

# New fits on $K^+$ with/without $E_{\text{loss}}$ +B correction

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Mass vs Momentum with/without correction (ProfileX)

Mass vs Momentum with/without correction (From Fits)

Bin x Bin ( $p_\theta$ ) fit evaluation for strategy decision

# Events selection

PID with  $dE/dX$  vs  $P$  cuts

Vertex cut

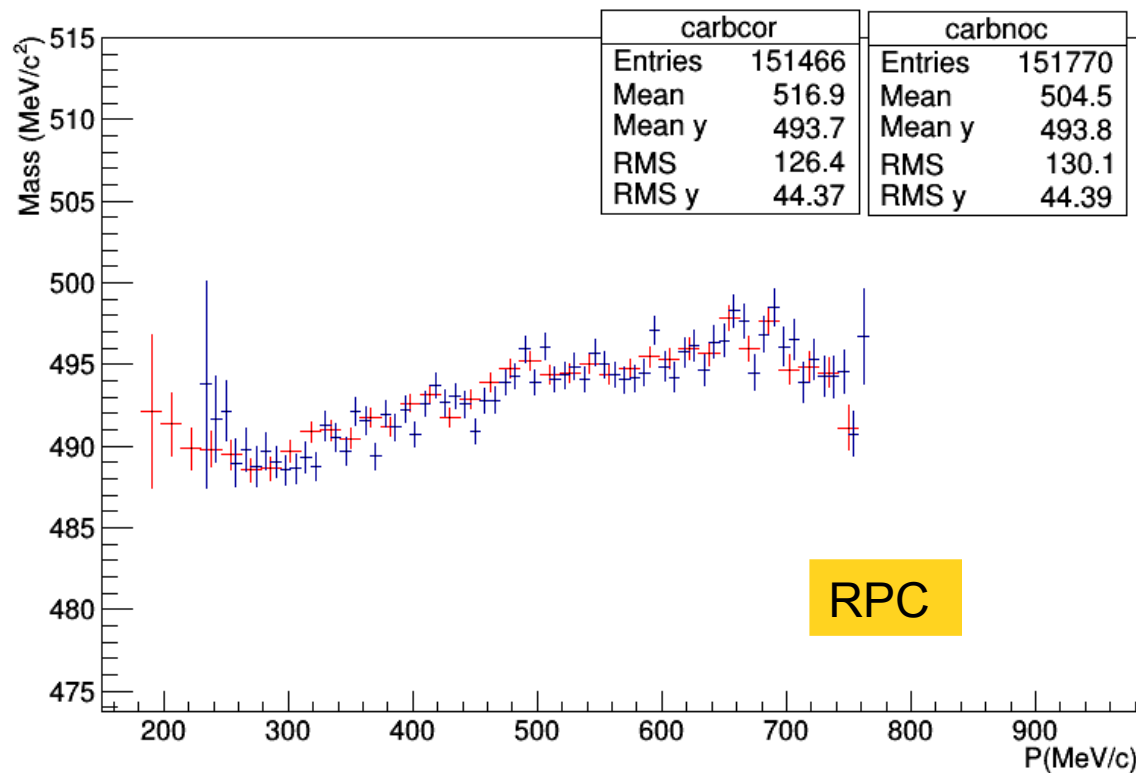
$0 < \beta < 1$

Eloss + B correction

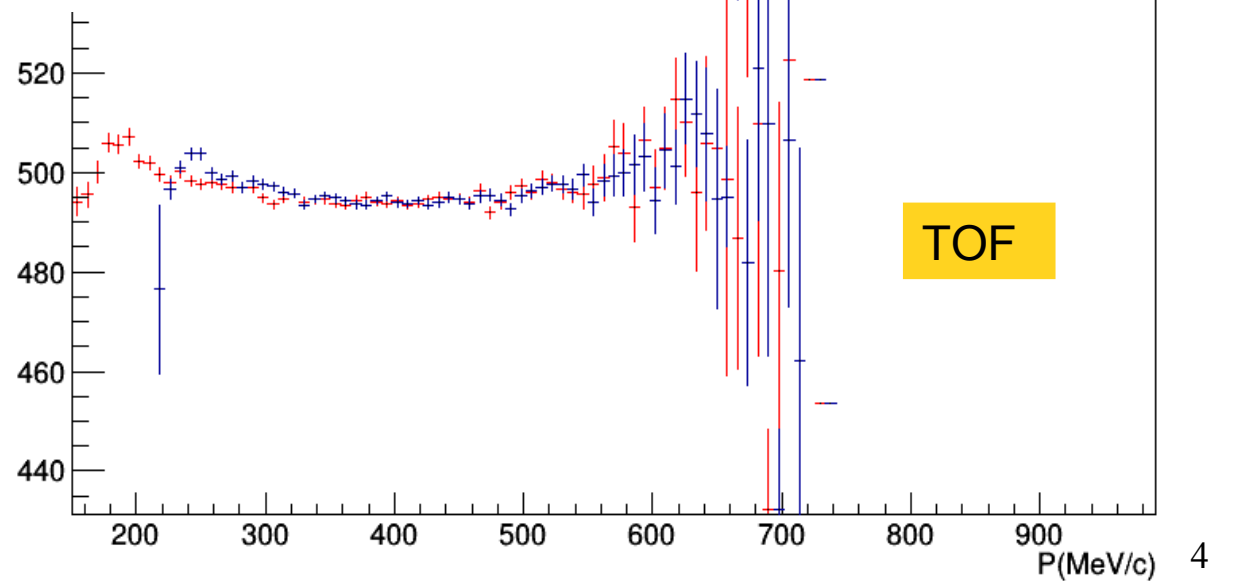
Bad strips rejected

kIsUsed to reject multi hits

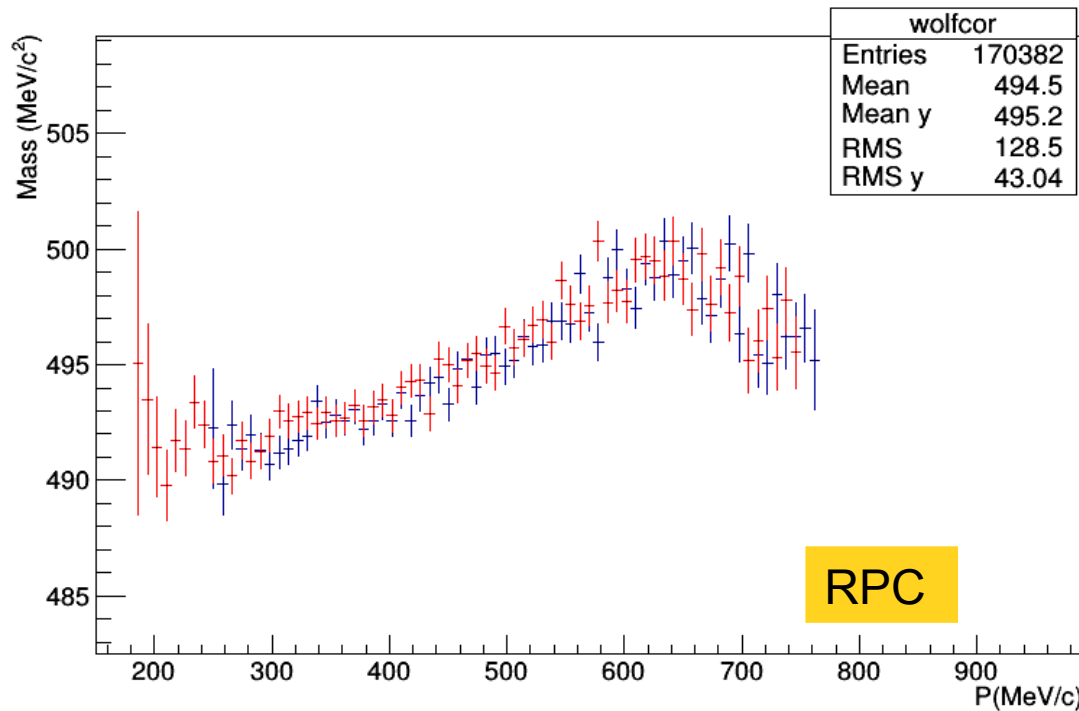
# Mass vs P in Carbon (ProfileX)



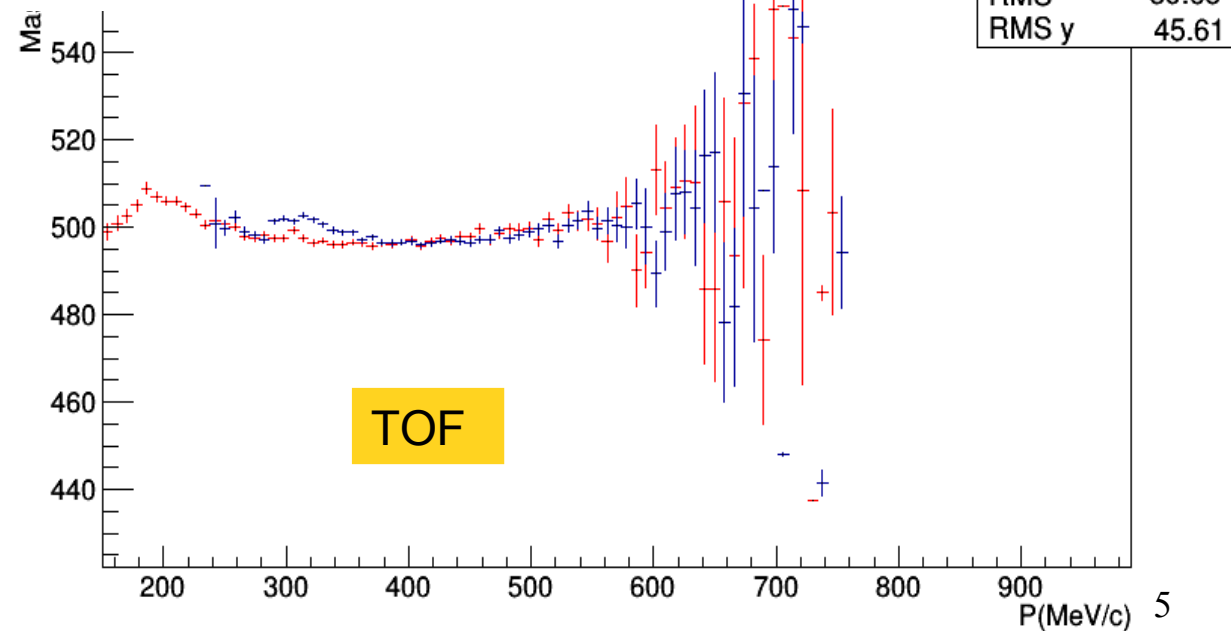
With cor  
No cor



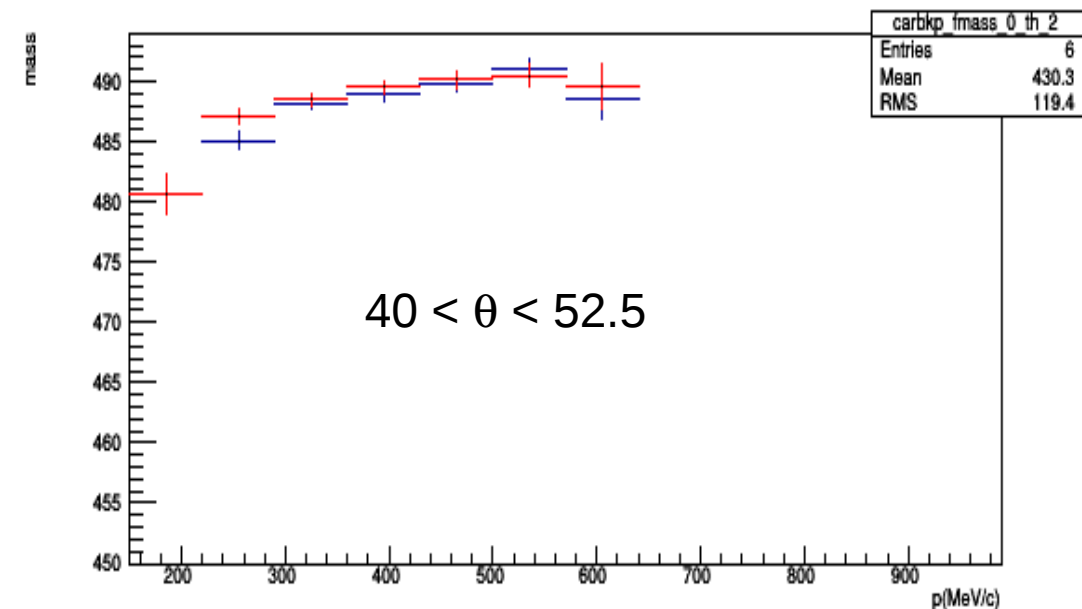
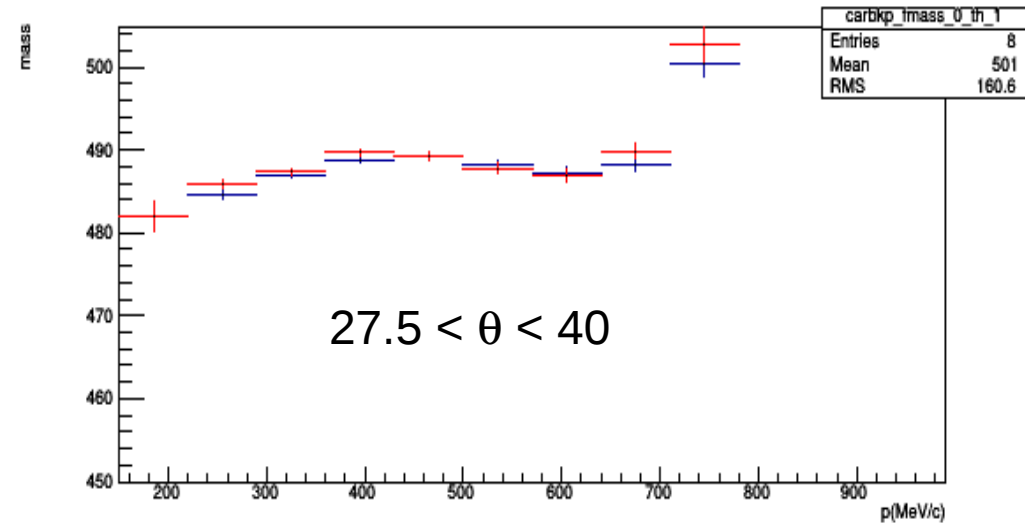
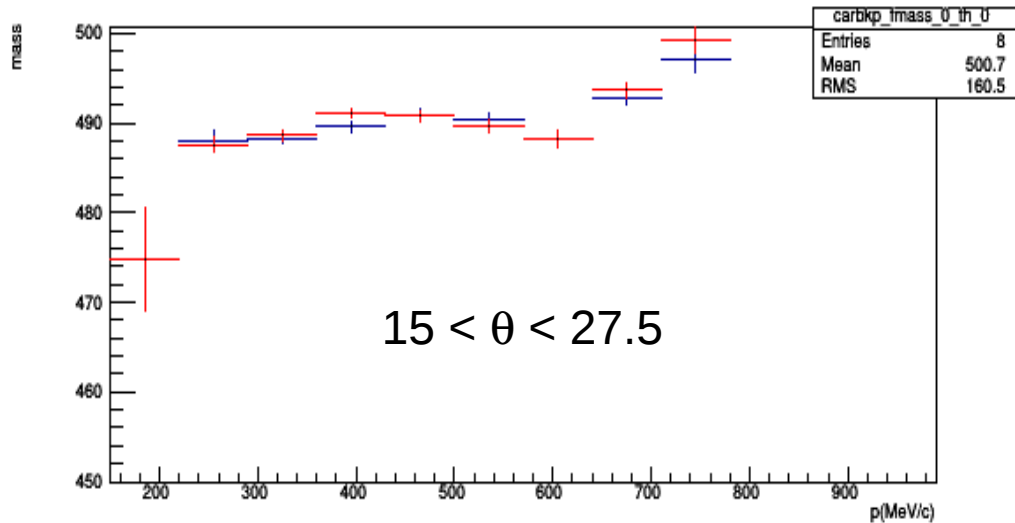
# Mass vs P in Wolfram (ProfileX)



