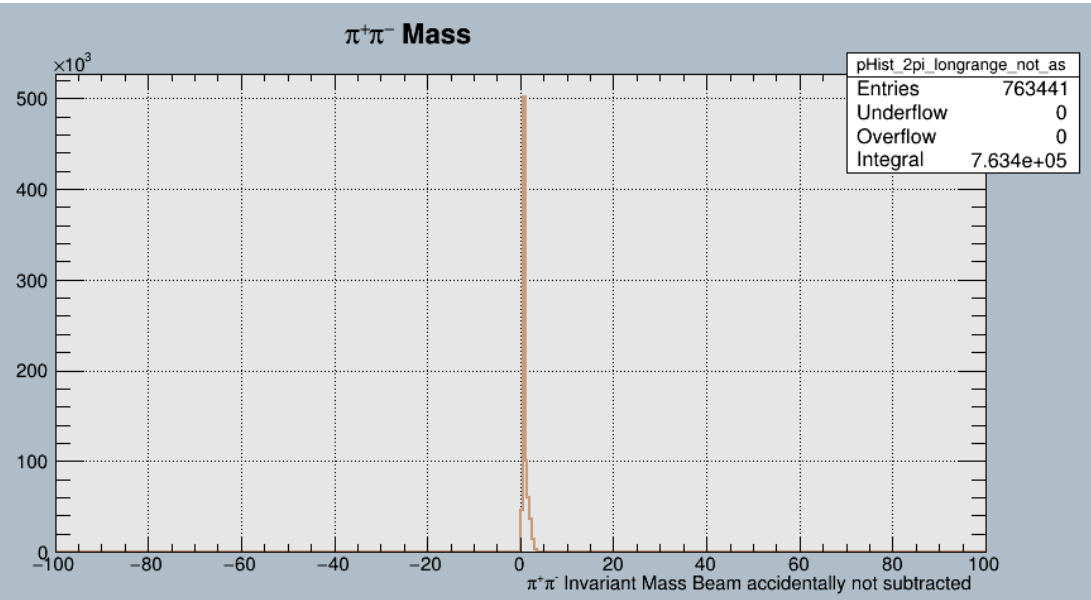
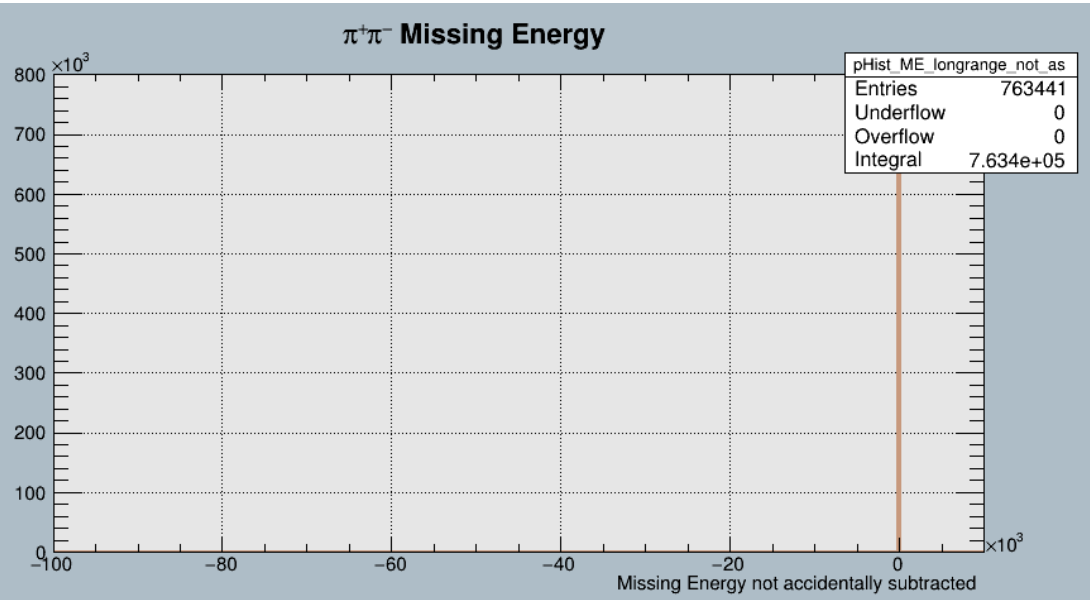
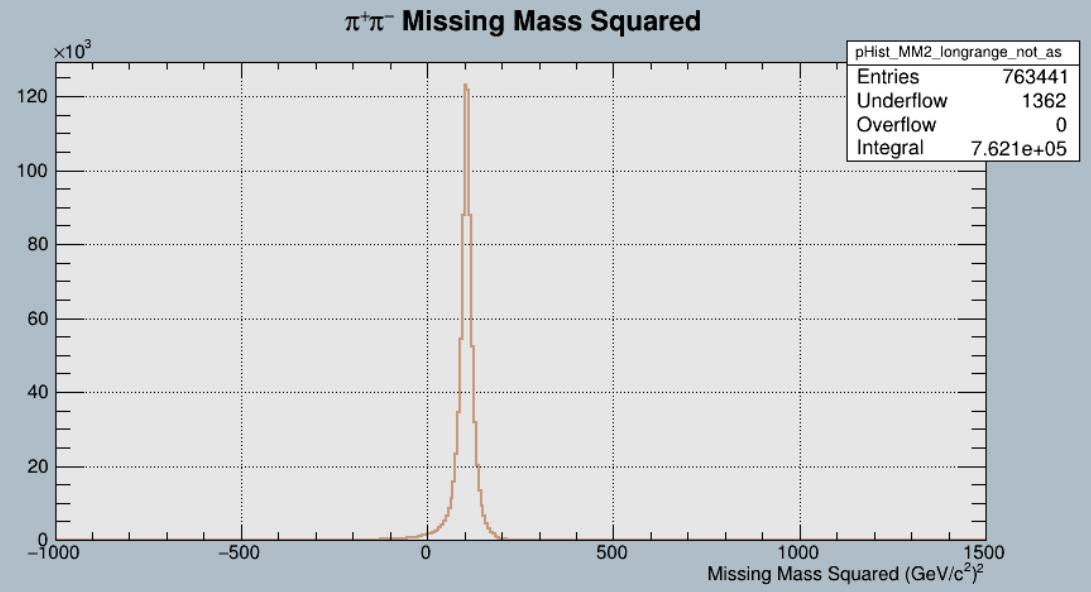
Prelim Analysis for Rho0 channel in Carbon12

- ReactionFilter plugin is used to find the events for Rho0 channels to make Analysis Trees.
- $\gamma + C12 \longrightarrow \pi^+ + \pi^- + p + (Boron11)$
- Reaction : 1_67__8_9_14_m66
- Flags : F4_B4_T2_S5
- F4 = 4Momentum and Vertex constraint Kinfit
- B4 = includes beam photon from 4 beam bunches on either side of prompt peak(B1default)
- T2 = Exclude events with more than 2 additional tracks (T3 default)
- S5 = Exclude events with more than 5 additional shower (999 default)
- $\gamma + C12 \longrightarrow \pi^+ + \pi^- + p + (unknown)$
- Reaction : 1_67__8_9_14_m0
- Flags : F4_B4_T2_S5
- Dselector is used for analyzing of “Analysis Trees” produced from Reaction Filter Plugin.

γ + C12 → π⁺ + π⁻ + p + (Boron11)







List of Cuts applied

C.L > 0.001

BeamEnergy > 6.5 GeV

52 cm < Zvertex < 78 cm

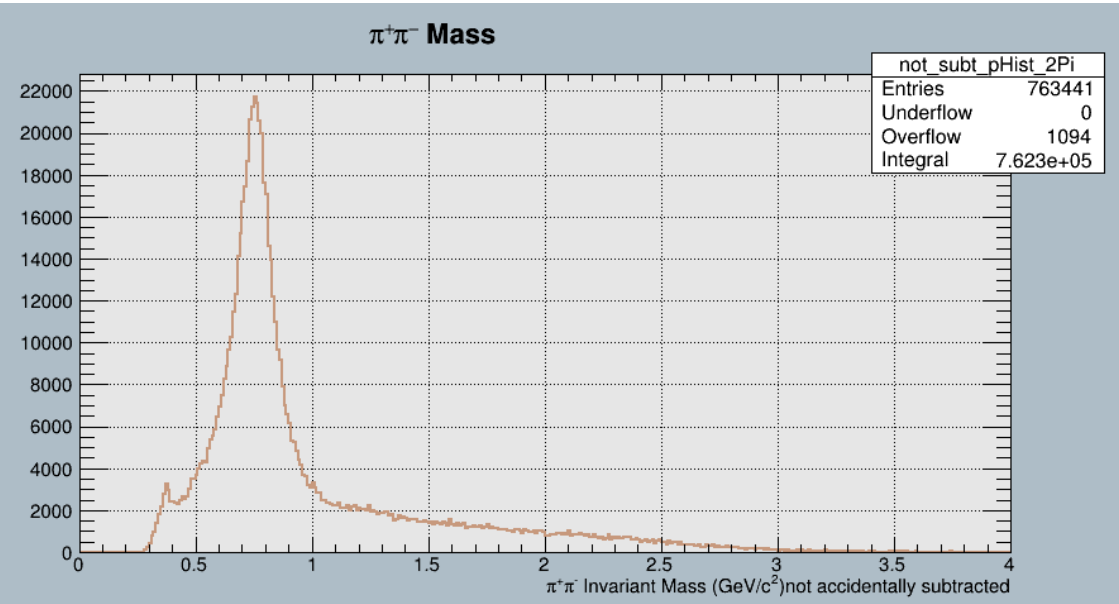
Coplanarity between Rho0 and Proton(165,195)

