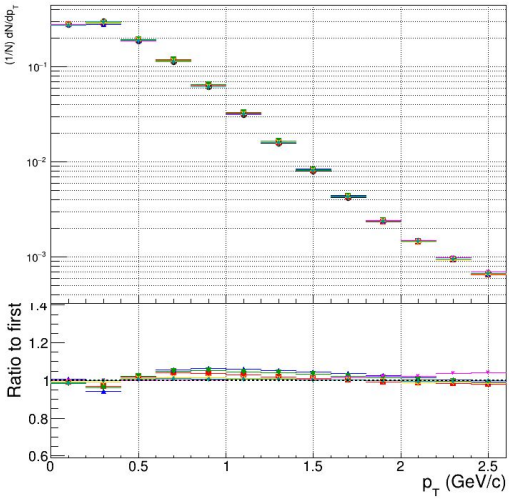
20-30%

w/o weight (pT,eta<phi,RunId)

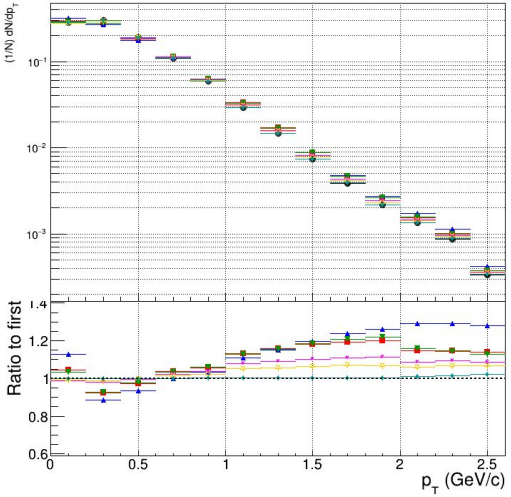
- 8150-8200 Ref
- 7050-7300
- 7300-7550
- 7550-7650
- 7760-7930
- 7930-8100
- 8100-8312



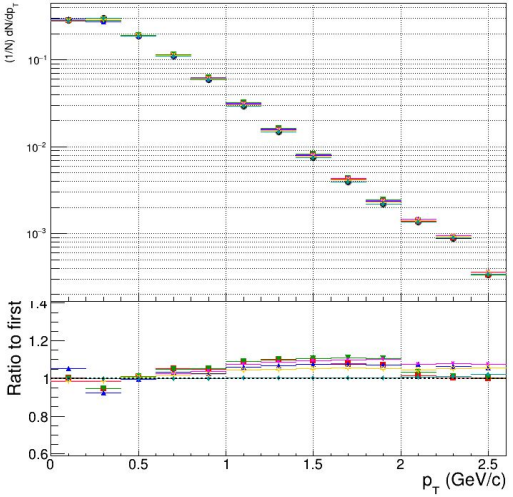
w/o weight (pT,eta<phi,RunId) +RefMult corr



with weight (pT,eta<phi,RunId)



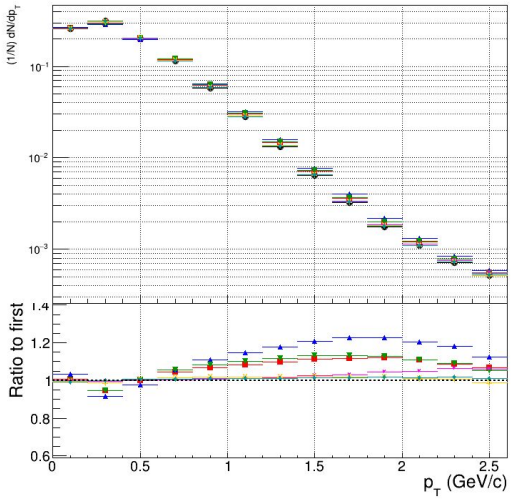
with weight (pT,eta<phi,RunId) +RefMult corr



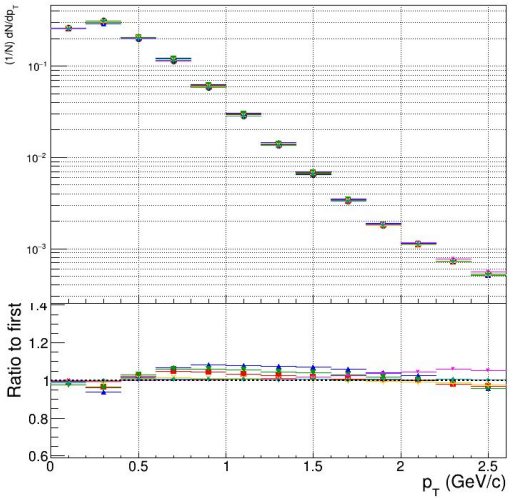
30-40%

w/o weight (pT,eta<phi,RunId)

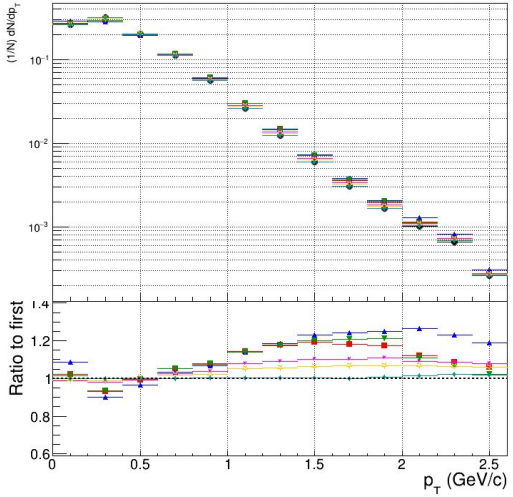
- 8150-8200 Ref
- 7050-7300
- 7300-7550
- 7550-7650
- 7760-7930
- 7930-8100
- 8100-8312