With cor  
No cor

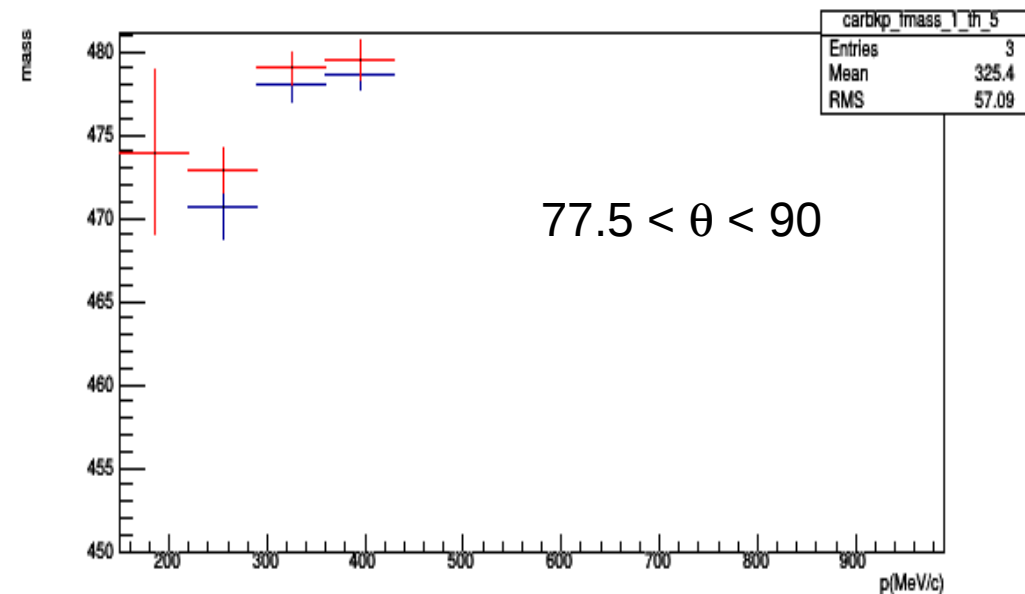
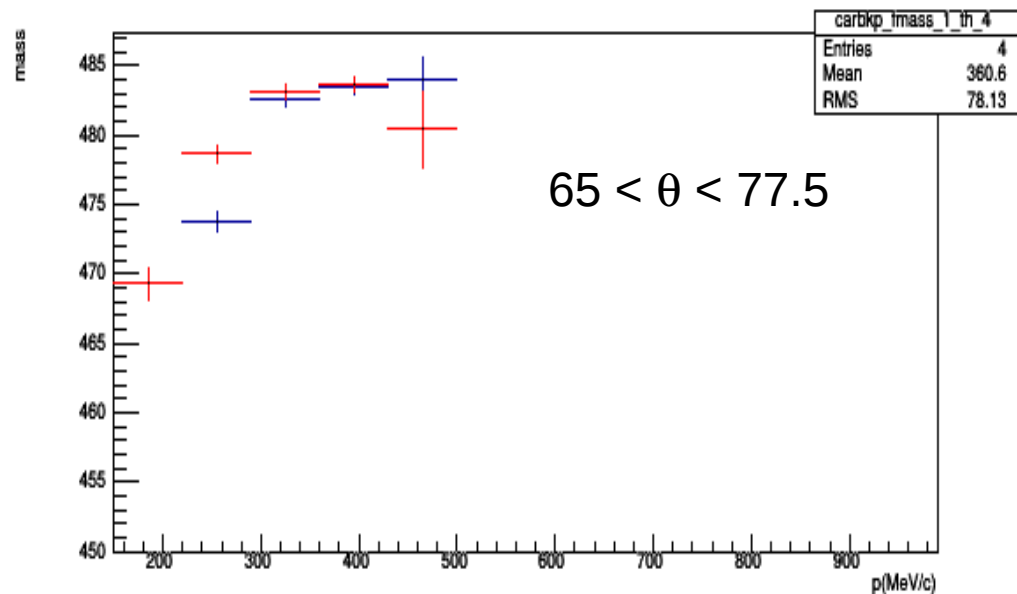
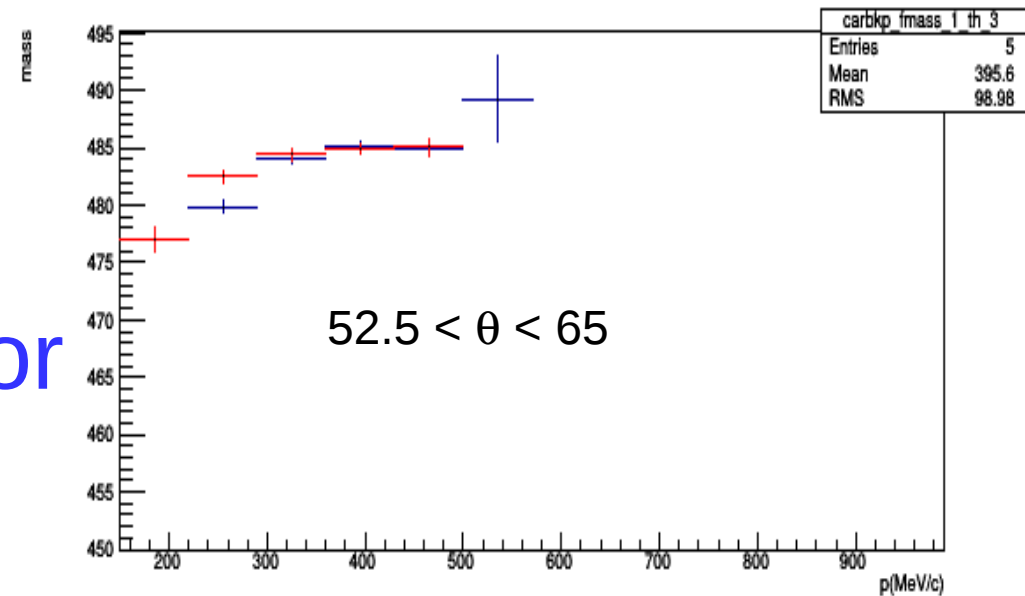
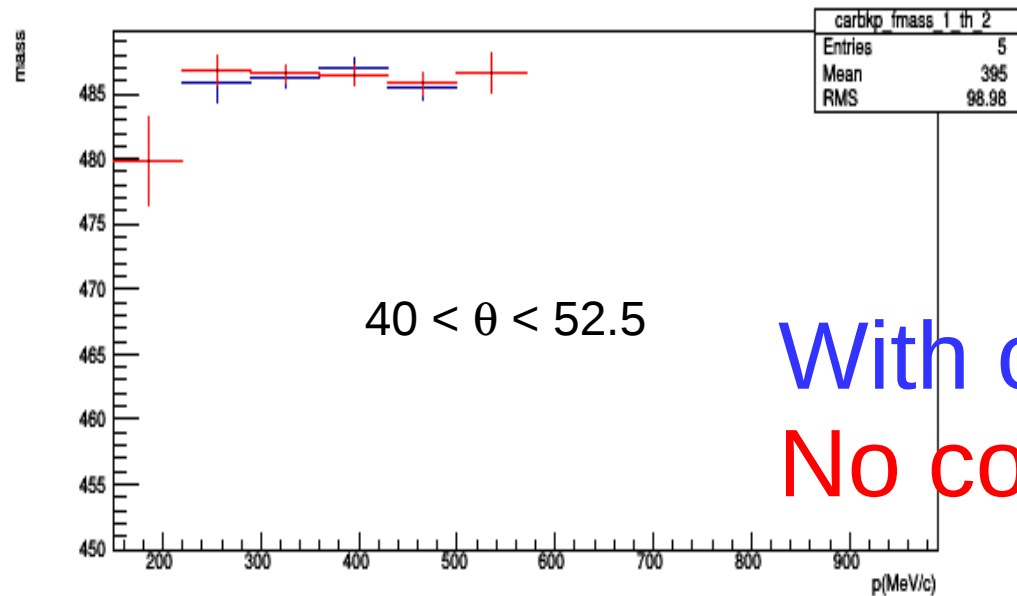


# Mass vs P in Carbon RPC (fits)

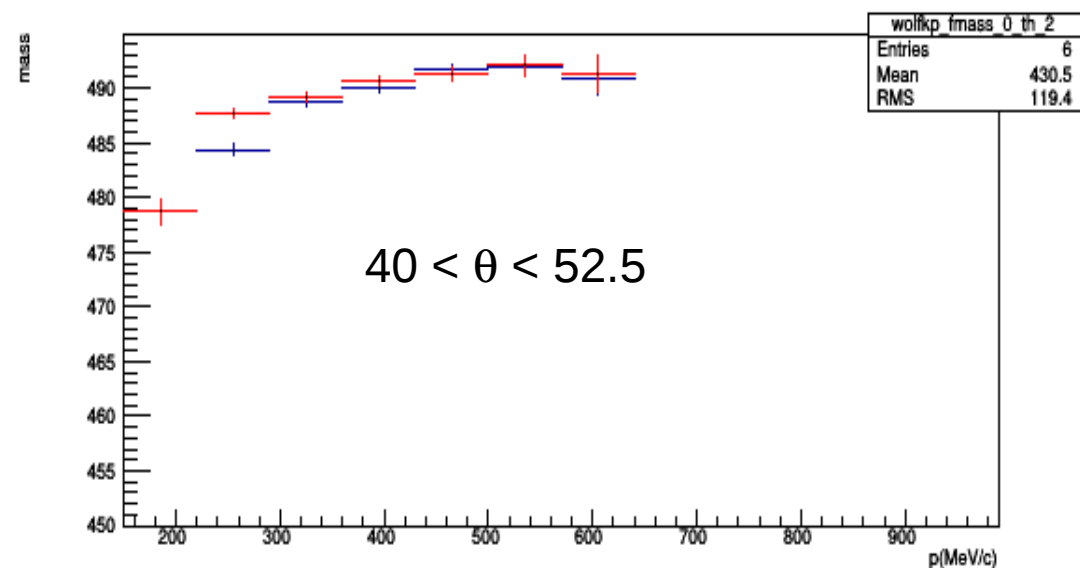
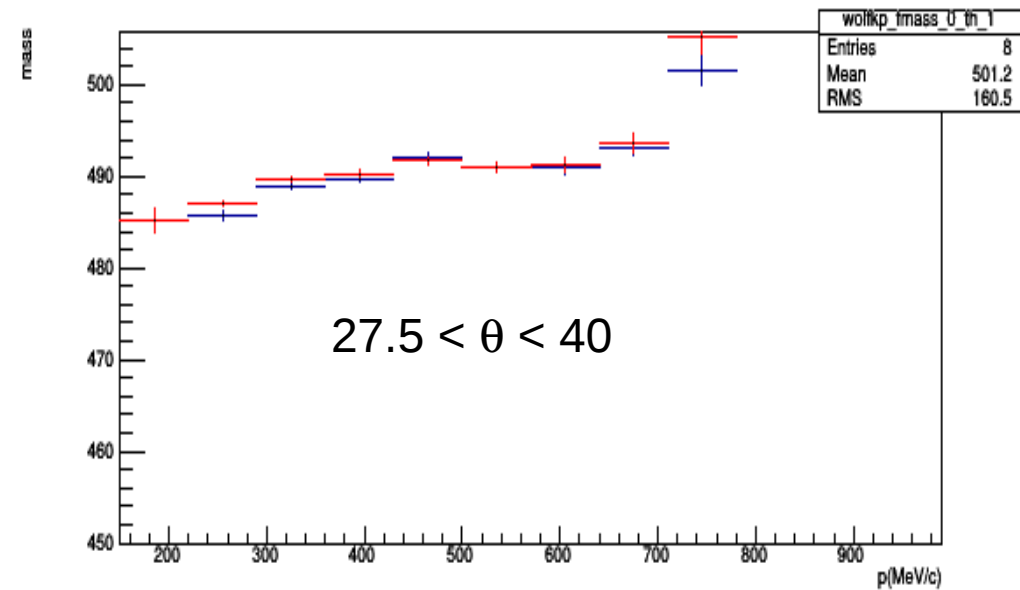
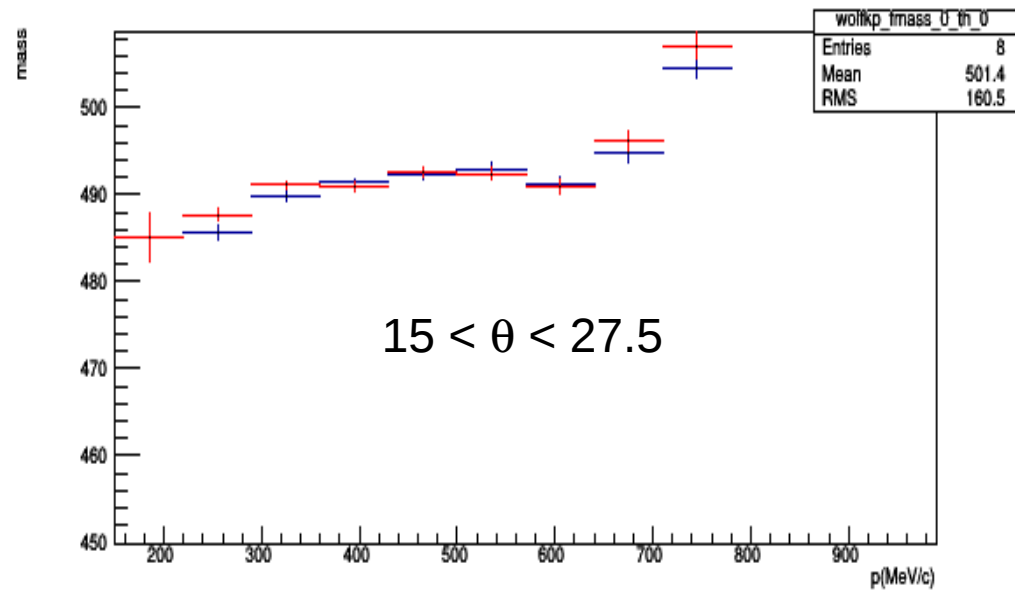