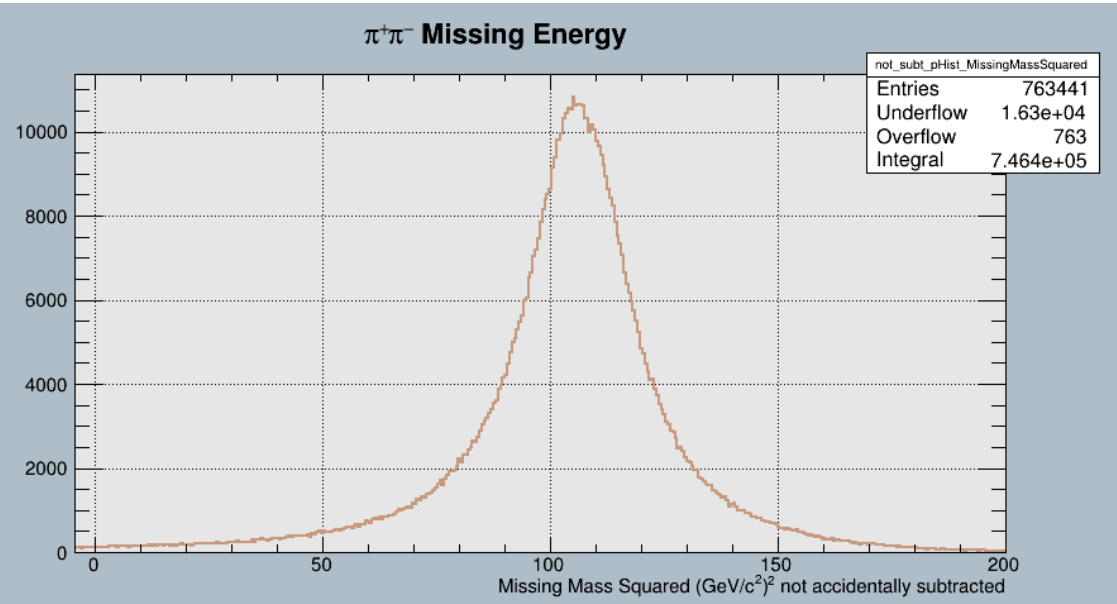
pMinus = E(rho+ proton) - Pz(rho+proton) (0.8 <pMinus < 1.1)

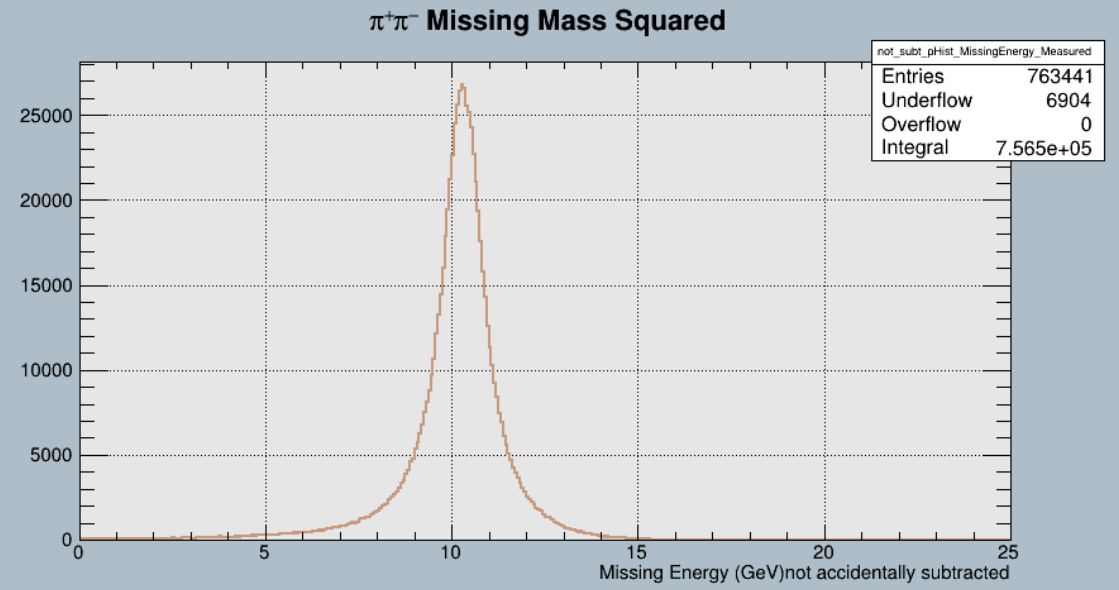
PIDFOM > 0.001

Beam Accidental Subtraction Not Applied (B4)

γ + C12 → π⁺ + π⁻ + p + (Boron11)







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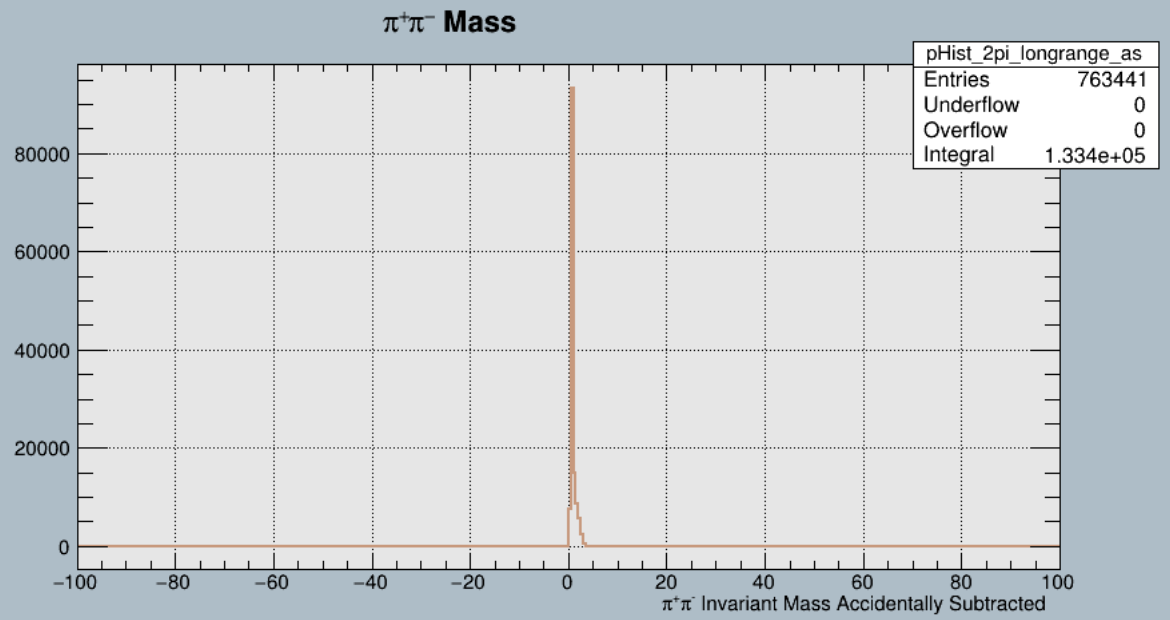