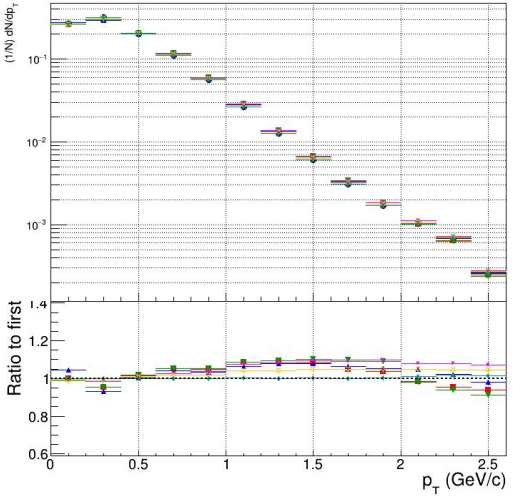
w/o weight (pT,eta<phi,RunId) +RefMult corr



with weight (pT,eta<phi,RunId)



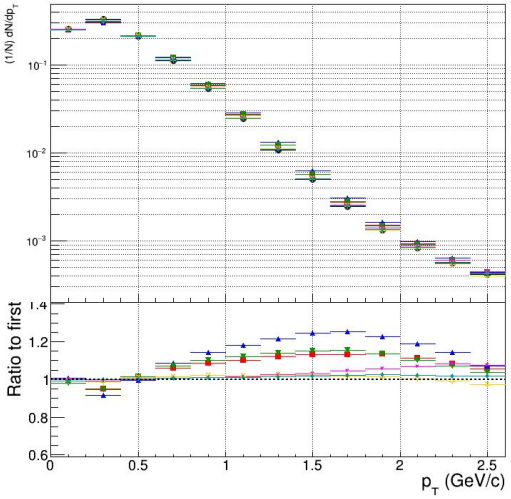
with weight (pT,eta<phi,RunId) +RefMult corr



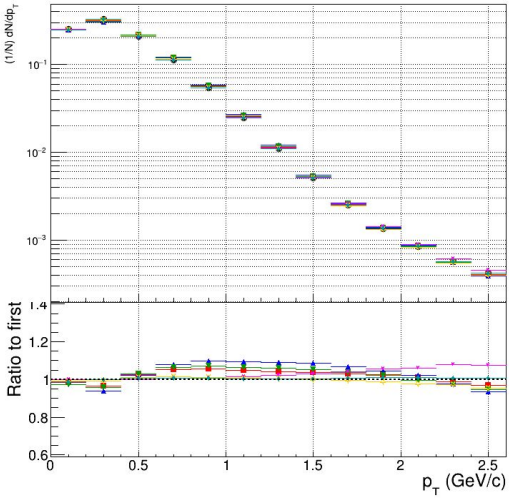
40-50%

w/o weight (pT,eta<phi,RunId)

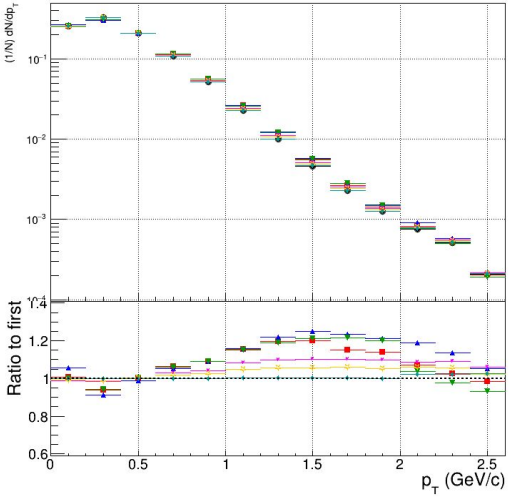
- 8150-8200 Ref
- 7050-7300
- 7300-7550
- 7550-7650
- 7760-7930
- 7930-8100
- 8100-8312



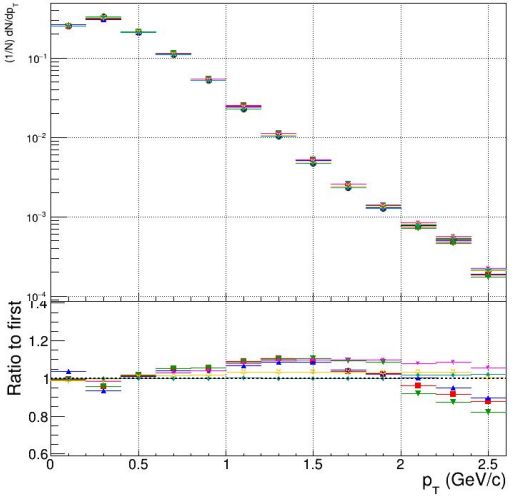
w/o weight (pT,eta<phi,RunId) +RefMult corr



with weight (pT,eta<phi,RunId)



with weight (pT,eta<phi,RunId) +RefMult corr



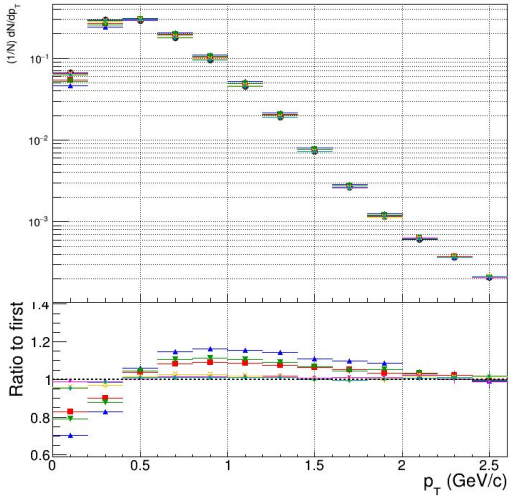


proton

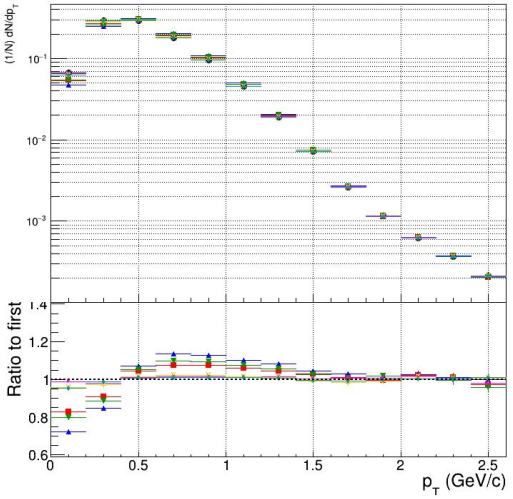
pT, proton
0-10%
-0.5<y<1.0

w/o weight
(pT,eta<phi,RunId)