With cor  
No cor

# Mass vs P in Carbon TOF (fits)



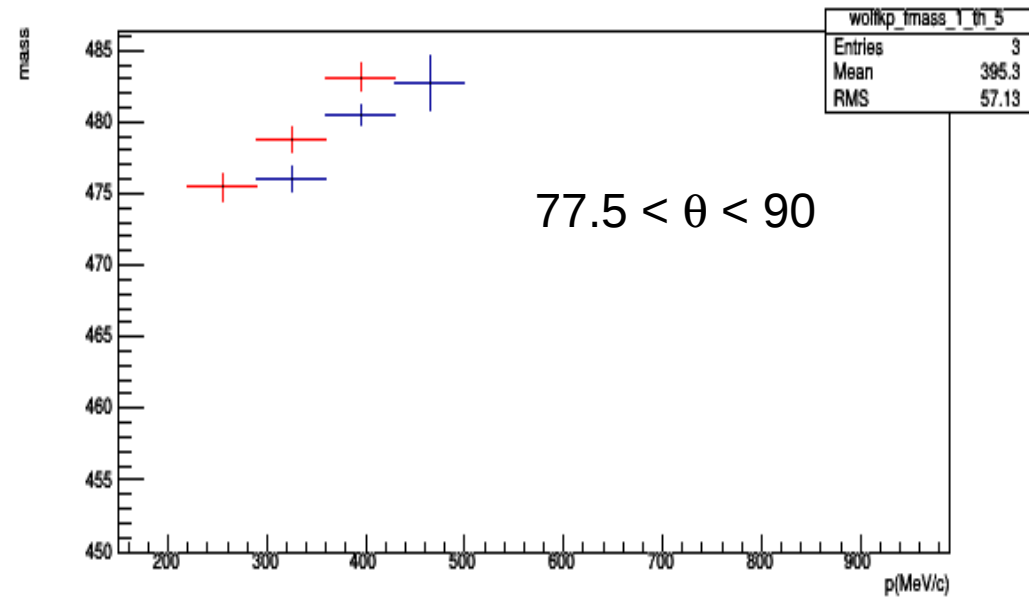
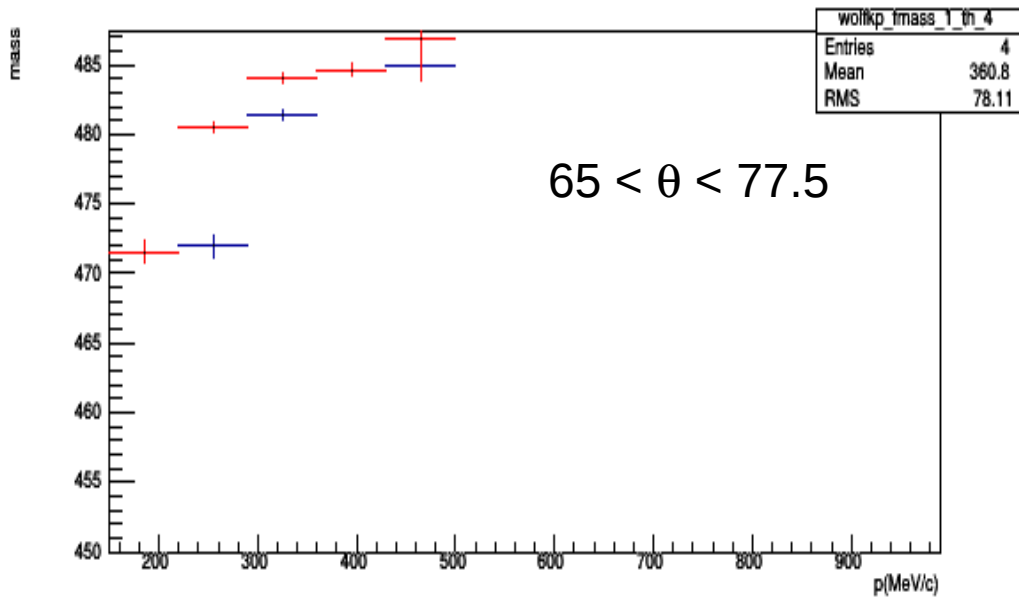
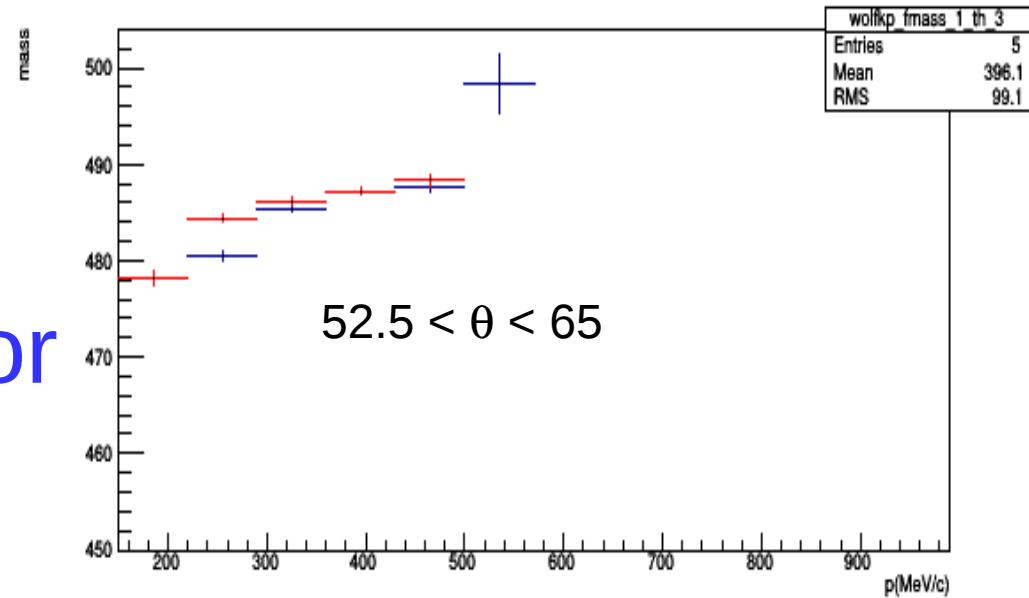
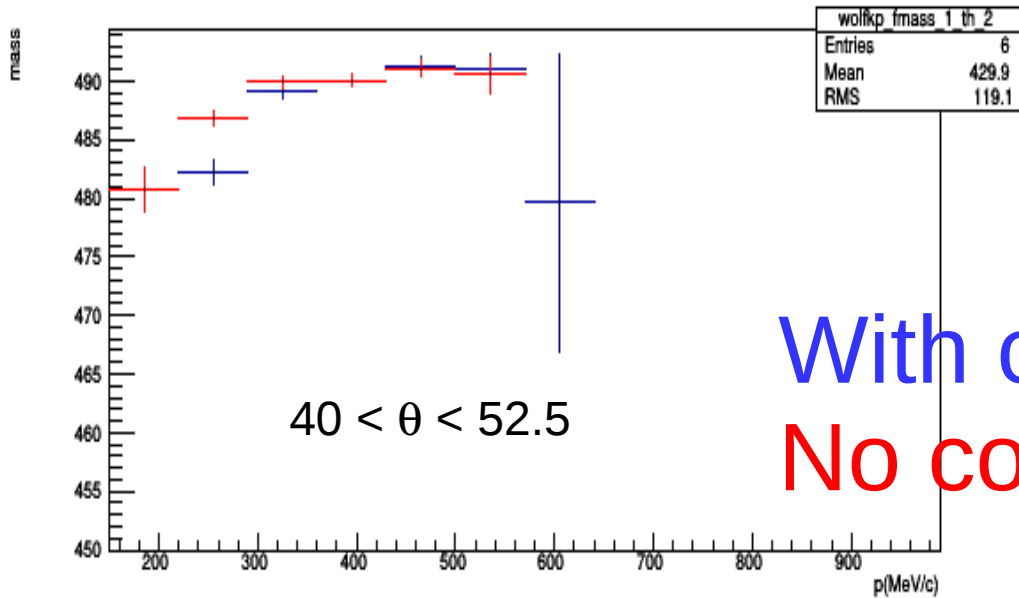
# Mass vs P in Wolfram RPC (fits)



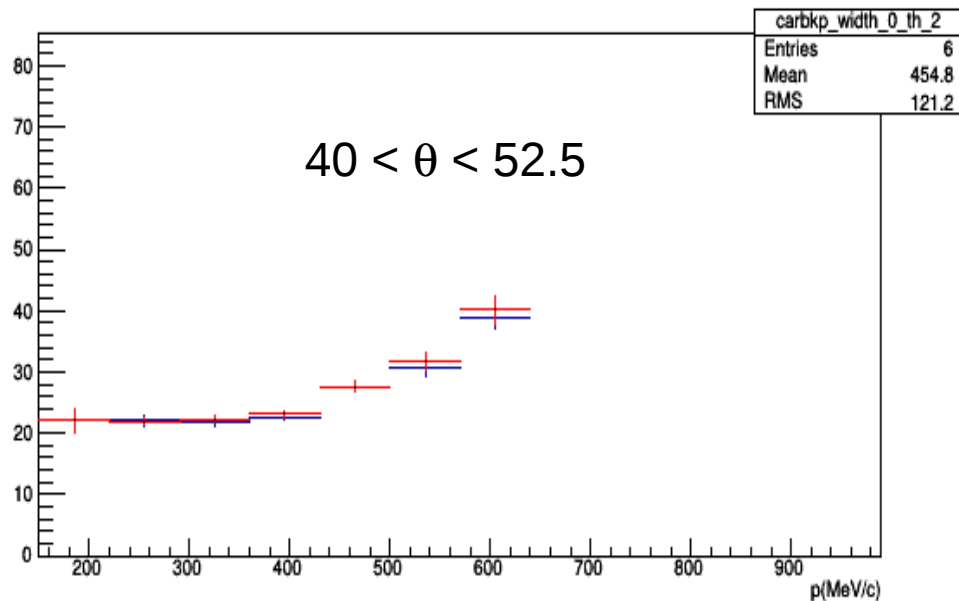
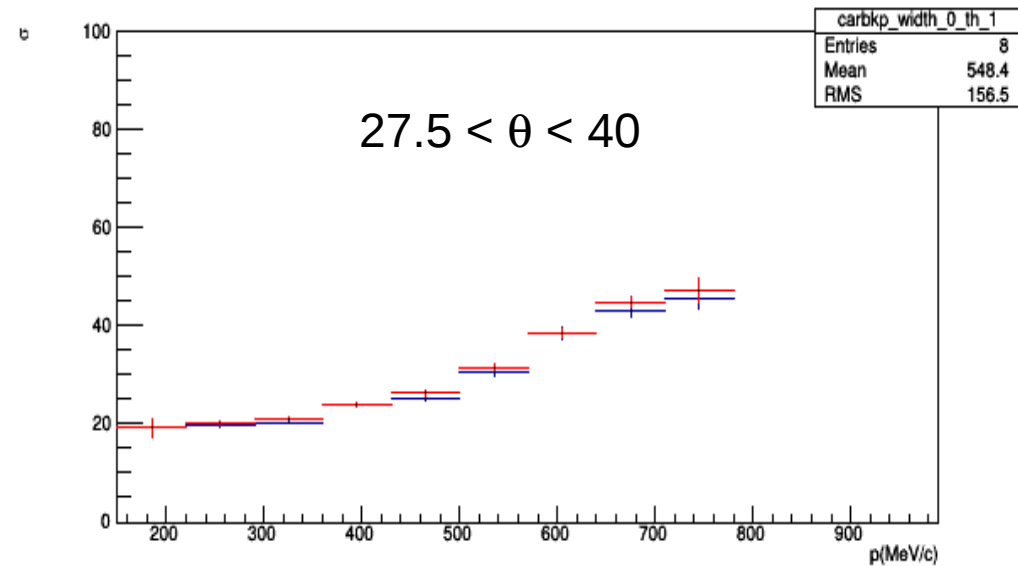
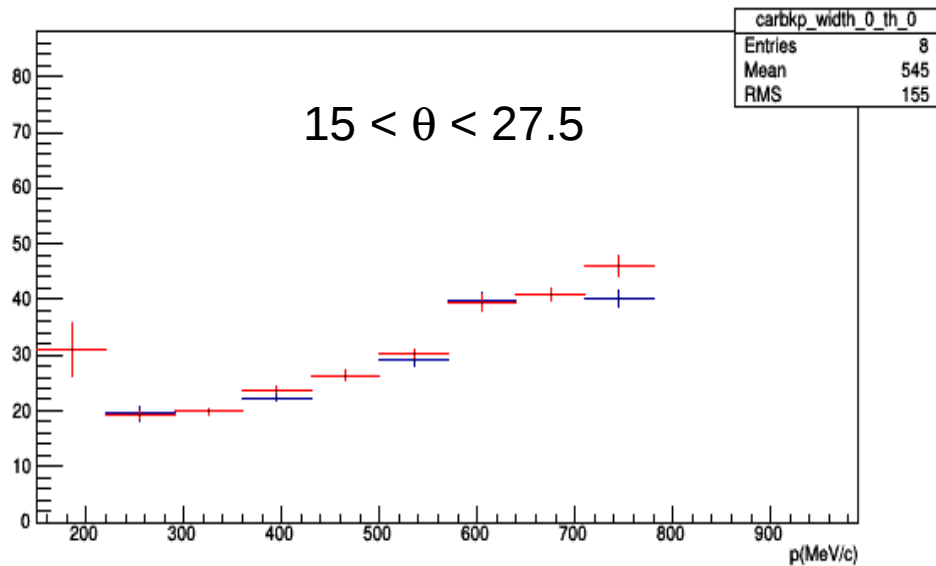
With cor  
No cor