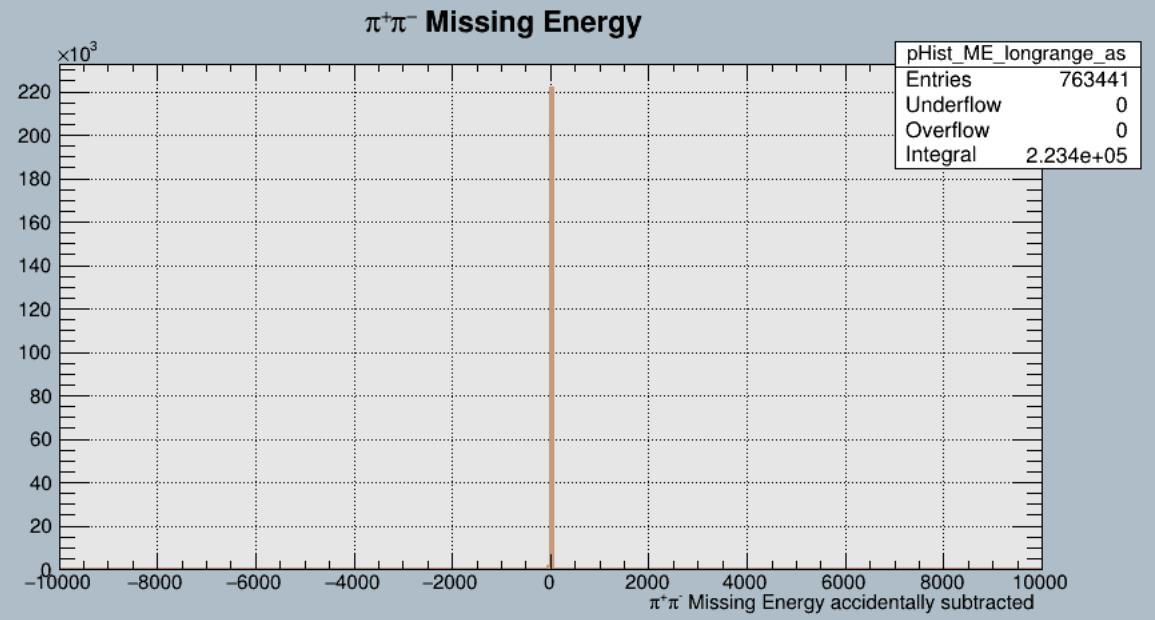

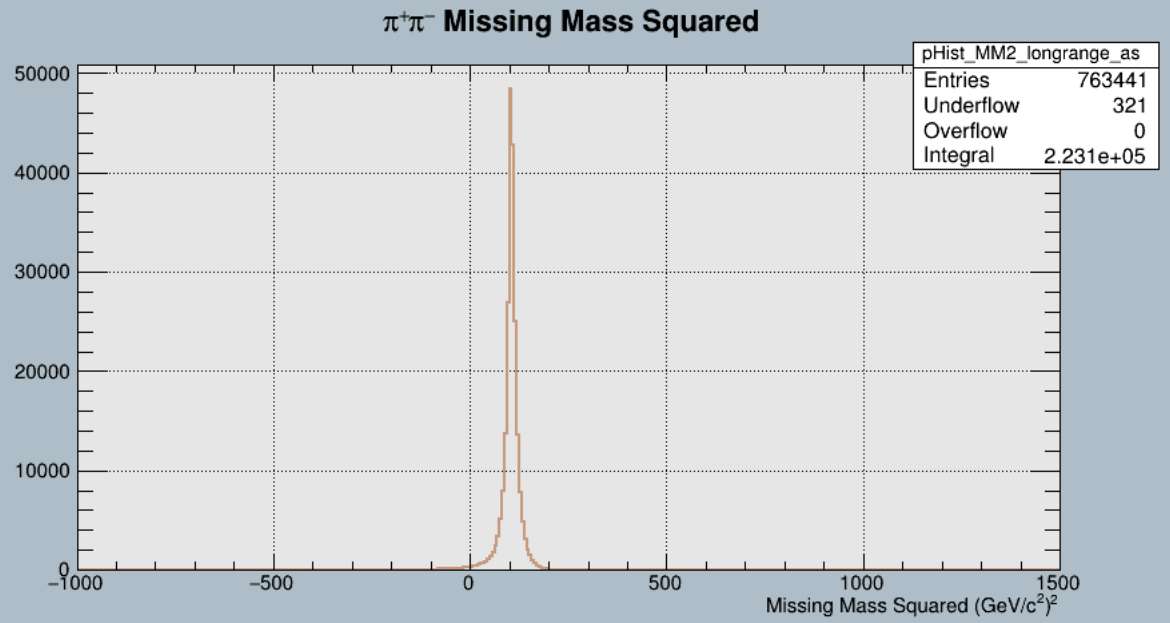

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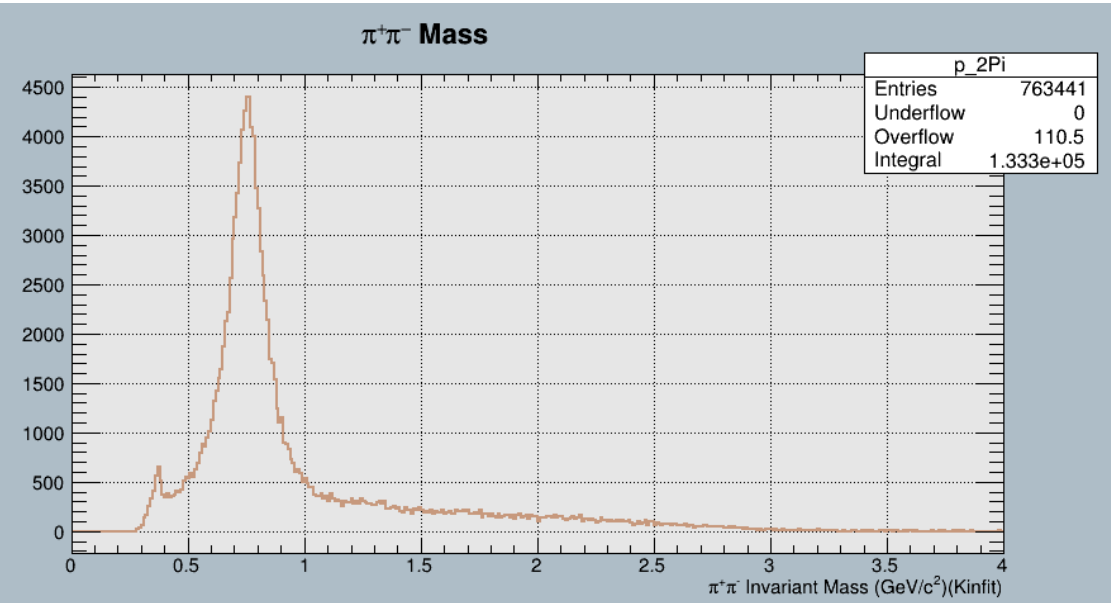
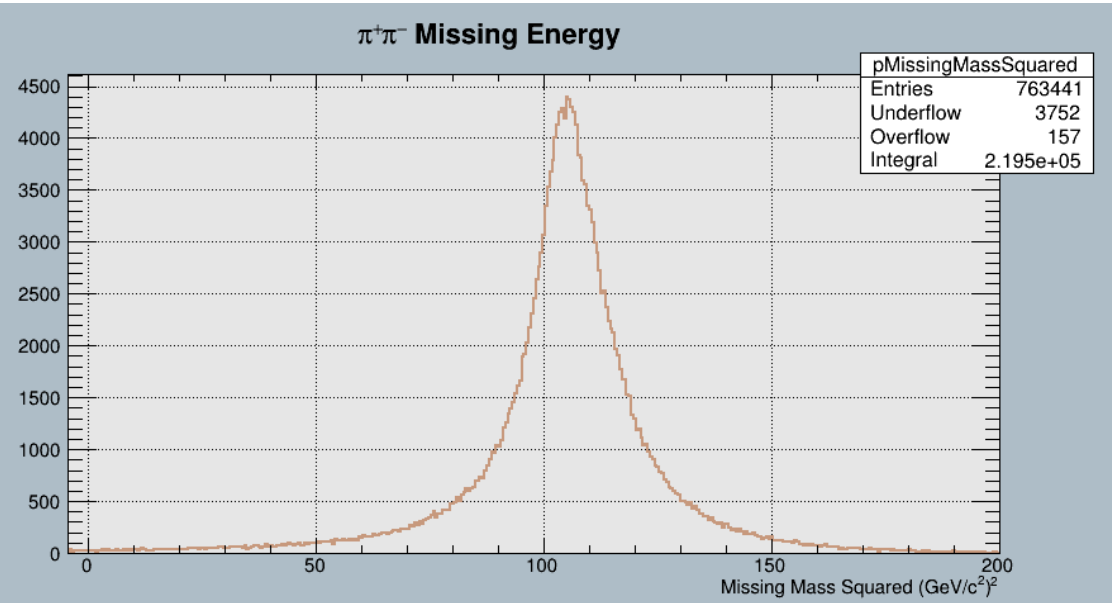
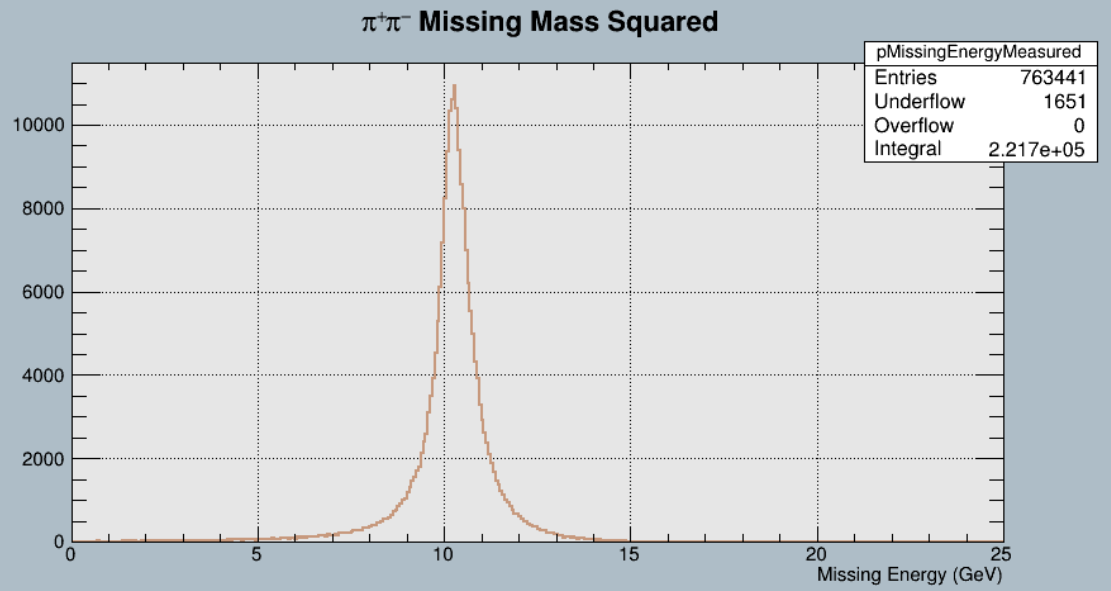
Beam Accidental Subtraction Applied