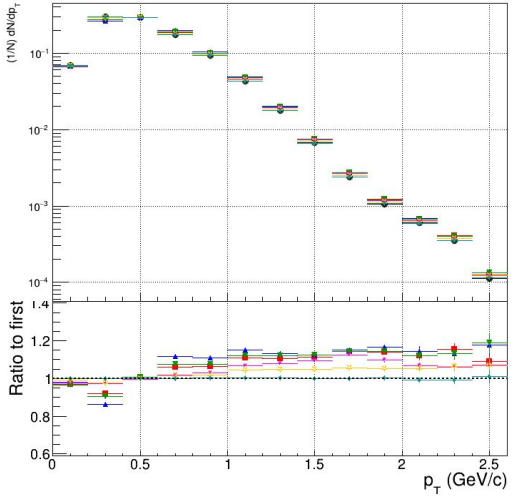
- 8150-8200 Ref
- 7050-7300
- 7300-7550
- 7550-7650
- 7760-7930
- 7930-8100
- 8100-8312



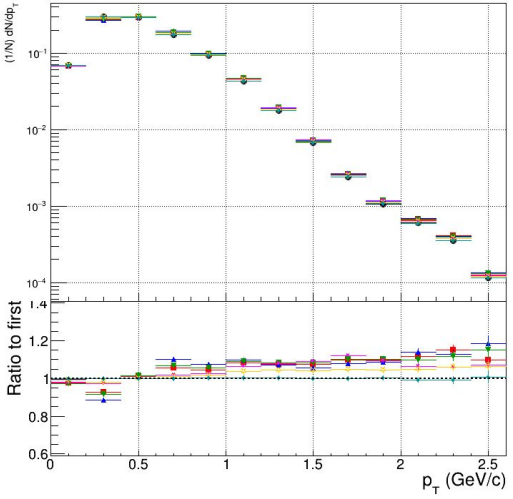
w/o weight
(pT,eta<phi,RunId)
+RefMult corr



with weight
(pT,eta<phi,RunId)



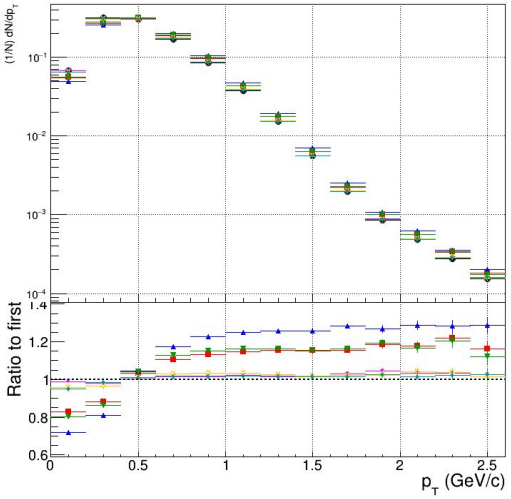
with weight
(pT,eta<phi,RunId)
+RefMult corr



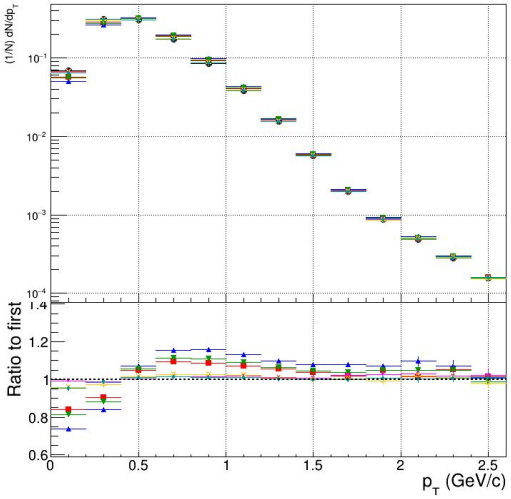
pT, proton
10-20%
-0.5<y<1.0

w/o weight
(pT,eta<phi,RunId)

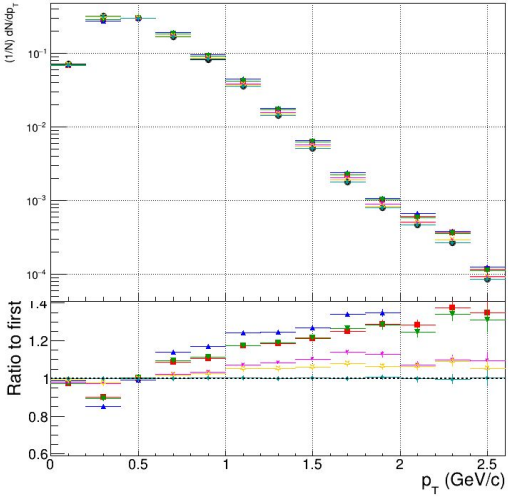
- 8150-8200 Ref
- 7050-7300
- 7300-7550
- 7550-7650
- 7760-7930
- 7930-8100
- 8100-8312



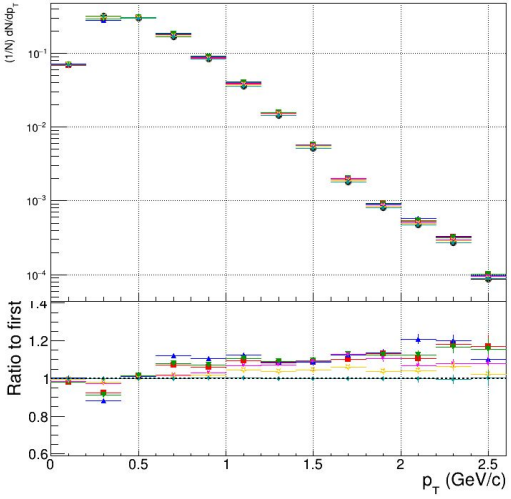
w/o weight
(pT,eta<phi,RunId)
+RefMult corr



with weight
(pT,eta<phi,RunId)