# Mass vs P in Wolfram TOF (fits)

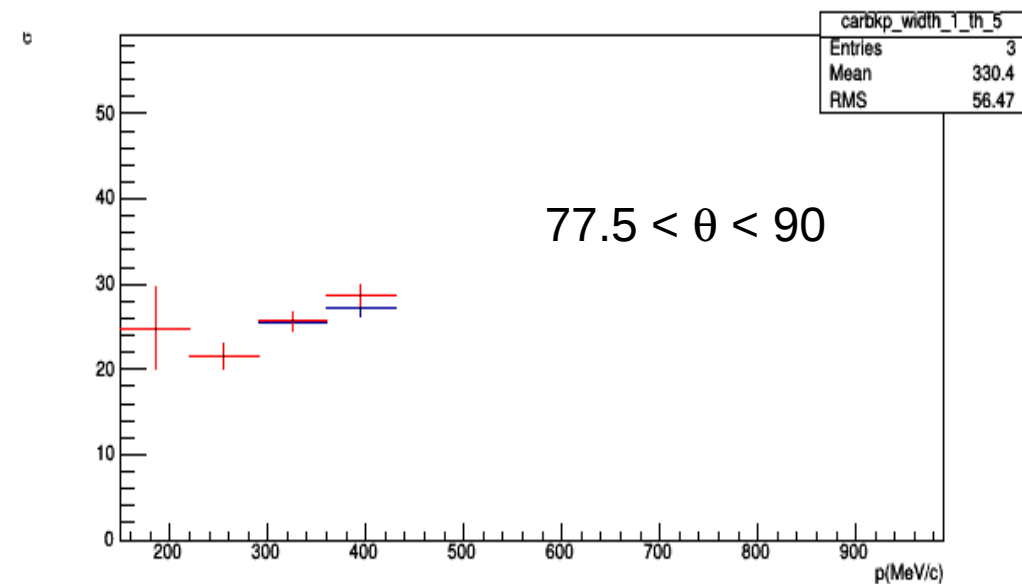
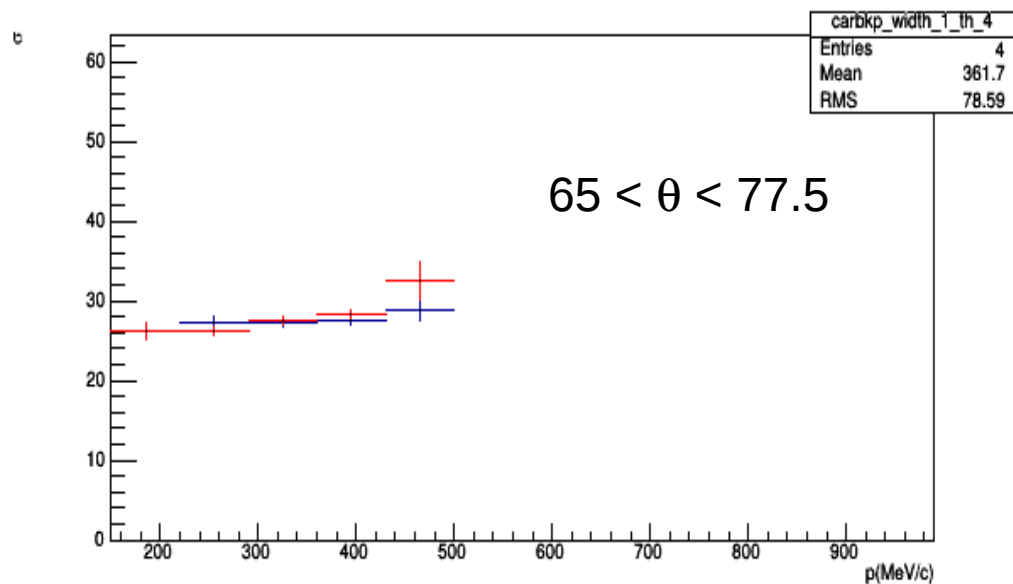
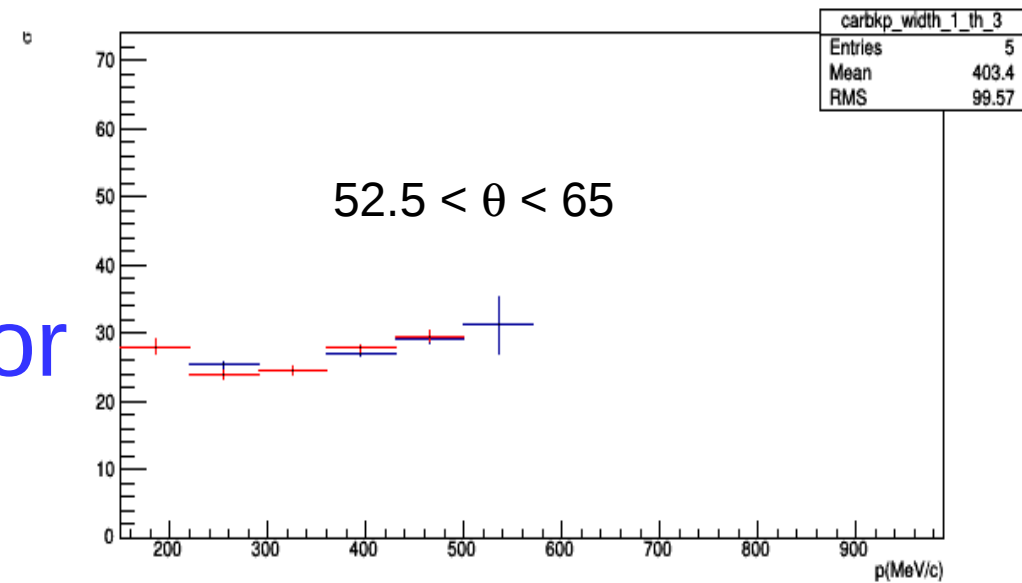
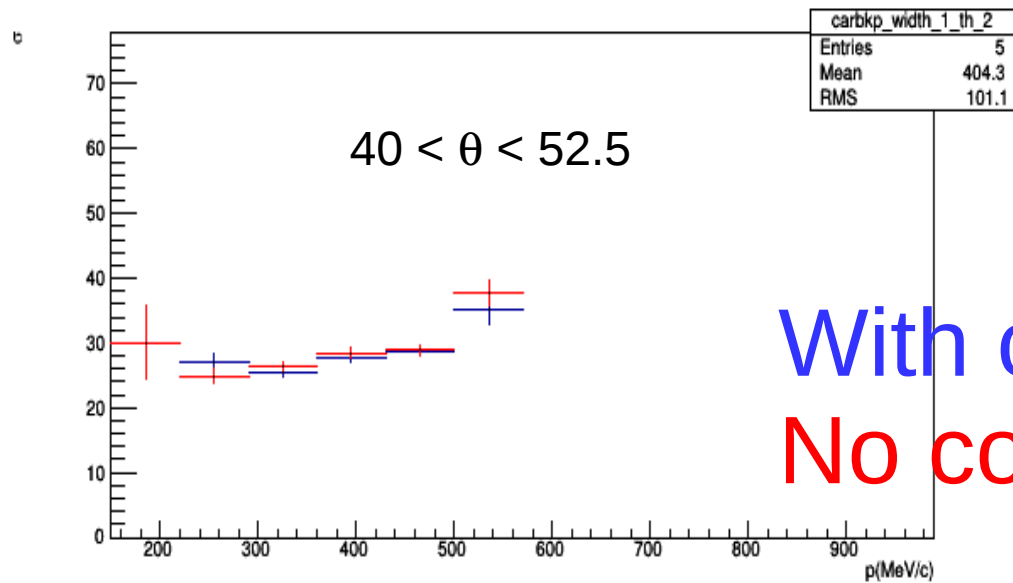


# Sigma vs P in Carbon RPC (fits)

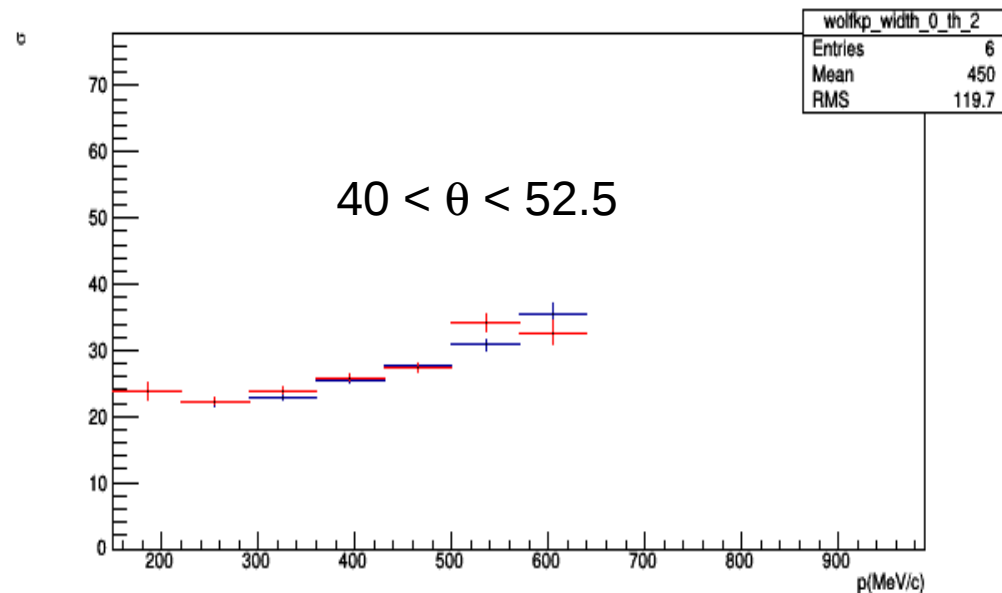
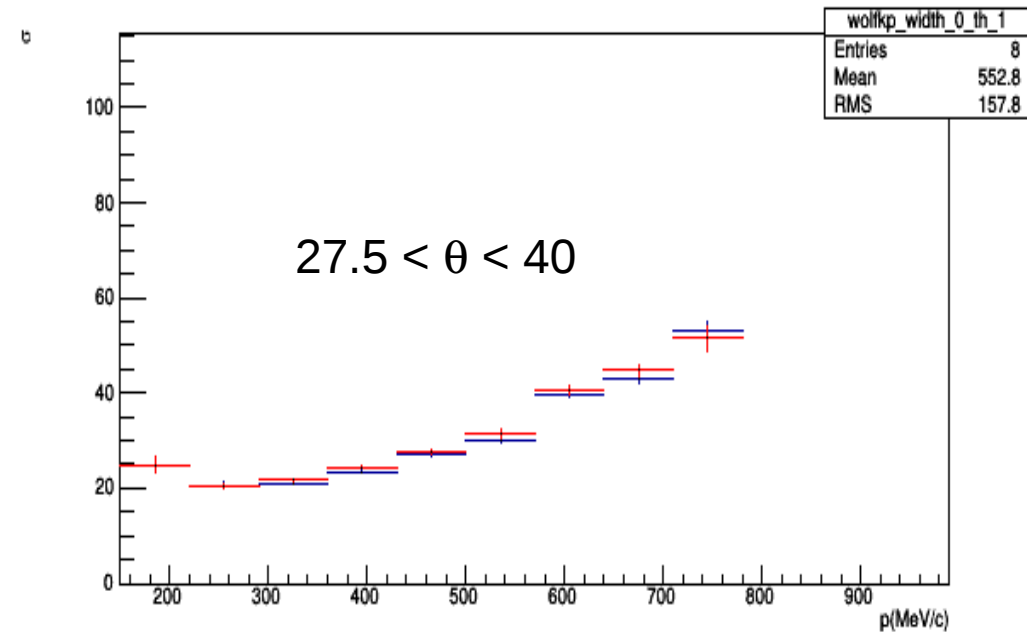
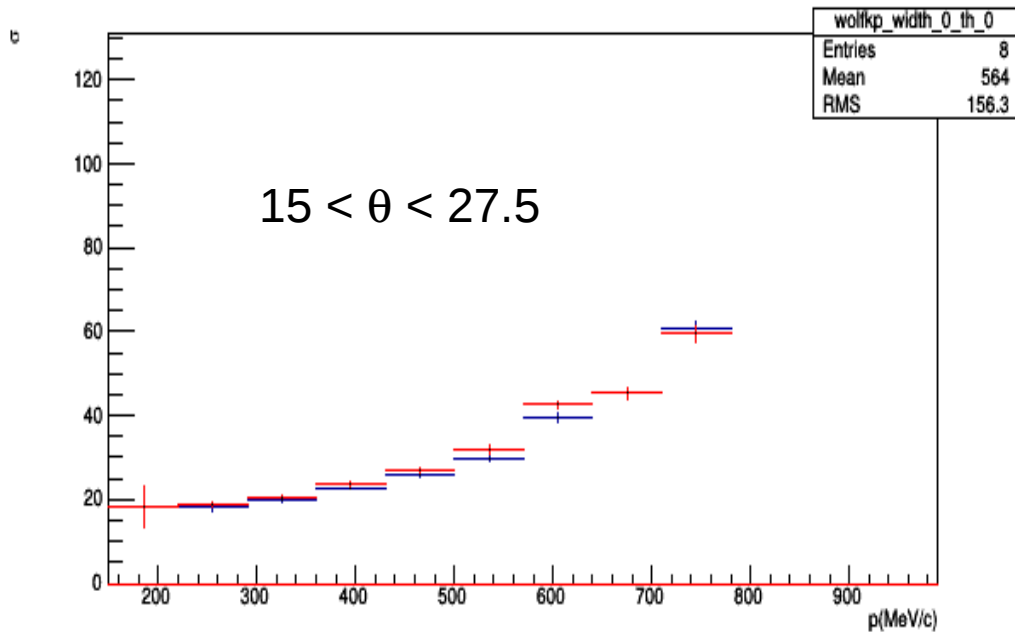