PIDFOM > 0.001

γ + C12 → π⁺ + π⁻ + p + (Boron11)







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Beam Accidental Subtraction Applied (B4)
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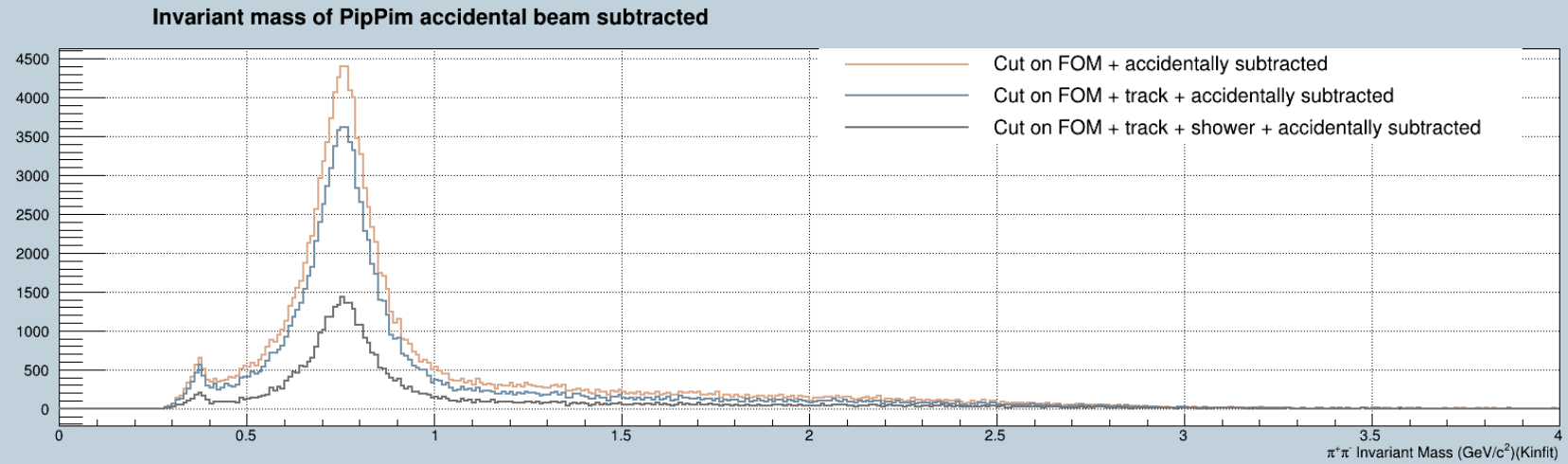
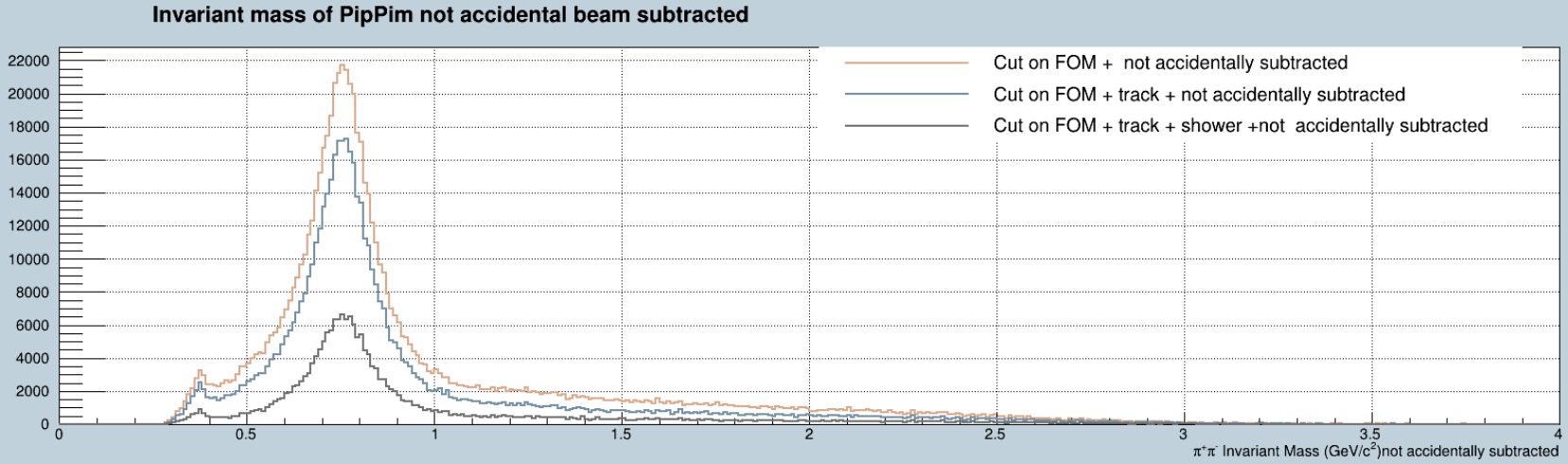
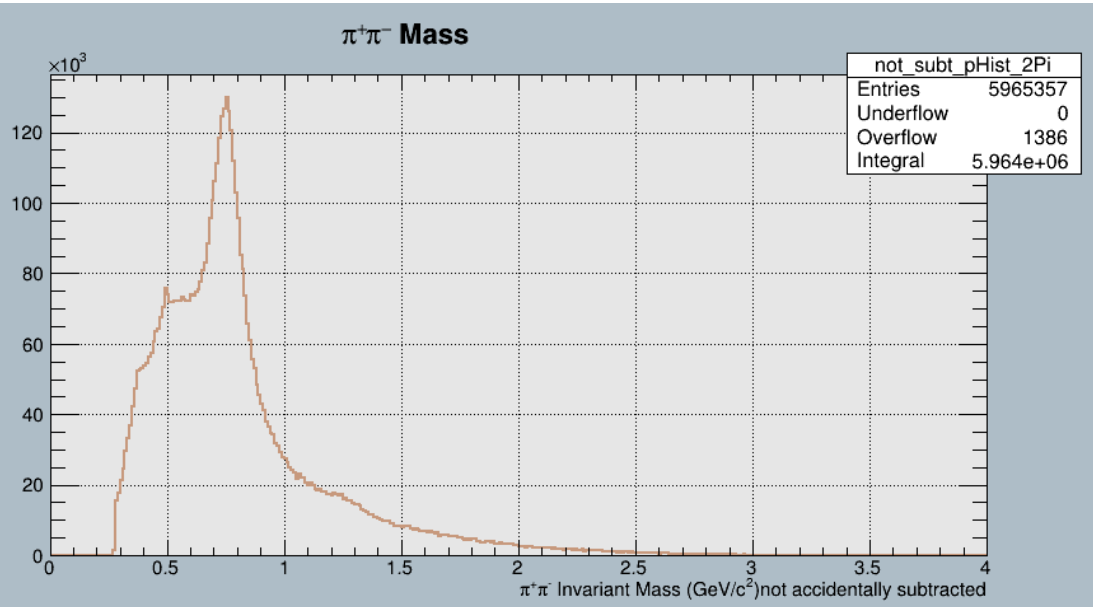
$\gamma + C12 \rightarrow \pi^+ + \pi^- + p + (Boron11)$