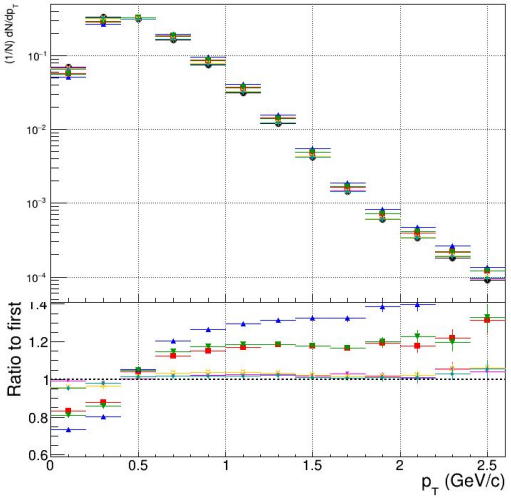
with weight
(pT,eta<phi,RunId)
+RefMult corr



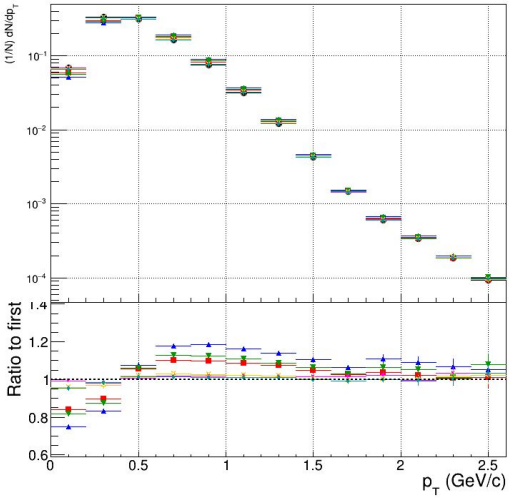
pT, proton
20-30%
-0.5<y<1.0

w/o weight
(pT,eta<phi,RunId)

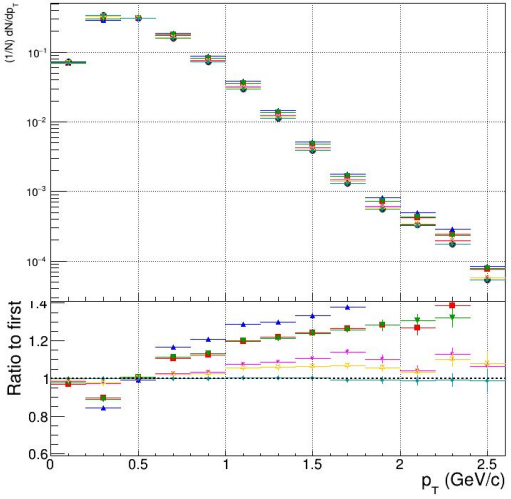
- 8150-8200 Ref
- 7050-7300
- 7300-7550
- 7550-7650
- 7760-7930
- 7930-8100
- 8100-8312



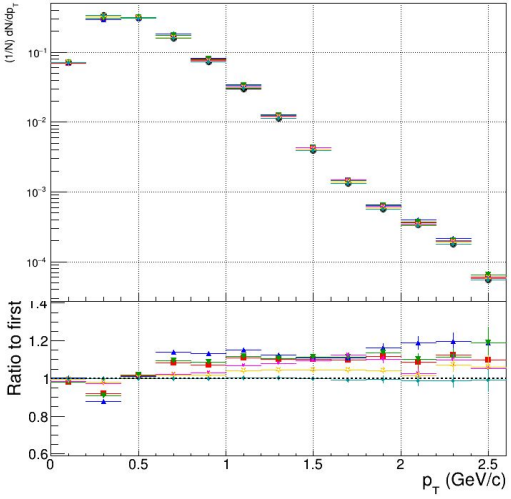
w/o weight
(pT,eta<phi,RunId)
+RefMult corr



with weight
(pT,eta<phi,RunId)



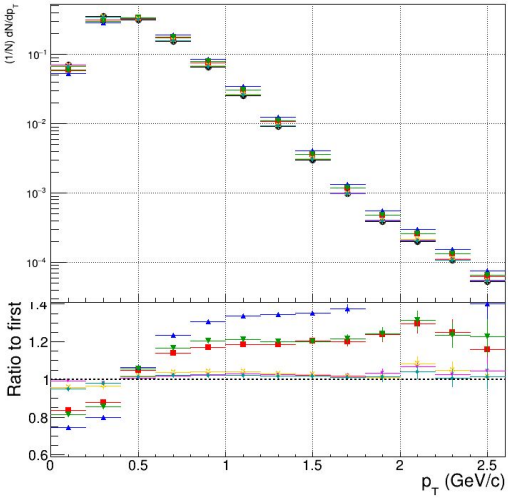
with weight
(pT,eta<phi,RunId)
+RefMult corr



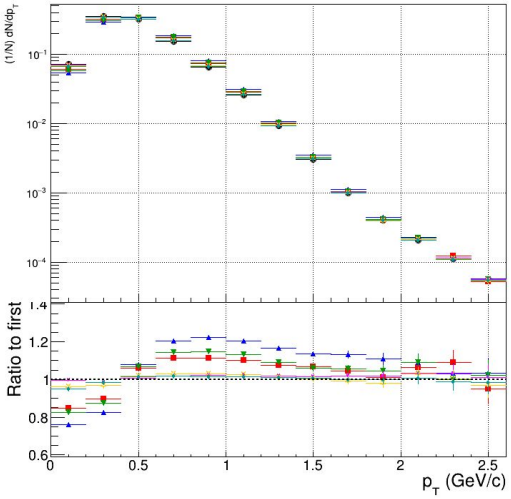
pT, proton
30-40%
-0.5<y<1.0

w/o weight
(pT,eta<phi,RunId)