With cor  
No cor

# Sigma vs P in Carbon TOF (fits)

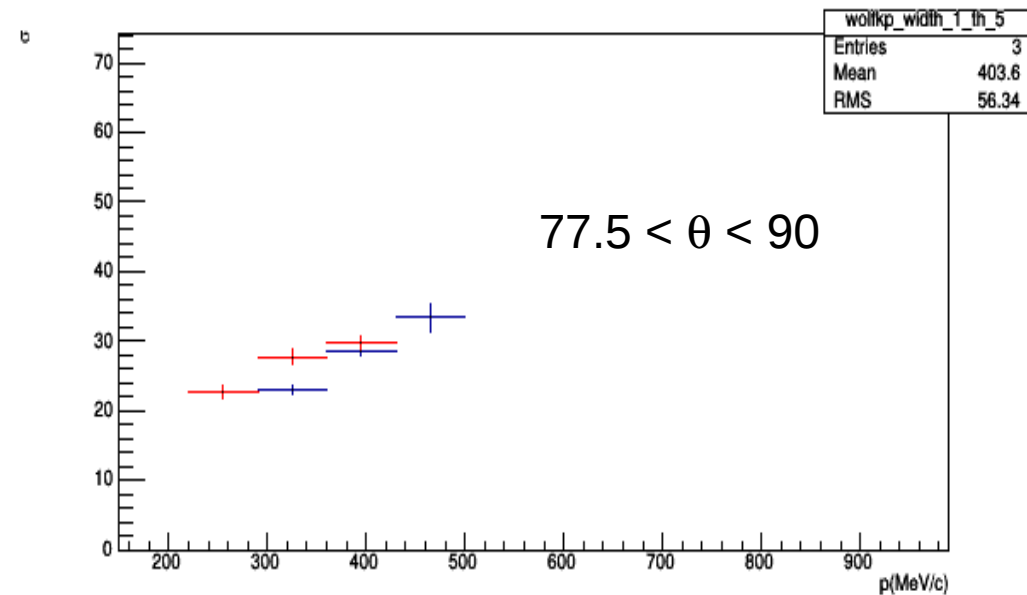
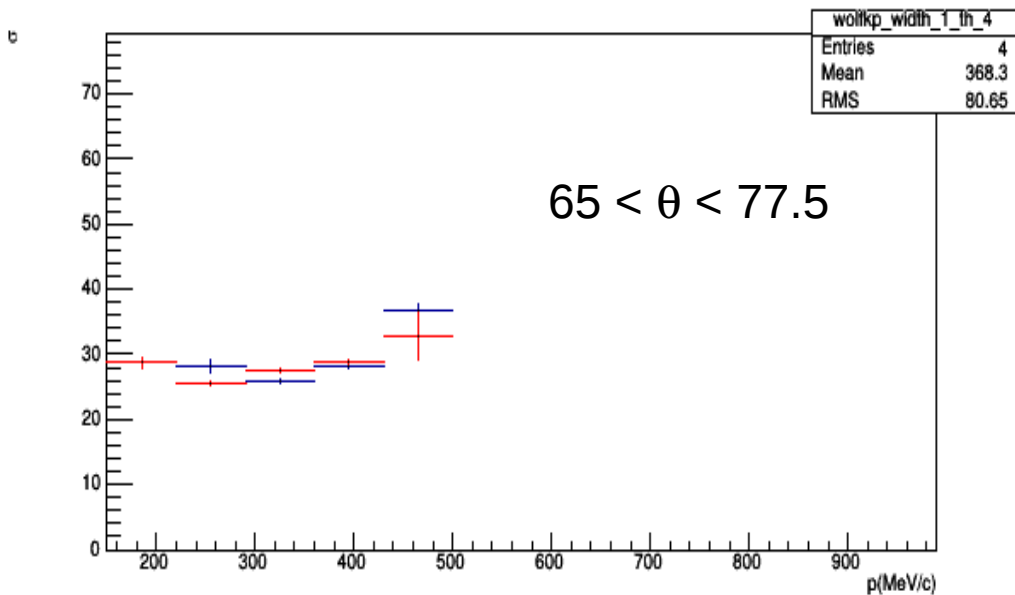
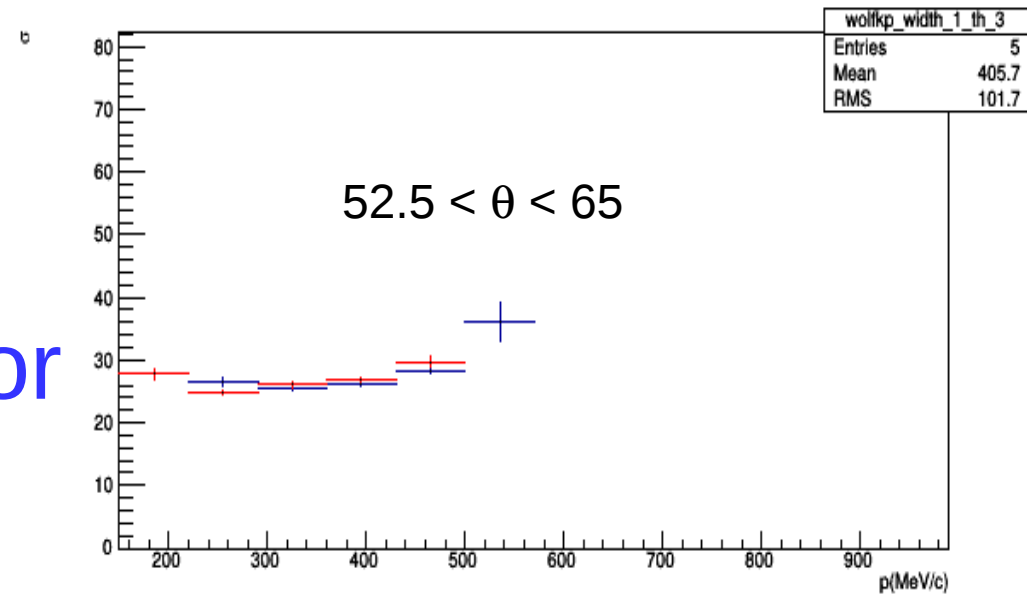
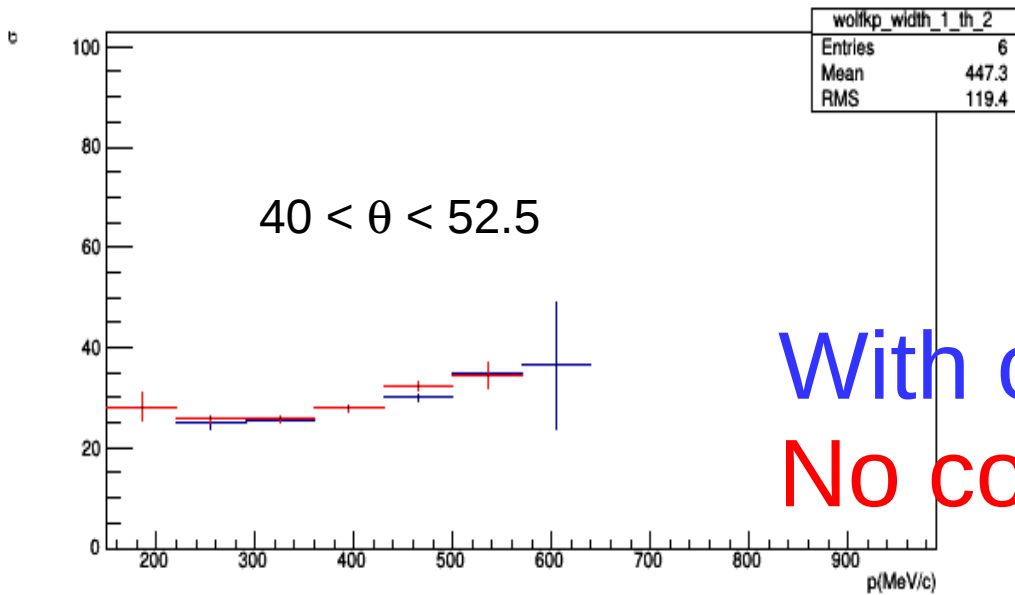