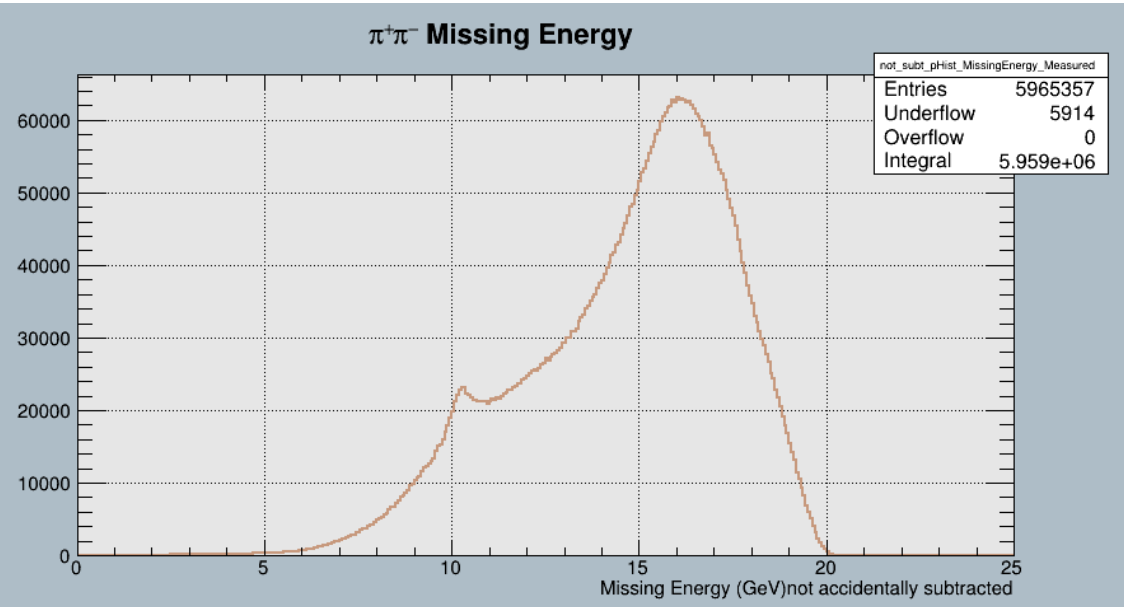


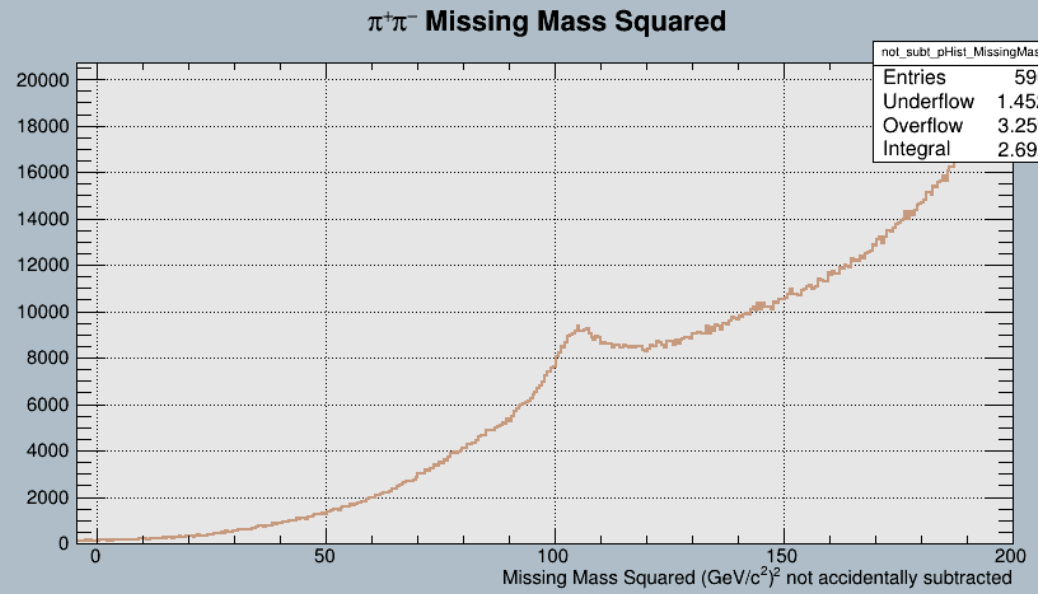


We have 2 extra tracks and 5 extra shower in our reactions.

$\gamma + C12 \rightarrow \pi^+ + \pi^- + p + (\text{missing } X)$







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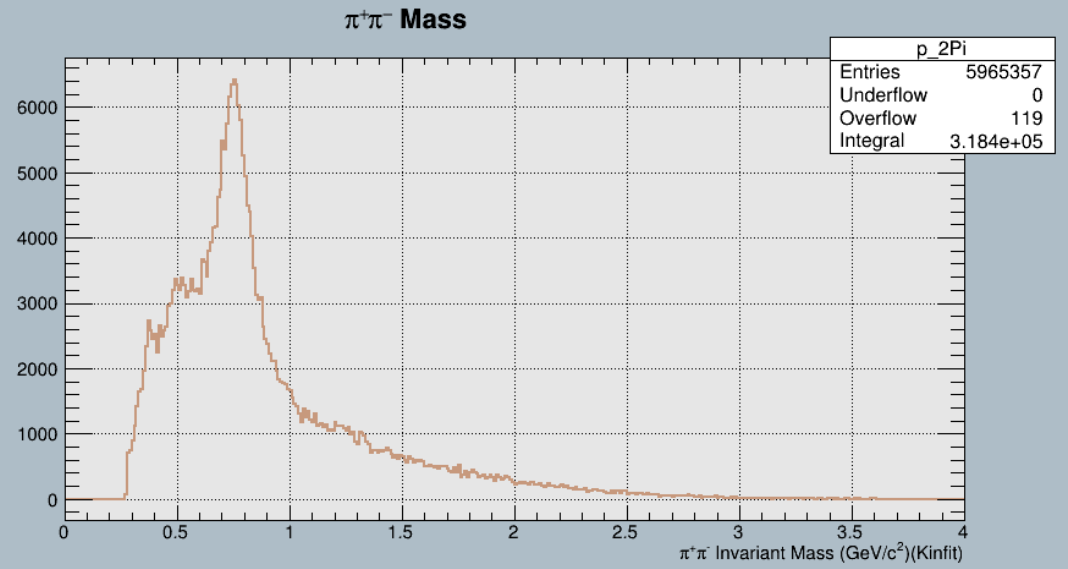
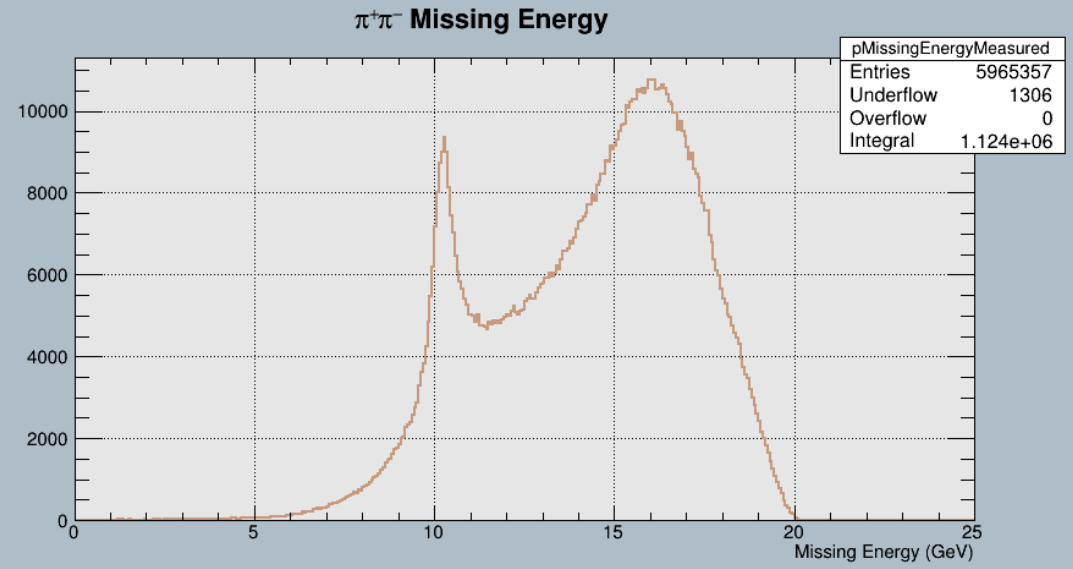
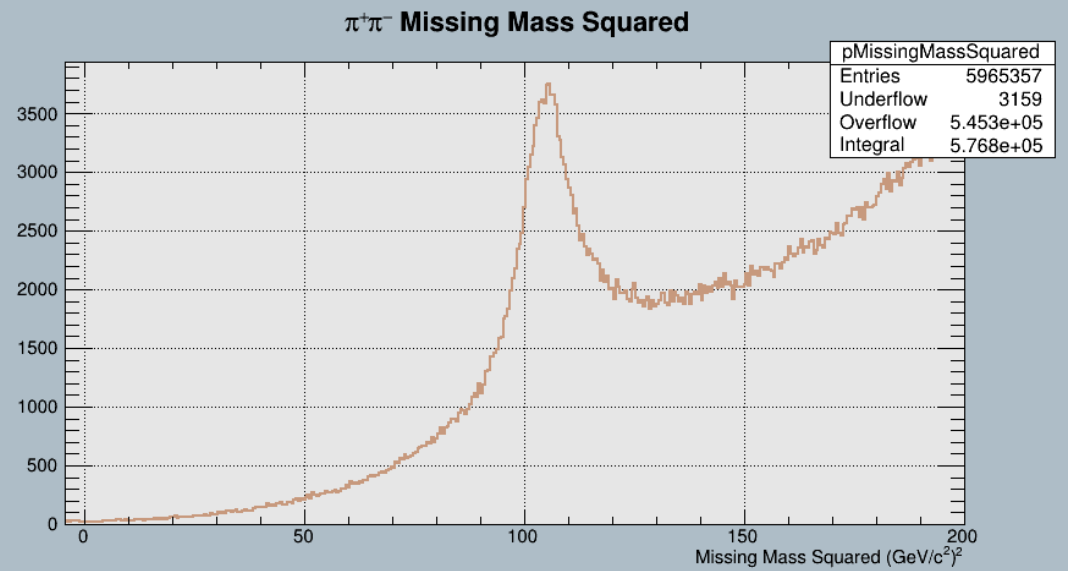
PIDFOM > 0.001
Beam Accidental Subtraction Not Applied (B4)

γ + C12 → π⁺ + π⁻ + p + (Missing X)