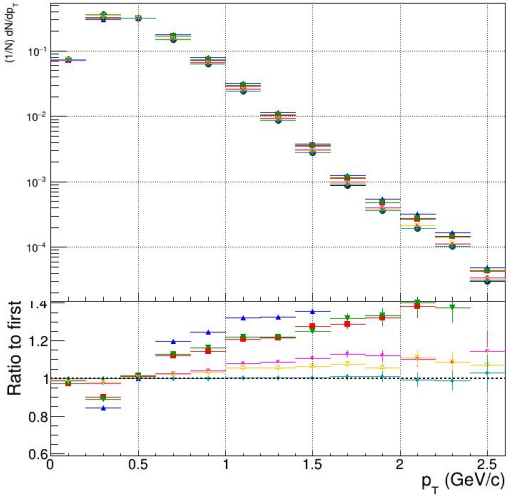
8150-8200 Ref
7050-7300
7300-7550
7550-7650
7760-7930
7930-8100
8100-8312



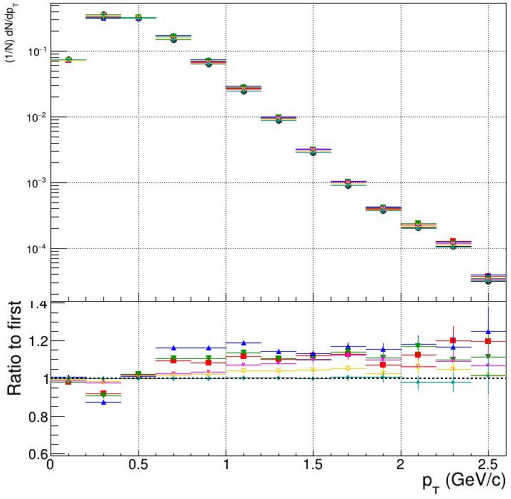
w/o weight
(pT,eta<phi,RunId)
+RefMult corr



with weight
(pT,eta<phi,RunId)



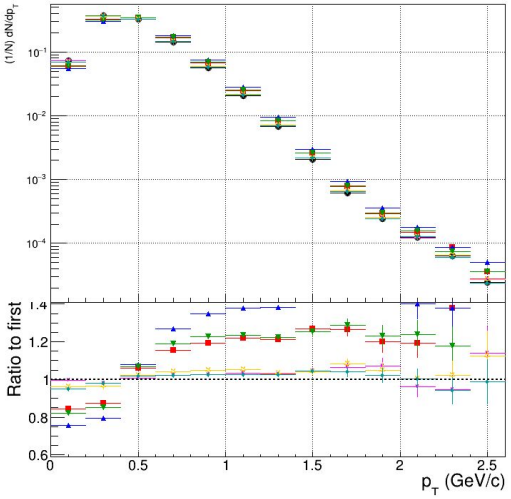
with weight
(pT,eta<phi,RunId)
+RefMult corr



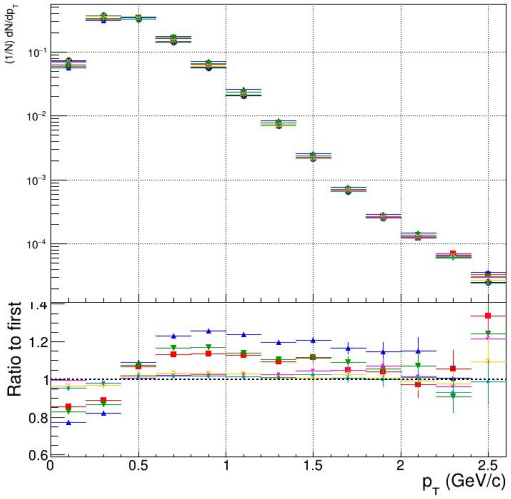
pT, proton
40-50%
-0.5<y<1.0

w/o weight
(pT,eta<phi,RunId)

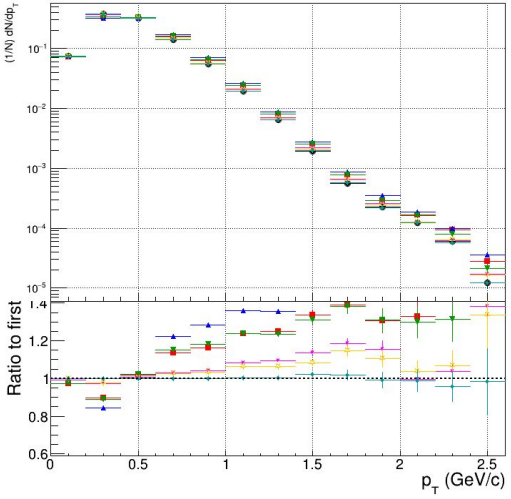
- 8150-8200 Ref
- 7050-7300
- 7300-7550
- 7550-7650
- 7760-7930
- 7930-8100
- 8100-8312



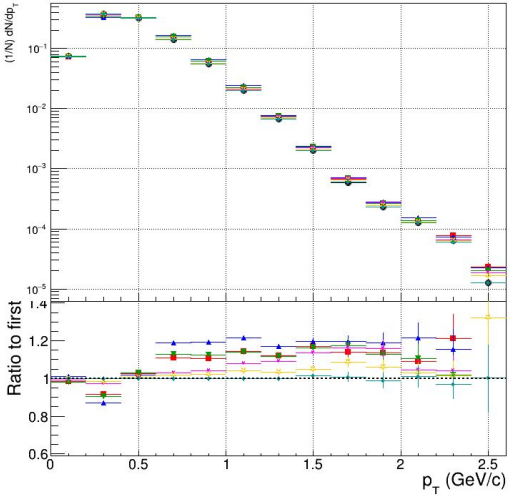
w/o weight
(pT,eta<phi,RunId)
+RefMult corr



with weight
(pT,eta<phi,RunId)