# Sigma vs P in Wolfram RPC (fits)



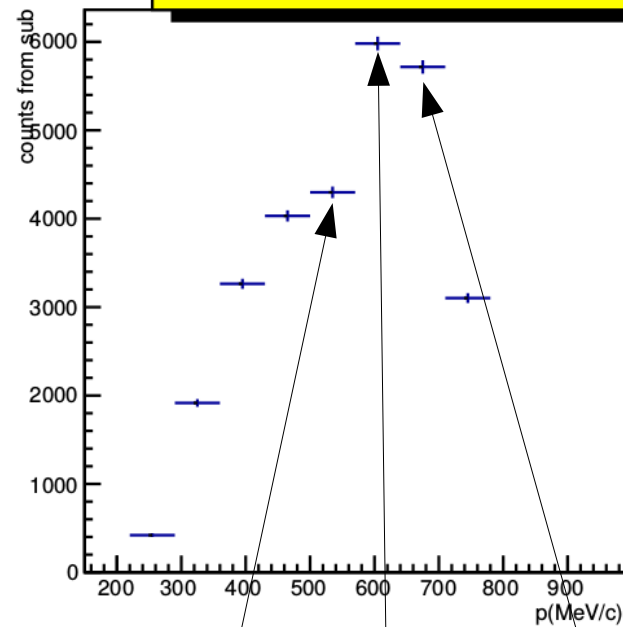
With cor  
No cor

# Sigma vs P in Wolfram TOF (fits)

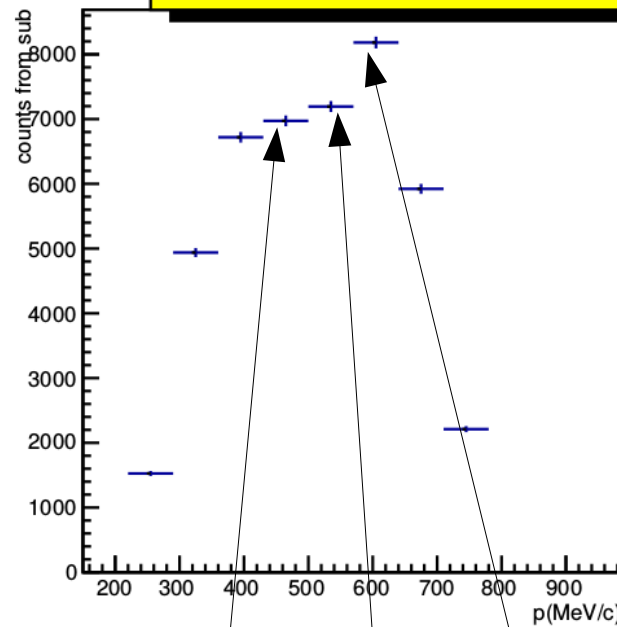


# Mass vs P in Carbon RPC (cor)

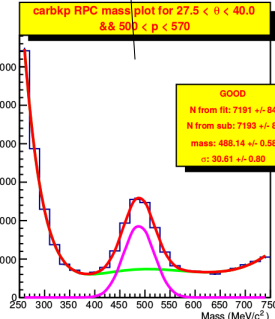
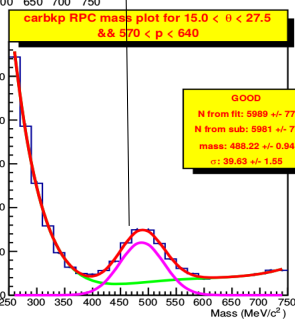
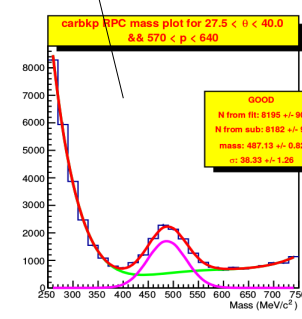
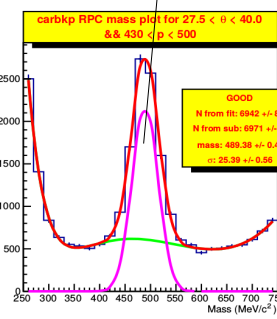
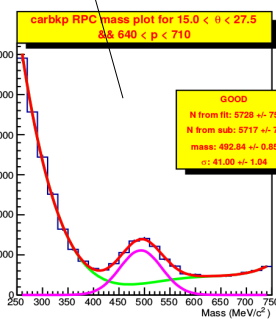
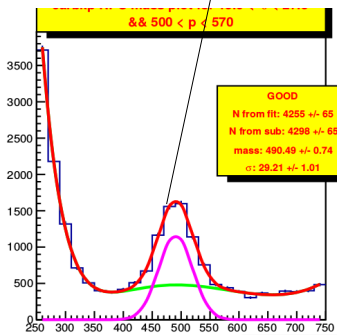
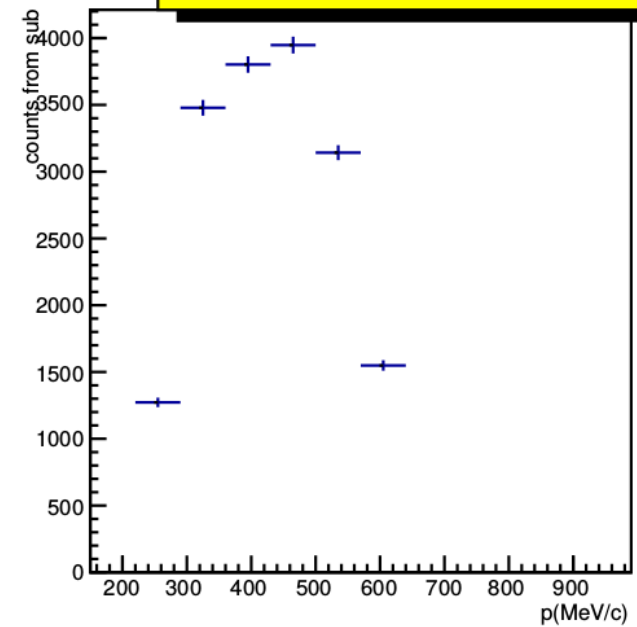
Results for  $15.0 < \theta < 27.5$



Results for  $27.5 < \theta < 40.0$

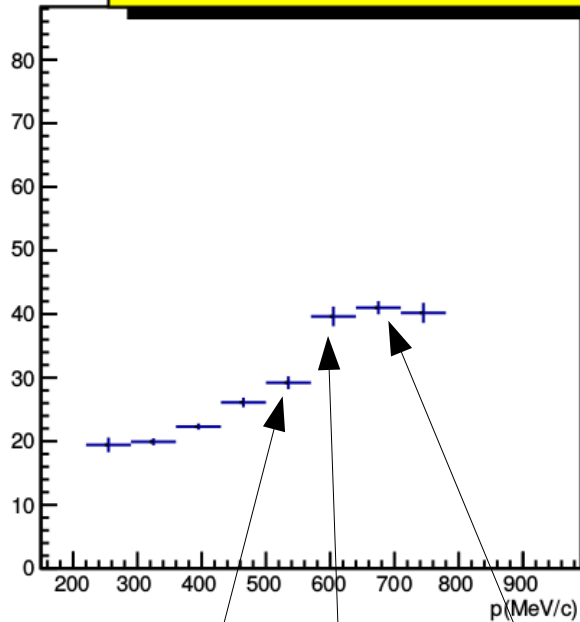


Results for  $40.0 < \theta < 52.5$

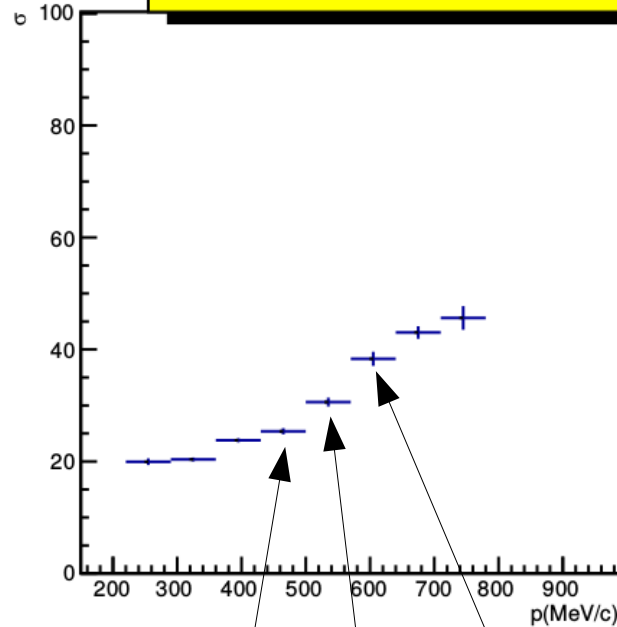


# Sigma vs P in Carbon RPC (cor)

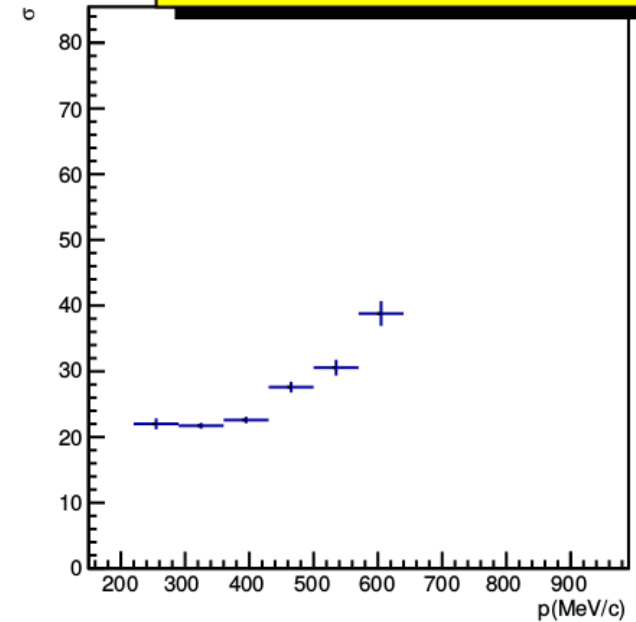
Results for  $15.0 < \theta < 27.5$



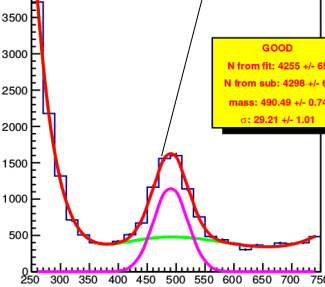
Results for  $27.5 < \theta < 40.0$



Results for  $40.0 < \theta < 52.5$

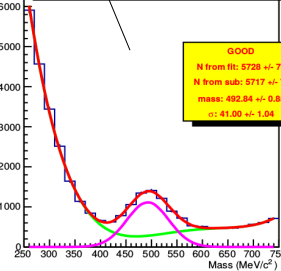


carbkp RPC mass plot for  $15.0 < \theta < 27.5$   
&&  $500 < p < 570$



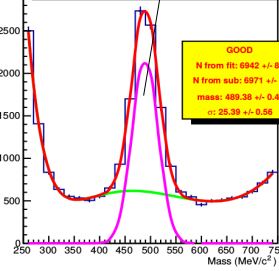
GOOD  
N from fit: 4255  $\pm$  65  
N from sub: 4298  $\pm$  65  
mass: 490.49  $\pm$  0.74  
 $\sigma$ : 29.21  $\pm$  1.01

carbkp RPC mass plot for  $15.0 < \theta < 27.5$   
&&  $640 < p < 710$



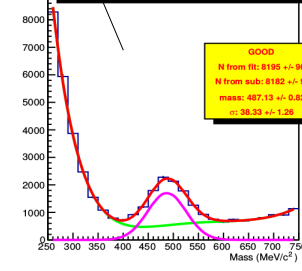
GOOD  
N from fit: 5728  $\pm$  75  
N from sub: 5717  $\pm$  76  
mass: 482.84  $\pm$  0.85  
 $\sigma$ : 41.00  $\pm$  1.04

carbkp RPC mass plot for  $27.5 < \theta < 40.0$   
&&  $430 < p < 500$



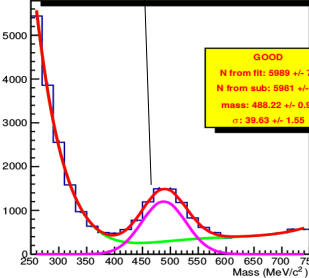
GOOD  
N from fit: 6842  $\pm$  83  
N from sub: 6971  $\pm$  83  
mass: 489.38  $\pm$  0.44  
 $\sigma$ : 25.39  $\pm$  0.56

carbkp RPC mass plot for  $27.5 < \theta < 40.0$   
&&  $570 < p < 640$



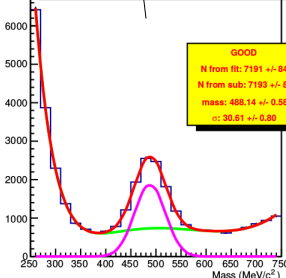
GOOD  
N from fit: 8195  $\pm$  90  
N from sub: 8182  $\pm$  90  
mass: 487.13  $\pm$  0.82  
 $\sigma$ : 38.33  $\pm$  1.26