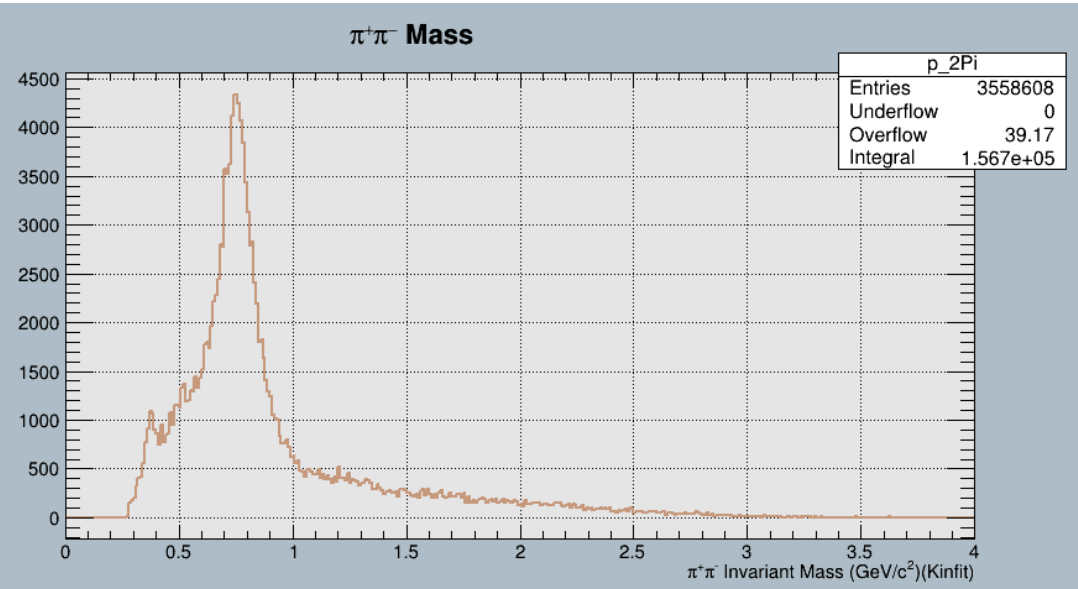


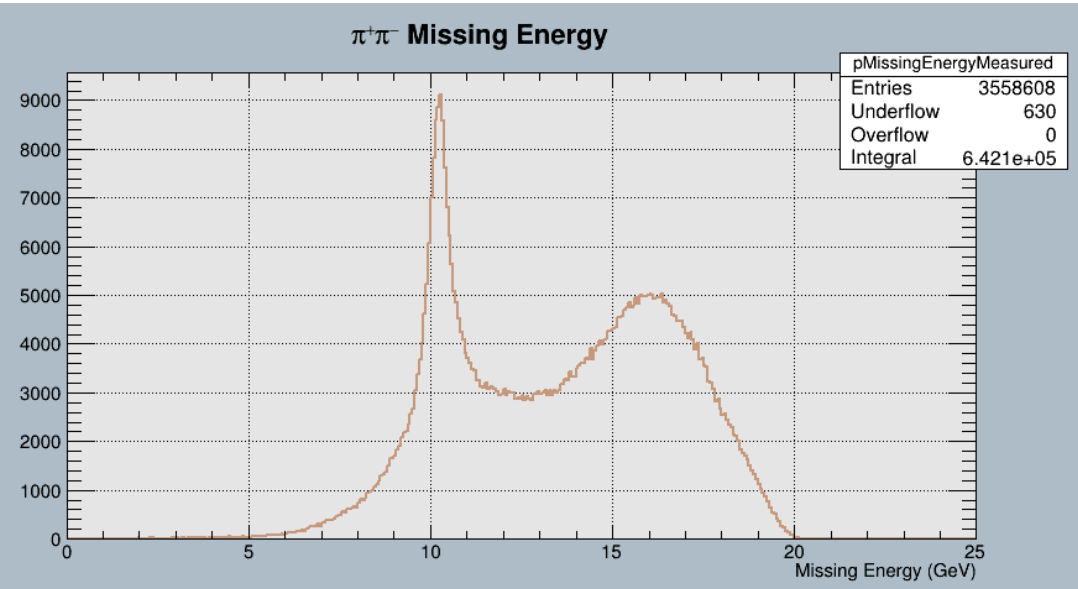


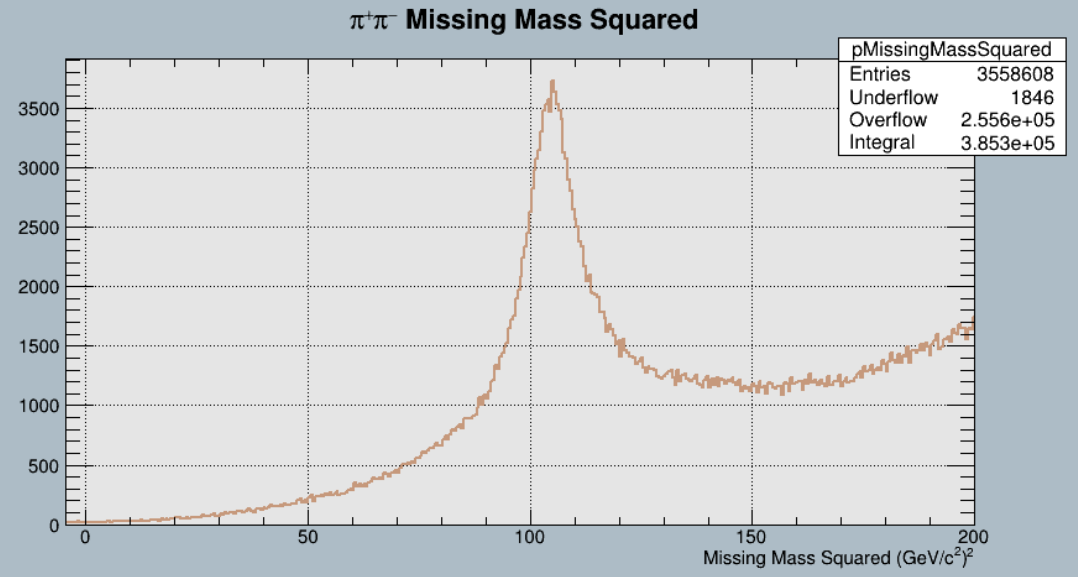
List of Cuts applied

C.L > 0.001
BeamEnergy > 6.5 GeV
52 cm < Zvertex < 78 cm
Coplanarity between Rho0 and Proton(165,195)
pMinus = E(rho+ proton) - Pz(rho+proton) (0.8 <pMinus < 1.1)
Beam Accidental Subtraction Applied (B4)
PIDFOM > 0.001