with weight
(pT,eta<phi,RunId)
+RefMult corr

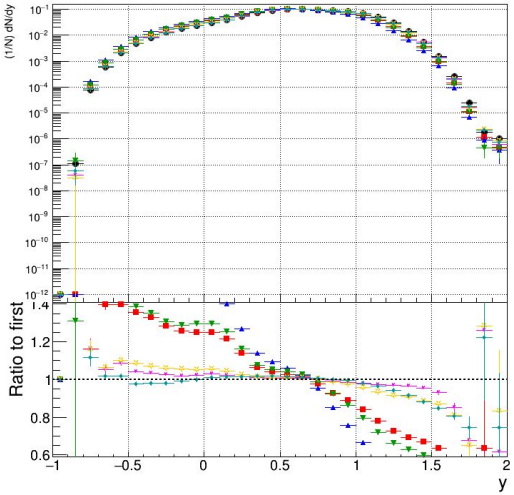




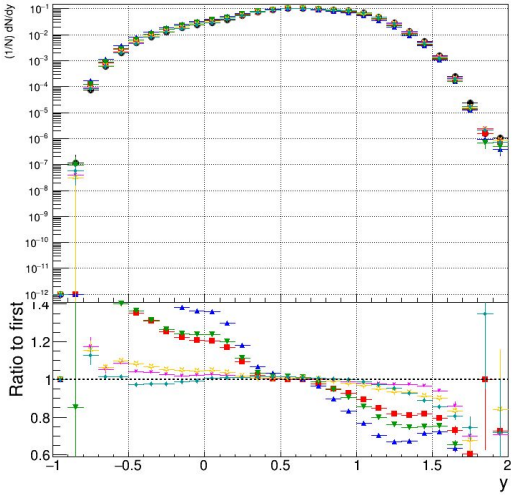
proton

y, proton 0-10% 0.4<pT<2.0

w/o weight (pT,eta<phi,RunId)

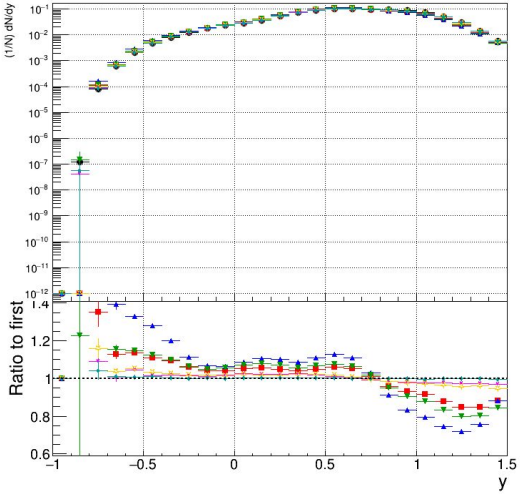


w/o weight (pT,eta<phi,RunId) +RefMult corr

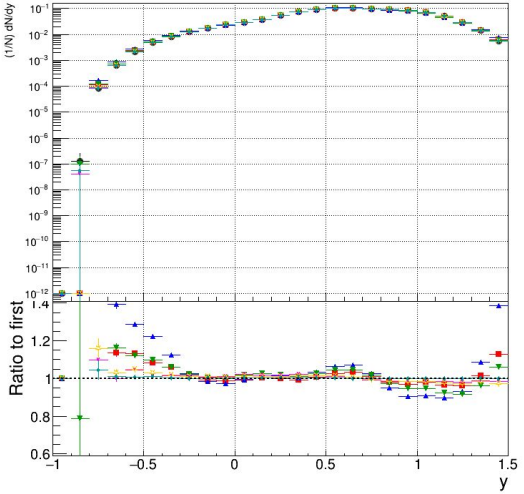


- 8150-8200 Ref
- 7050-7300
- 7300-7550
- 7550-7650
- 7760-7930
- 7930-8100
- 8100-8312

with weight (pT,eta<phi,RunId)



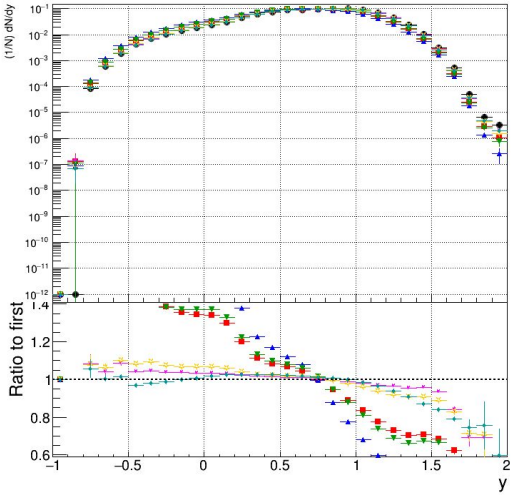
with weight (pT,eta<phi,RunId) +RefMult corr



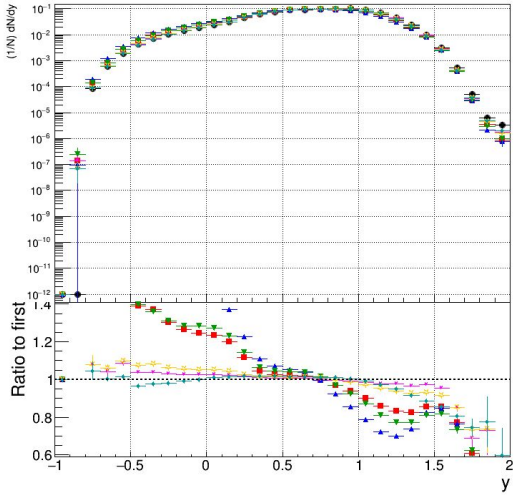
y, proton 10-20% 0.4<pT<2.0

w/o weight (pT,eta<phi,RunId)

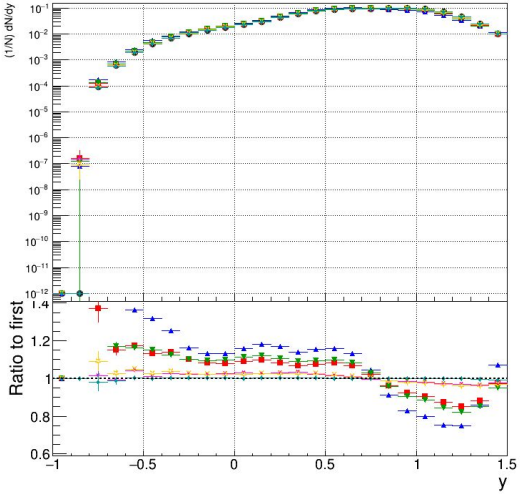
8150-8200 Ref
7050-7300
7300-7550
7550-7650
7760-7930
7930-8100
8100-8312