carbkp RPC mass plot for  $15.0 < \theta < 27.5$   
&&  $470 < p < 640$



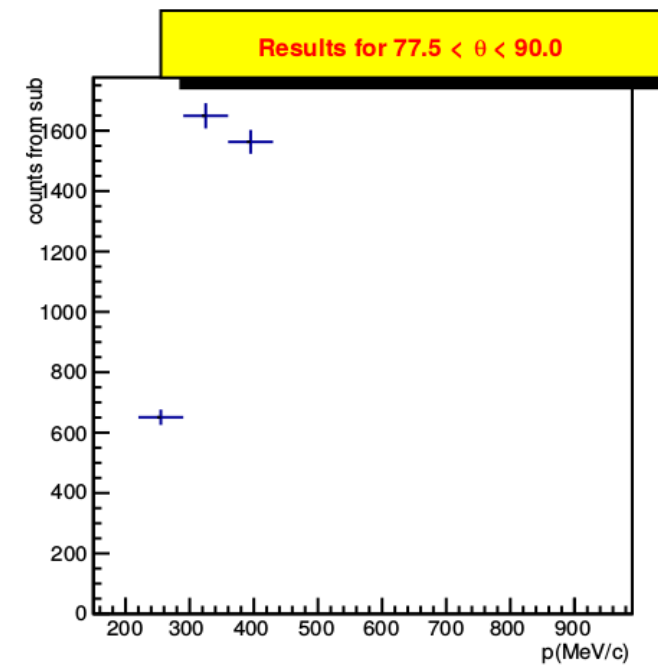
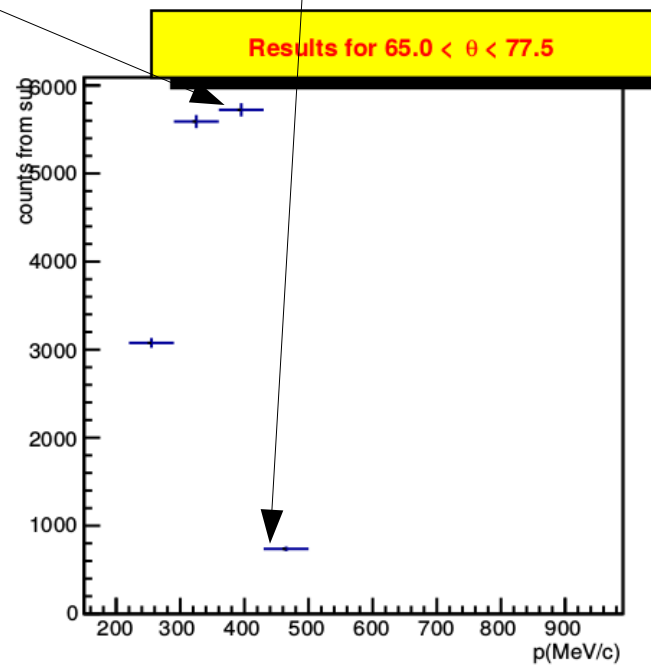
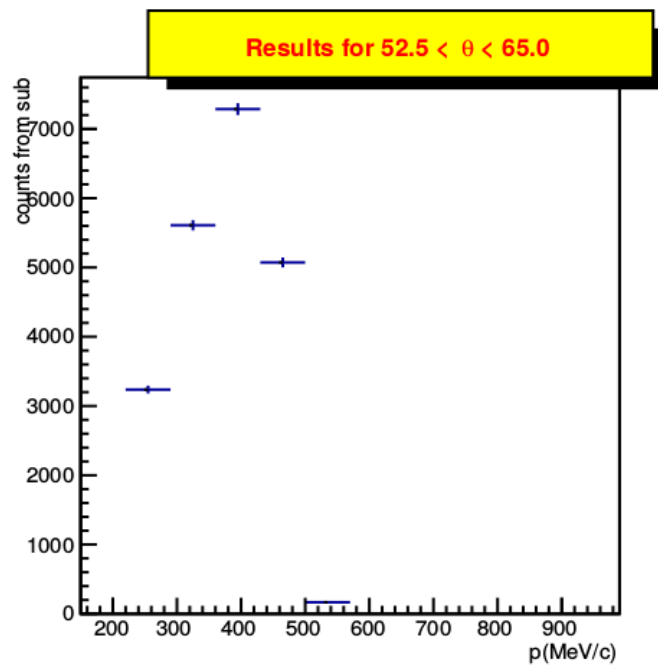
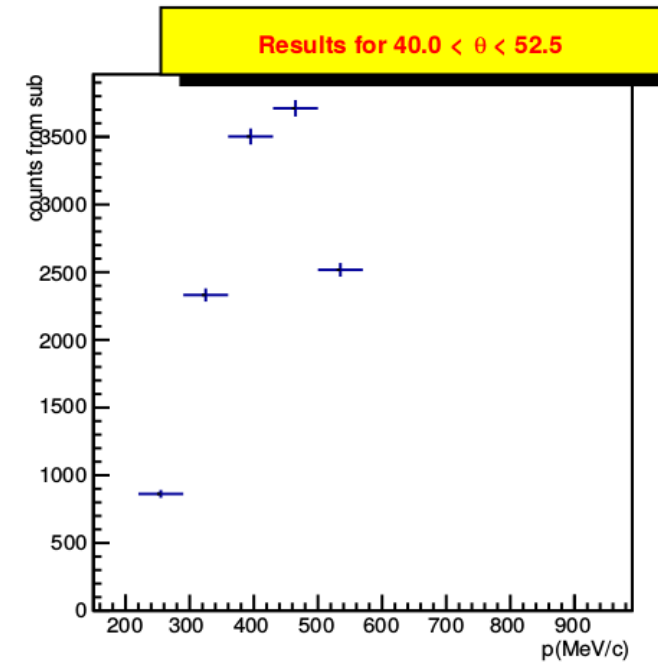
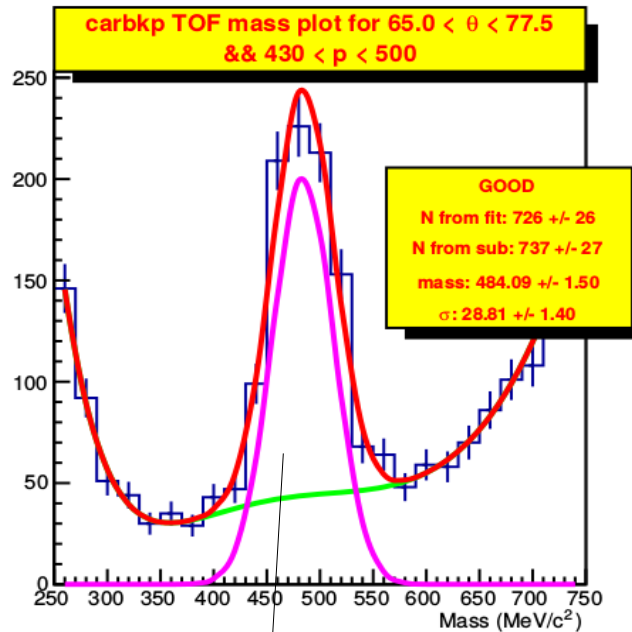
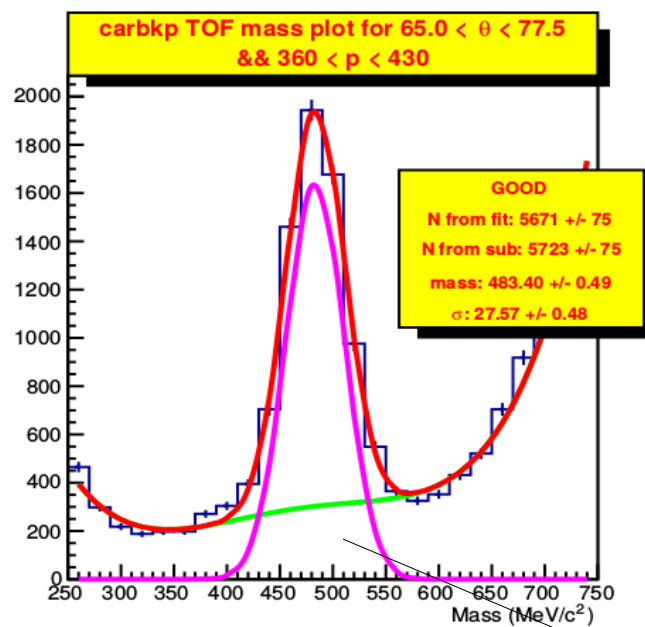
GOOD  
N from fit: 5989  $\pm$  77  
N from sub: 5981  $\pm$  77  
mass: 488.22  $\pm$  0.94  
 $\sigma$ : 39.63  $\pm$  1.55

carbkp RPC mass plot for  $27.5 < \theta < 40.0$   
&&  $500 < p < 570$



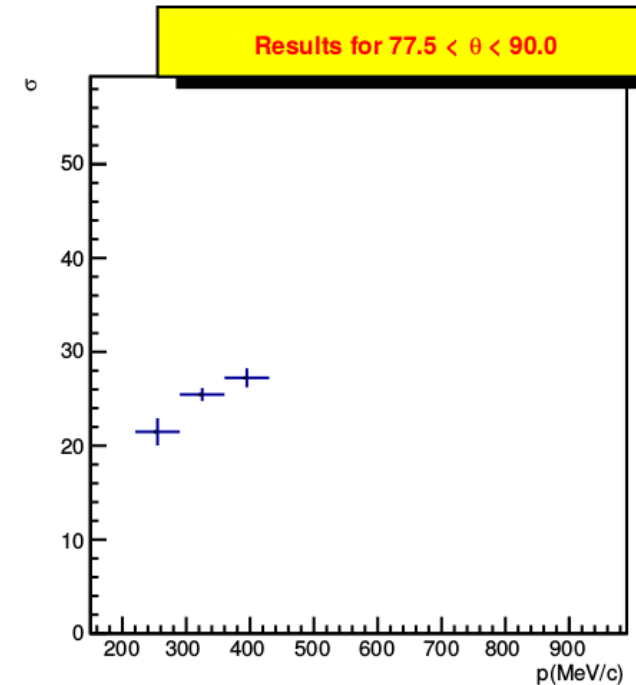
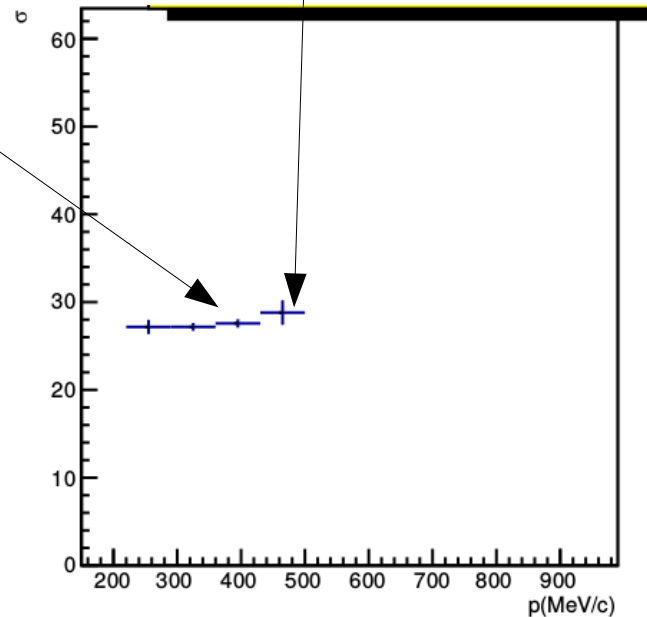
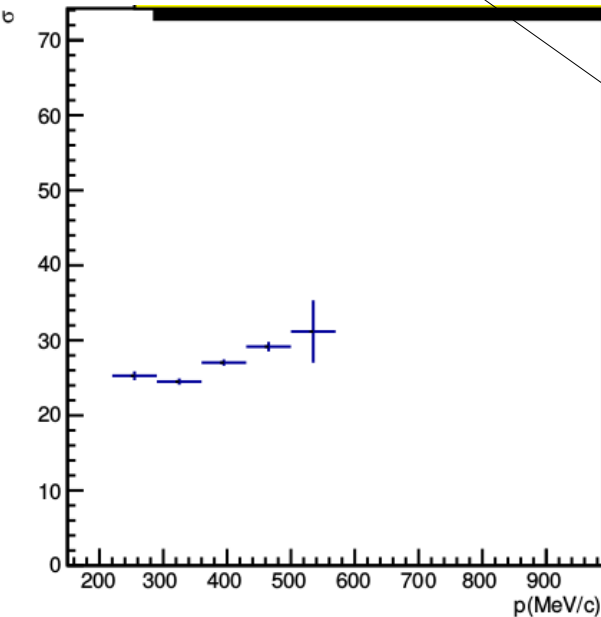
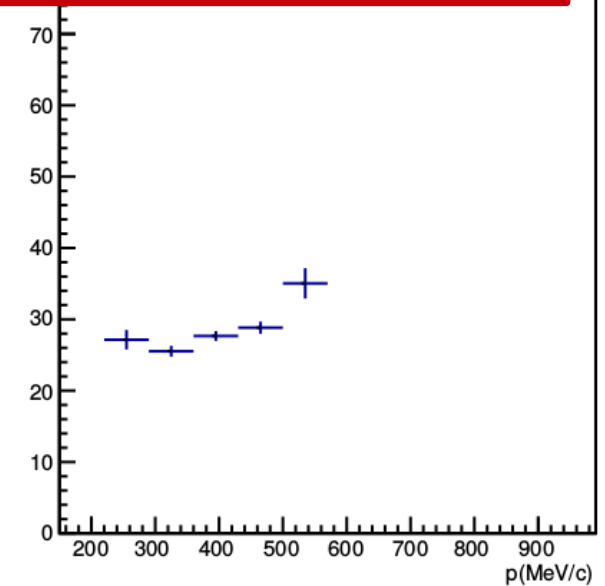
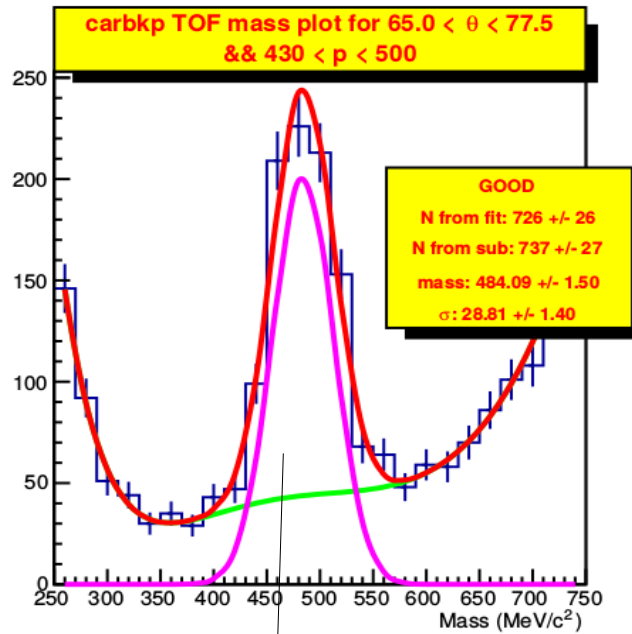
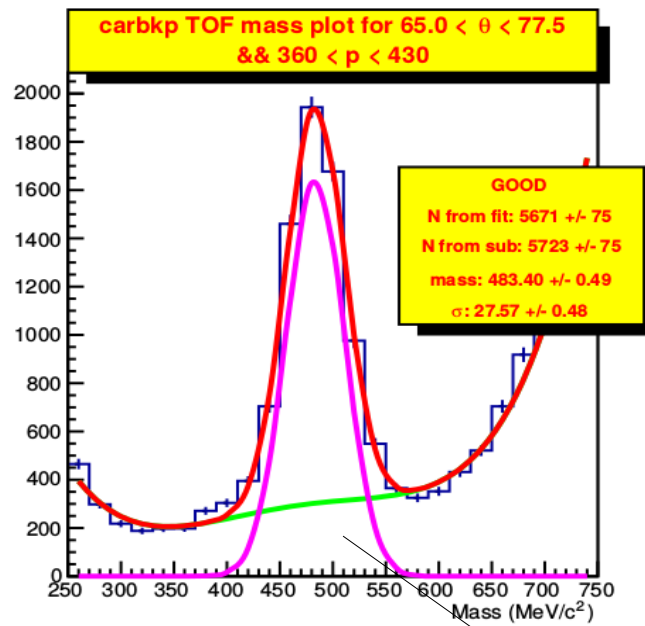
GOOD  
N from fit: 7191  $\pm$  84  
N from sub: 7193  $\pm$  84  
mass: 488.14  $\pm$  0.58  
 $\sigma$ : 35.81  $\pm$  0.80