$\gamma + C12 \rightarrow \pi^+ + \pi^- + p + (\text{missing } X)$







List of Cuts applied

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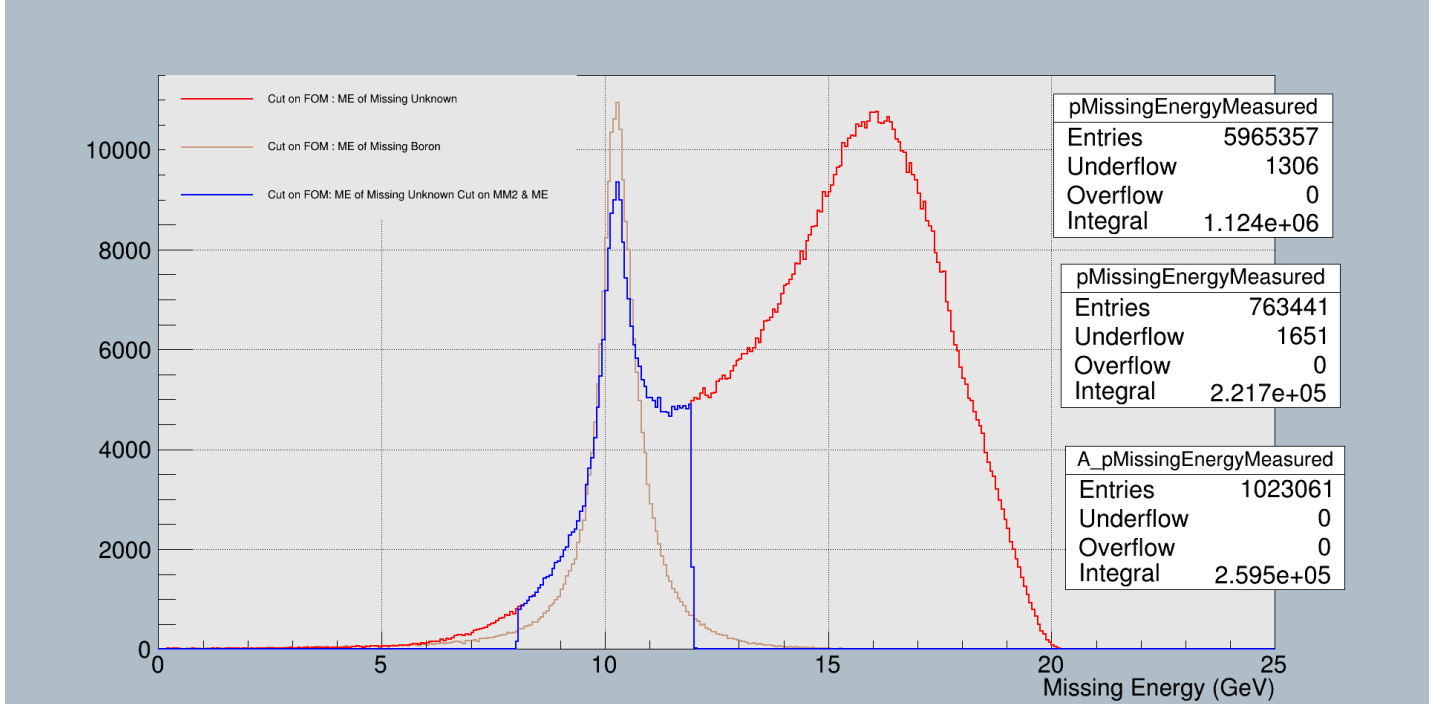
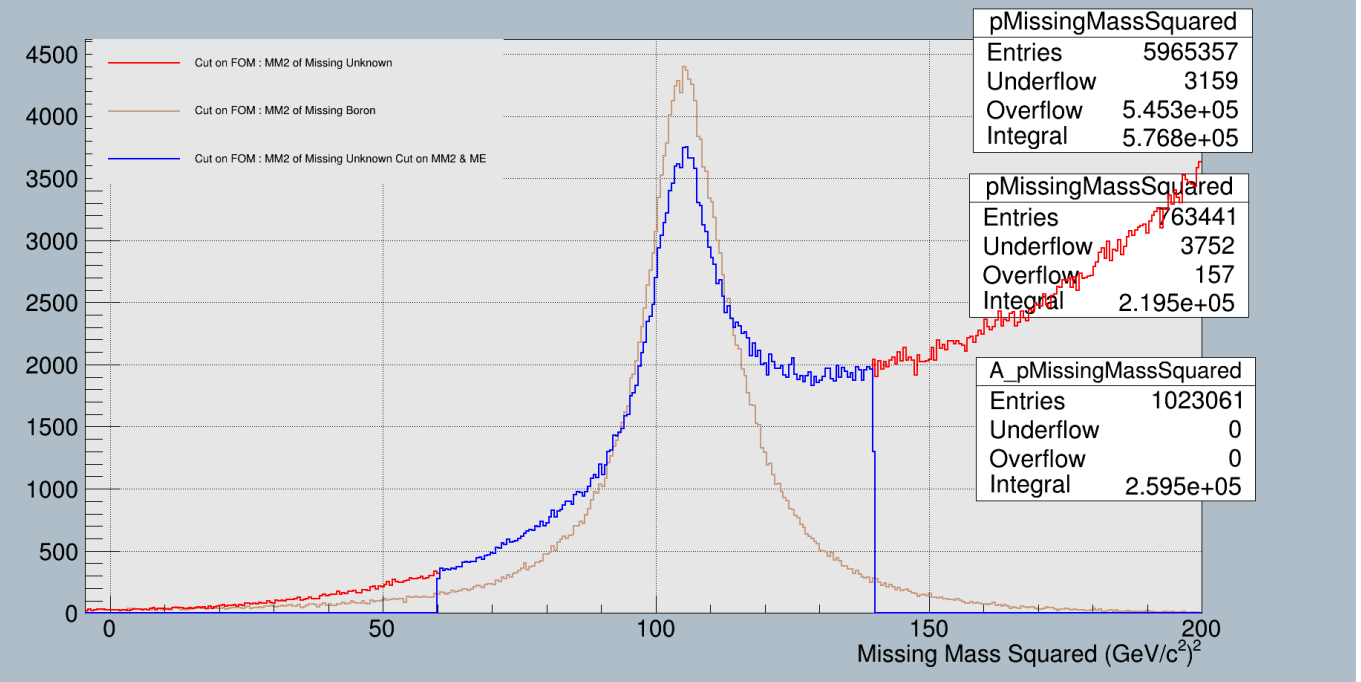
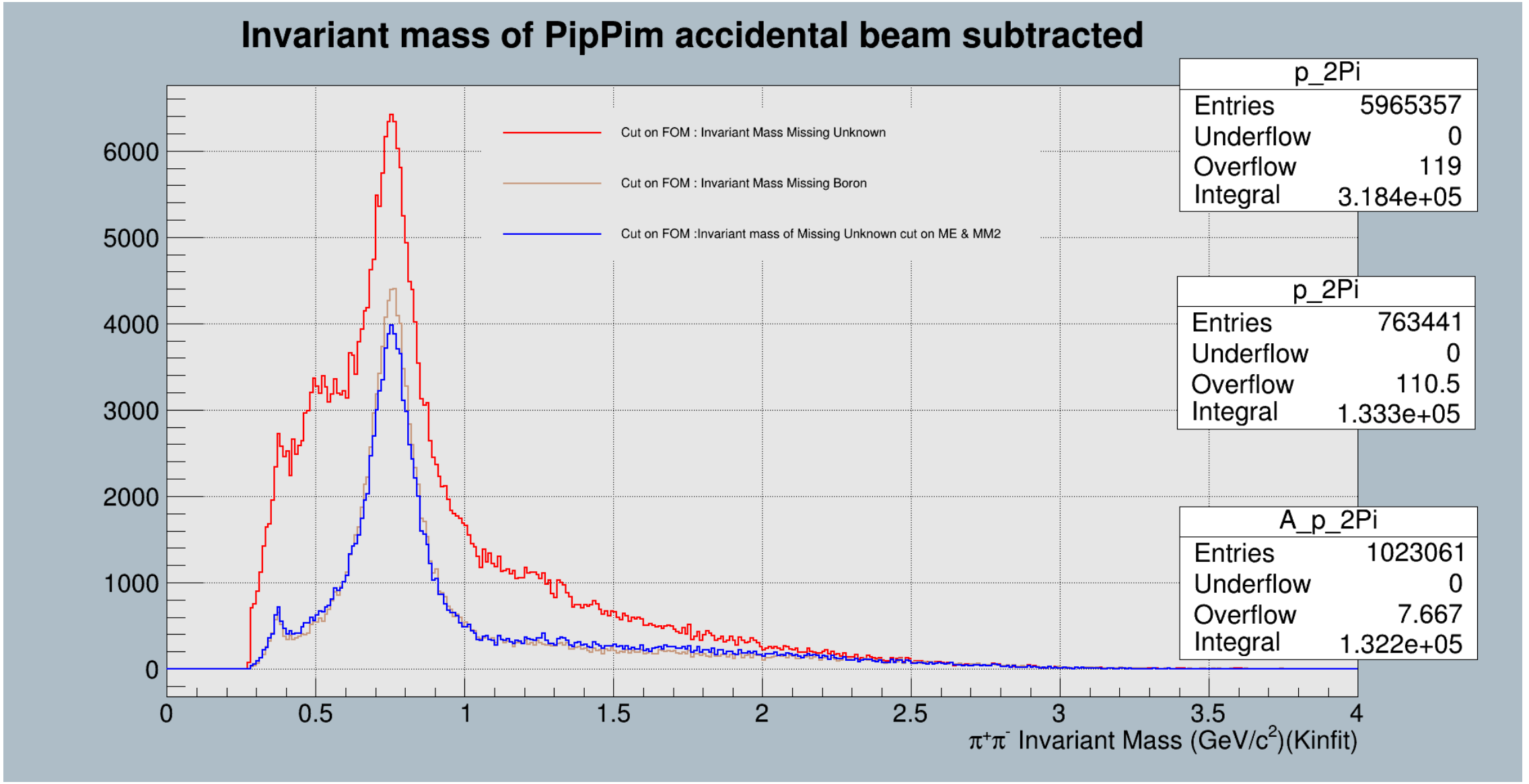
BeamEnergy > 6.5 GeV
52 cm < Zvertex < 78 cm
Coplanarity between Rho0 and Proton(165,195)
pMinus = E(rho+ proton) - Pz(rho+proton) (0.8 <pMinus < 1.1)
Beam Accidental Subtraction Applied (B4)
PIDFOM > 0.001
No of extra tracks = 0.0 (Before: T =2)

Missing Energy and Missing Mass Squared plot: FOMPID cut applied.