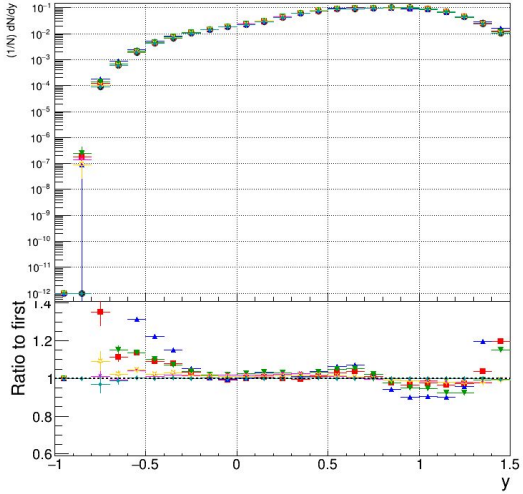
w/o weight (pT,eta<phi,RunId) +RefMult corr



with weight (pT,eta<phi,RunId)



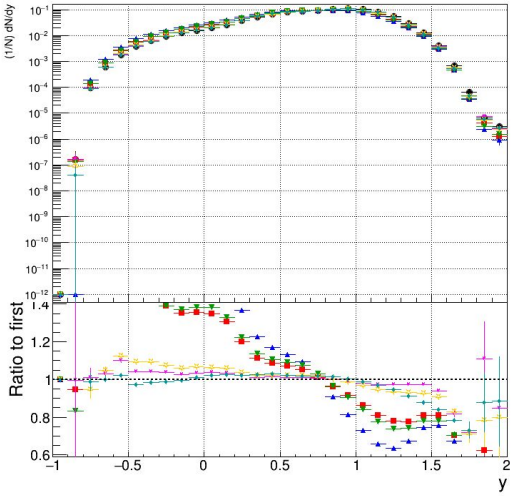
with weight (pT,eta<phi,RunId) +RefMult corr



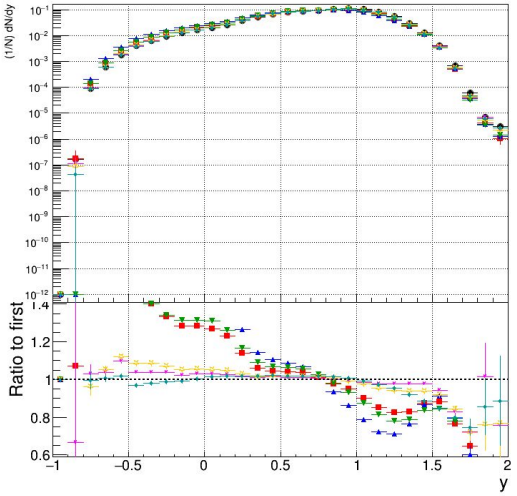
y, proton
20-30%
0.4<pT<2.0

w/o weight
(pT,eta<phi,RunId)

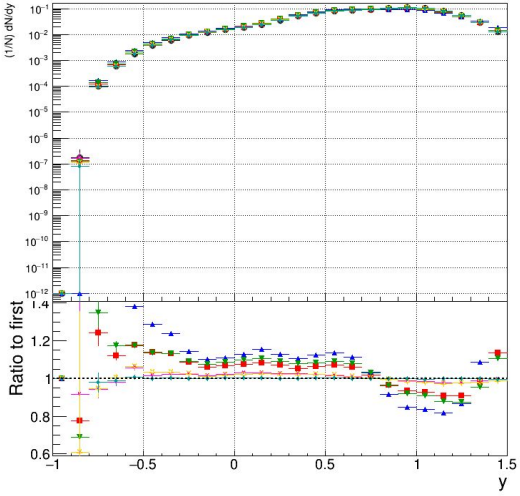
- 8150-8200 Ref
- 7050-7300
- 7300-7550
- 7550-7650
- 7760-7930
- 7930-8100
- 8100-8312



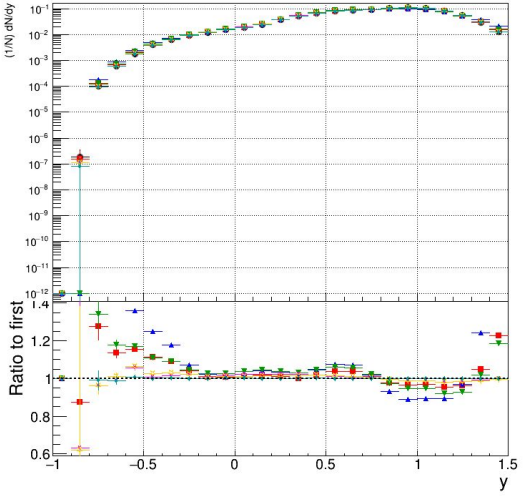
w/o weight
(pT,eta<phi,RunId)
+RefMult corr



with weight
(pT,eta<phi,RunId)