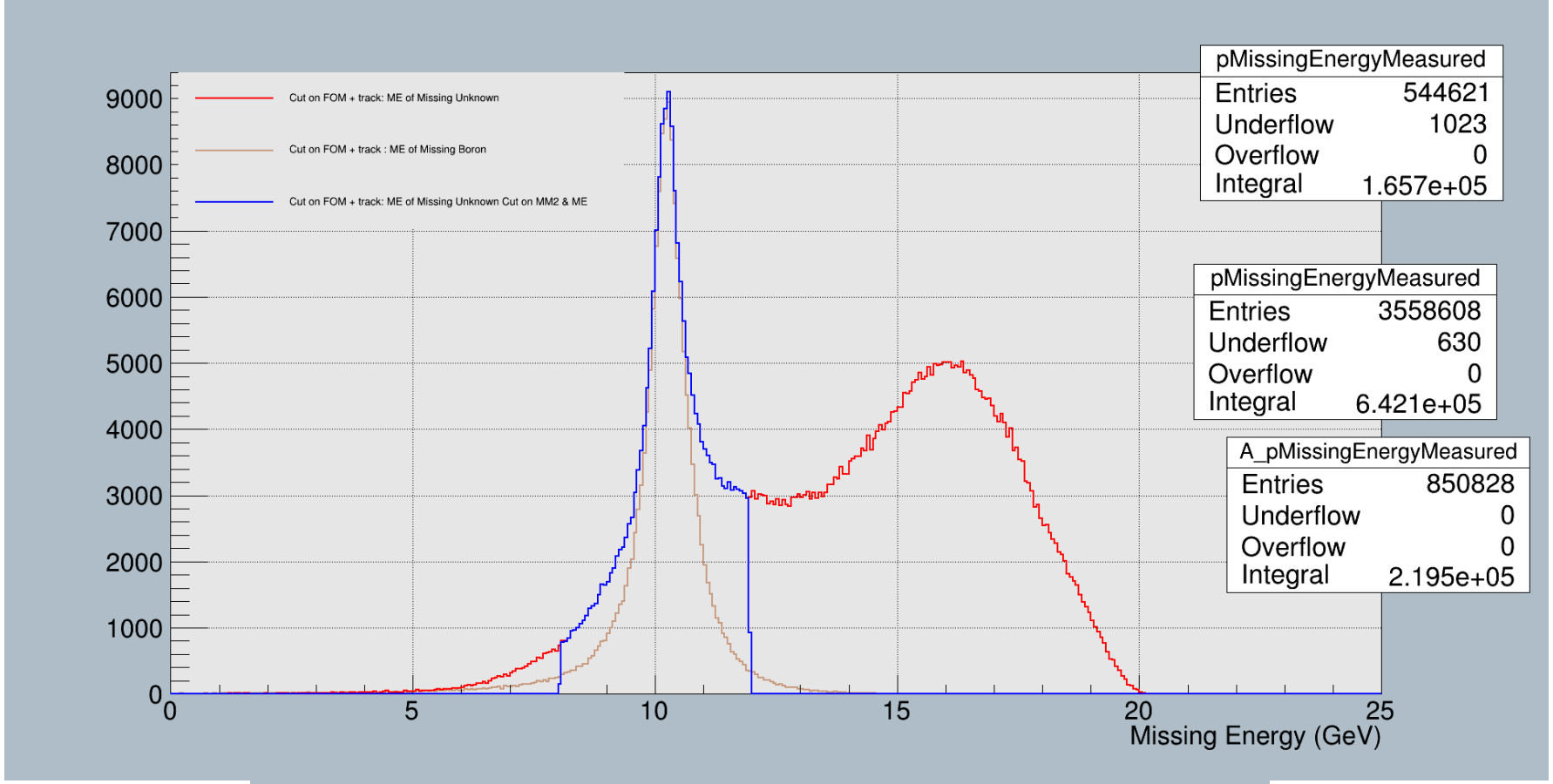


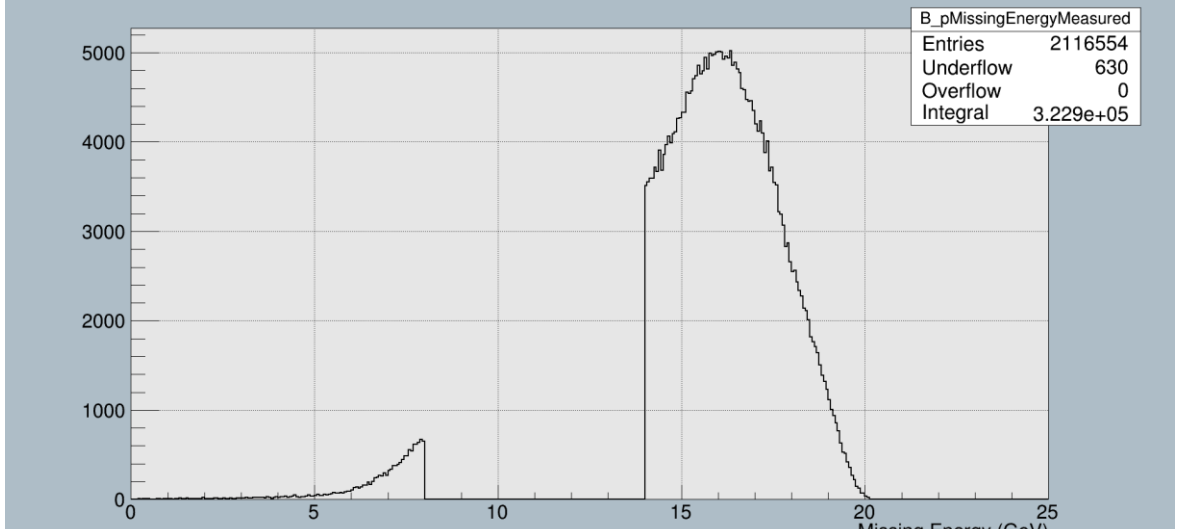


Invariant Mass plot: FOMPID cut applied.

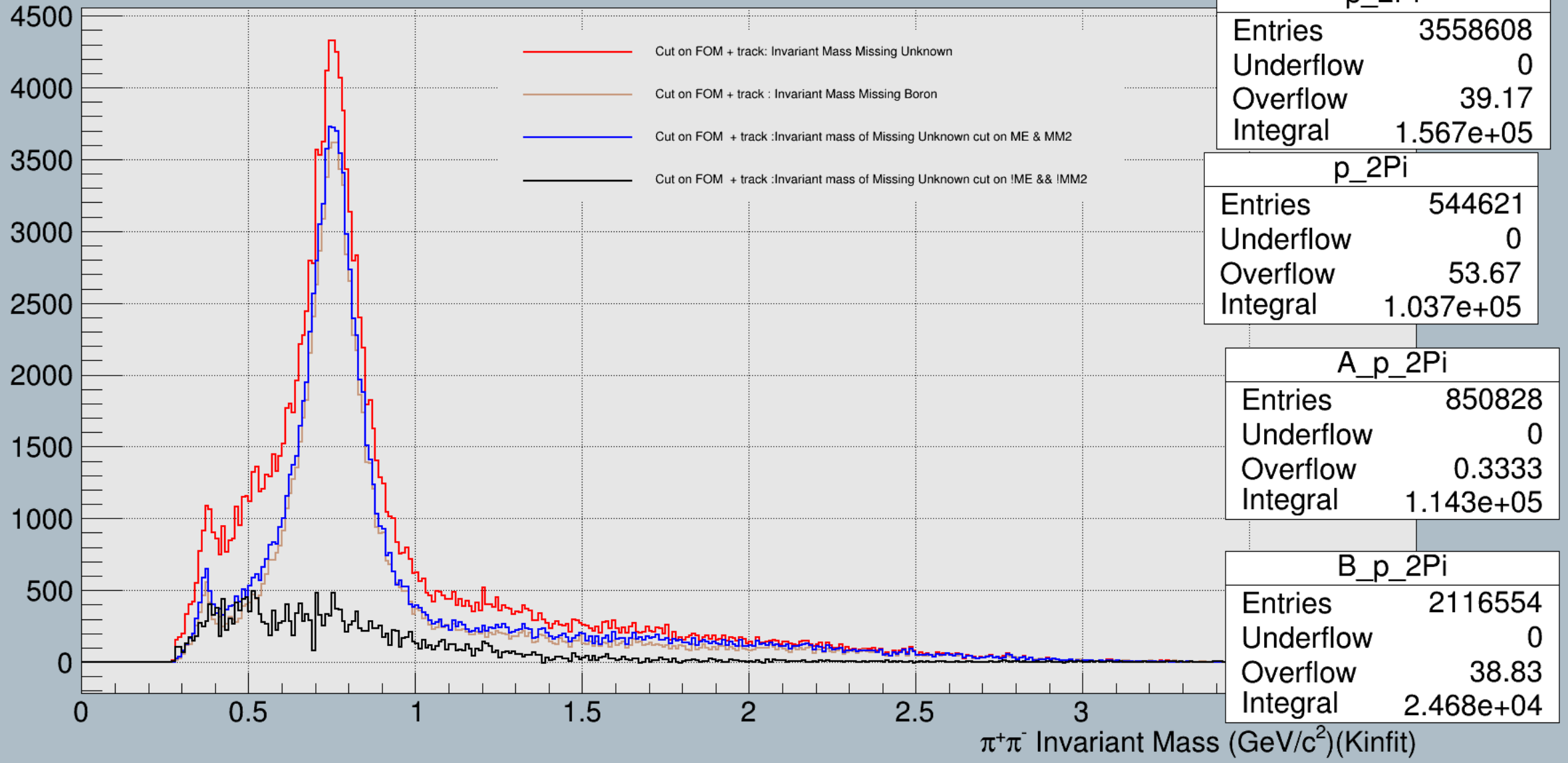


Missing Energy plot:
FOMPID + extra track cut applied.





Invariant mass of PipPim accidental beam subtracted



p_2Pi	
Entries	3558608
Underflow	0
Overflow	39.17
Integral	1.567e+05

p_2Pi	
Entries	544621
Underflow	0
Overflow	53.67
Integral	1.037e+05

A_p_2Pi	
Entries	850828
Underflow	0
Overflow	0.3333
Integral	1.143e+05

B_p_2Pi	
Entries	2116554
Underflow	0
Overflow	38.83
Integral	2.468e+04