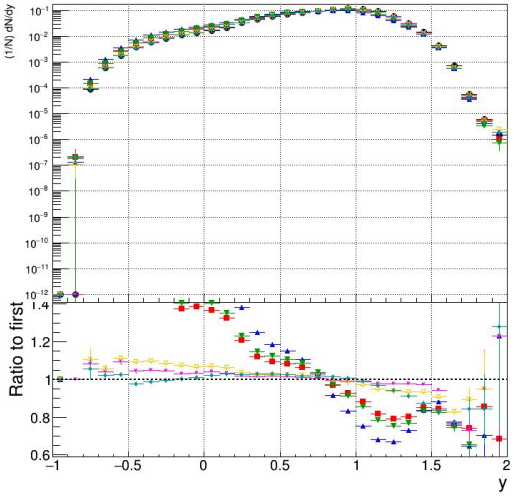


with weight
(pT,eta<phi,RunId)
+RefMult corr

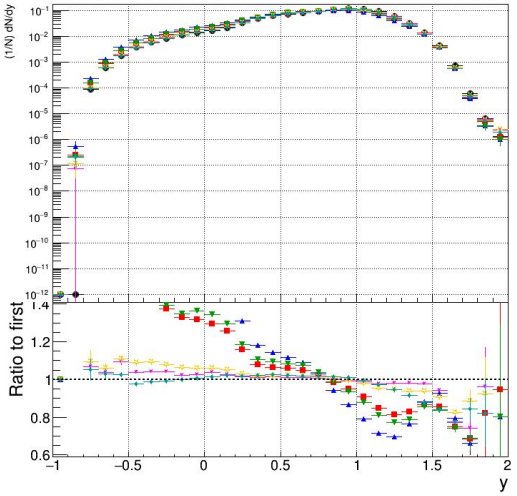


y, proton
30-40%
0.4<pT<2.0

w/o weight
(pT,eta<phi,RunId)

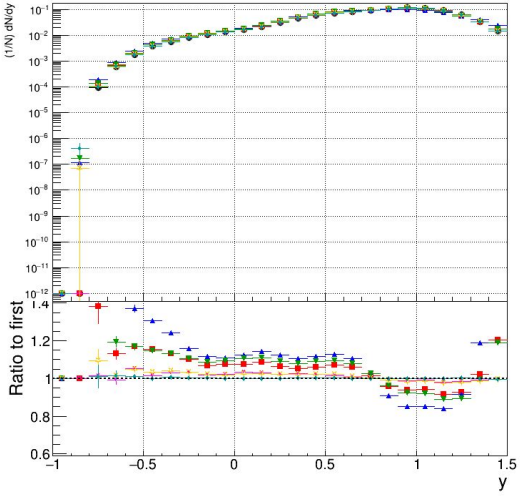


w/o weight
(pT,eta<phi,RunId)
+RefMult corr

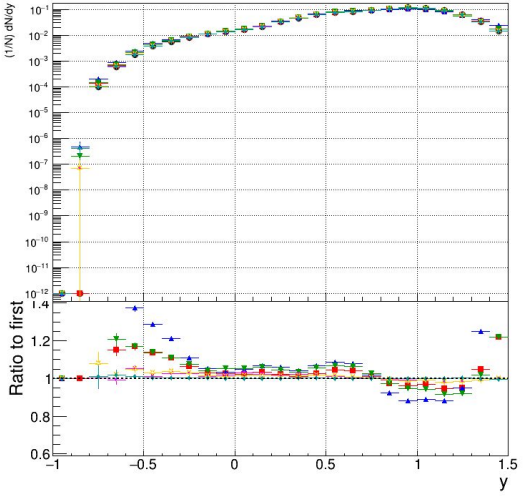


- 8150-8200 Ref
- 7050-7300
- 7300-7550
- 7550-7650
- 7760-7930
- 7930-8100
- 8100-8312

with weight
(pT,eta<phi,RunId)



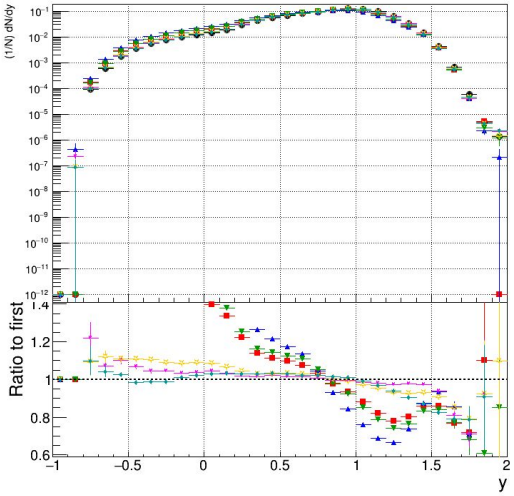
with weight
(pT,eta<phi,RunId)
+RefMult corr



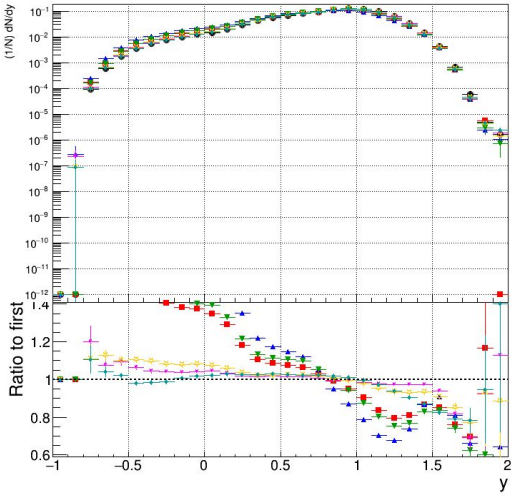
y, proton
40-50%
0.4<pT<2.0

w/o weight
(pT,eta<phi,RunId)

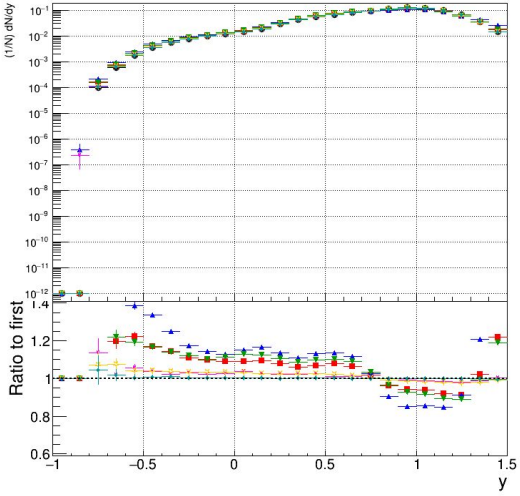
- 8150-8200 Ref
- 7050-7300
- 7300-7550
- 7550-7650
- 7760-7930
- 7930-8100
- 8100-8312



w/o weight
(pT,eta<phi,RunId)
+RefMult corr



with weight
(pT,eta<phi,RunId)



with weight
(pT,eta<phi,RunId)
+RefMult corr