# Mass vs P in Carbon TOF (cor)



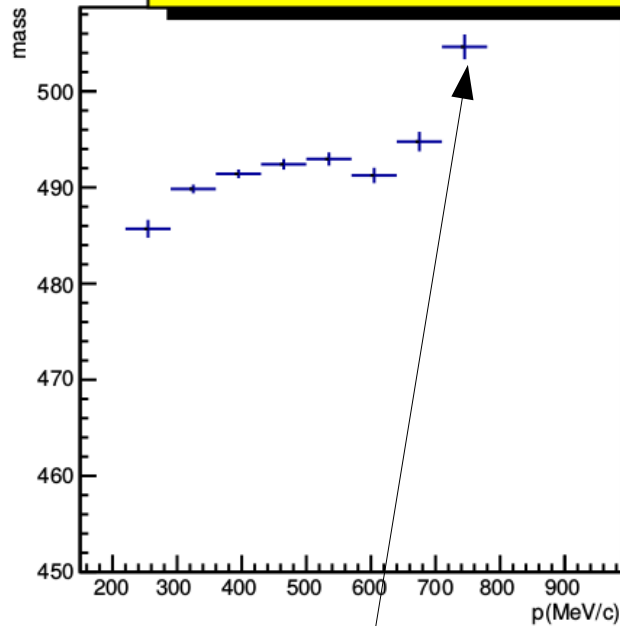


# Sigma vs P in Carbon TOF (cor)

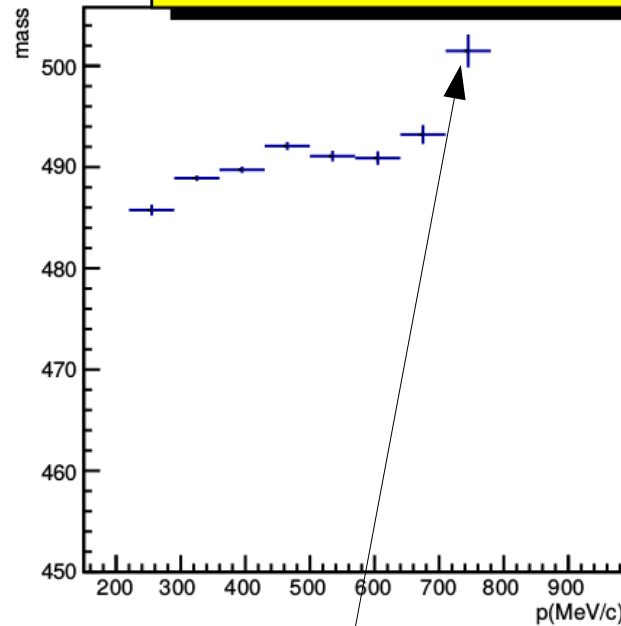


# Mass vs P in Wolfram RPC (cor)

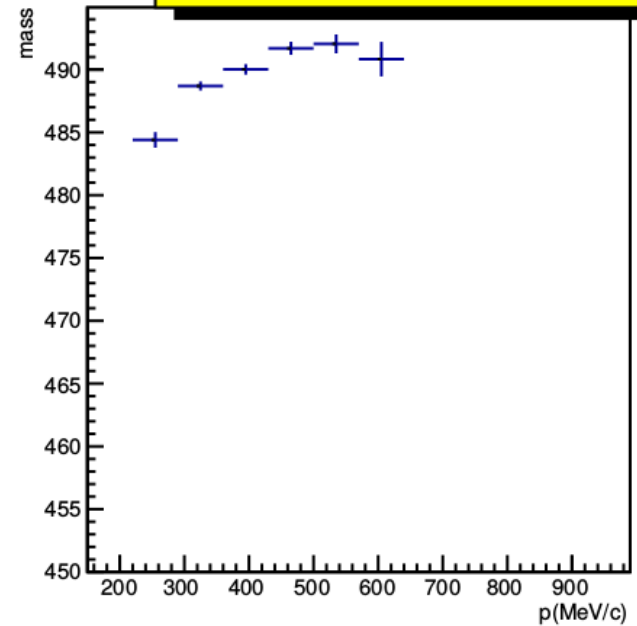
Results for  $15.0 < \theta < 27.5$



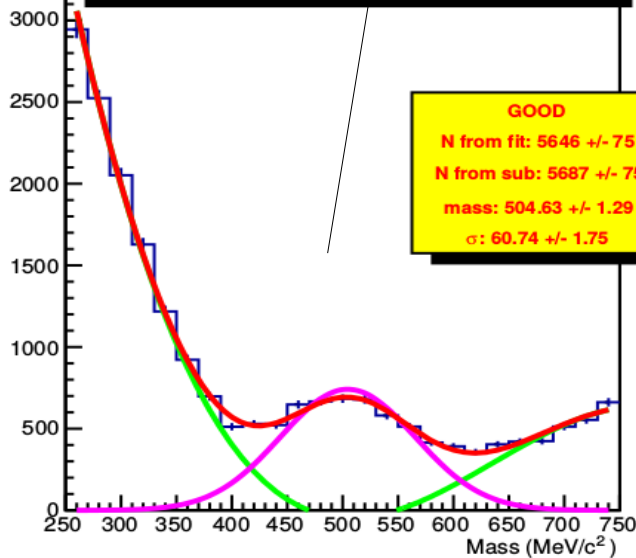
Results for  $27.5 < \theta < 40.0$



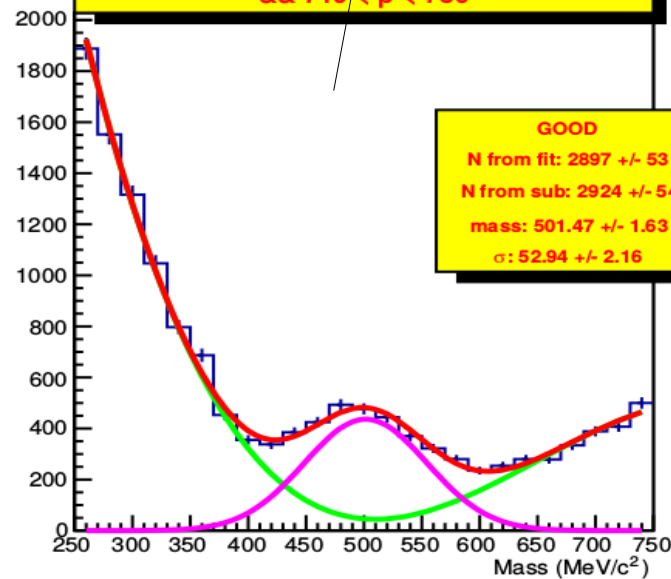
Results for  $40.0 < \theta < 52.5$



wolfkp RPC mass plot for  $15.0 < \theta < 27.5$   
&  $710 < p < 780$

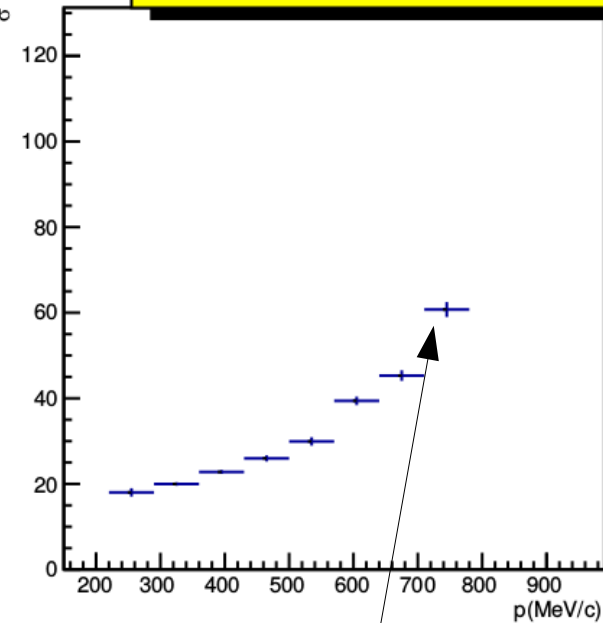


wolfkp RPC mass plot for  $27.5 < \theta < 40.0$   
&  $710 < p < 780$

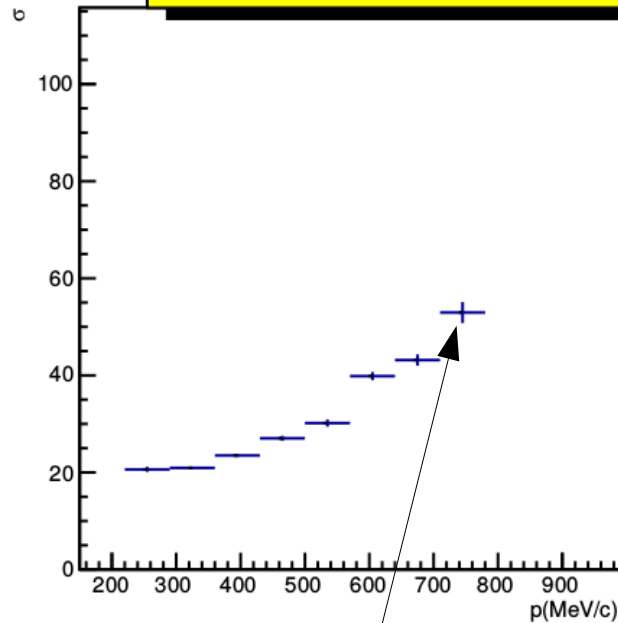


# Sigma vs P in Wolfram RPC (cor)

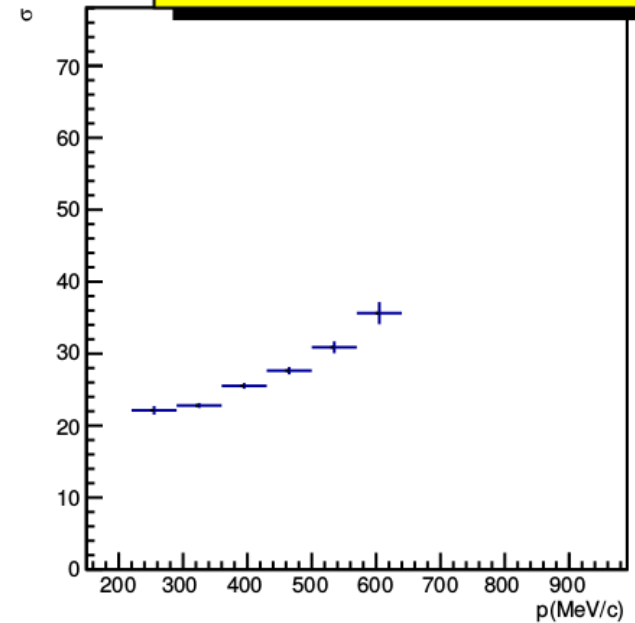
Results for  $15.0 < \theta < 27.5$



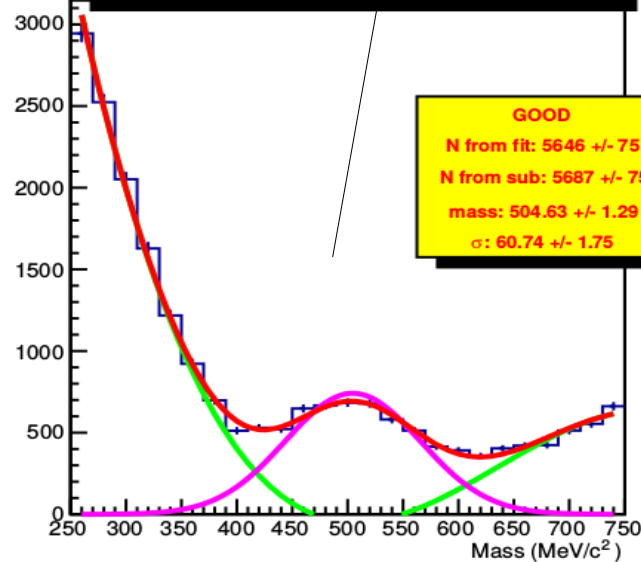
Results for  $27.5 < \theta < 40.0$



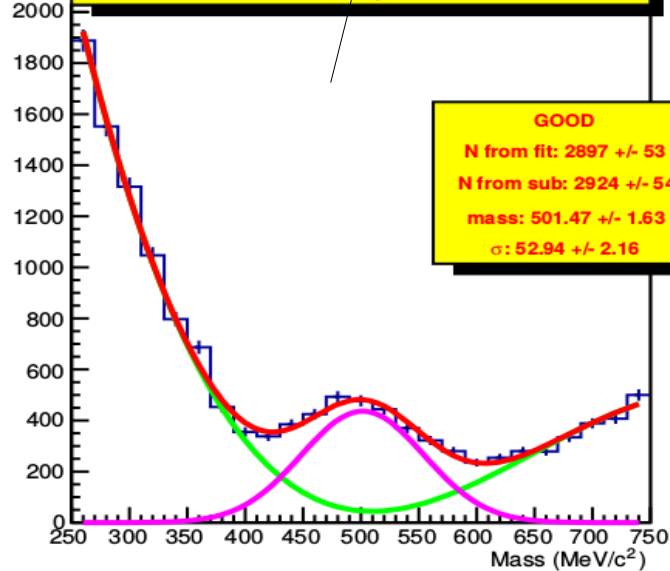
Results for  $40.0 < \theta < 52.5$



wolfkp RPC mass plot for  $15.0 < \theta < 27.5$   
&&  $710 < p < 780$

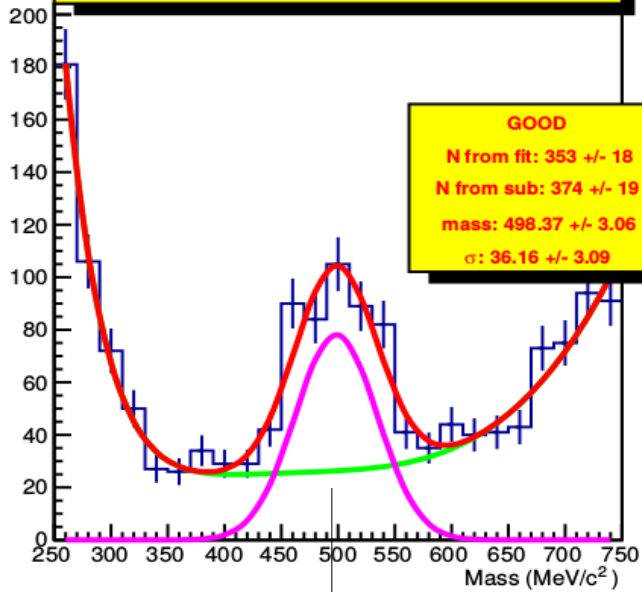


wolfkp RPC mass plot for  $27.5 < \theta < 40.0$   
&&  $710 < p < 780$

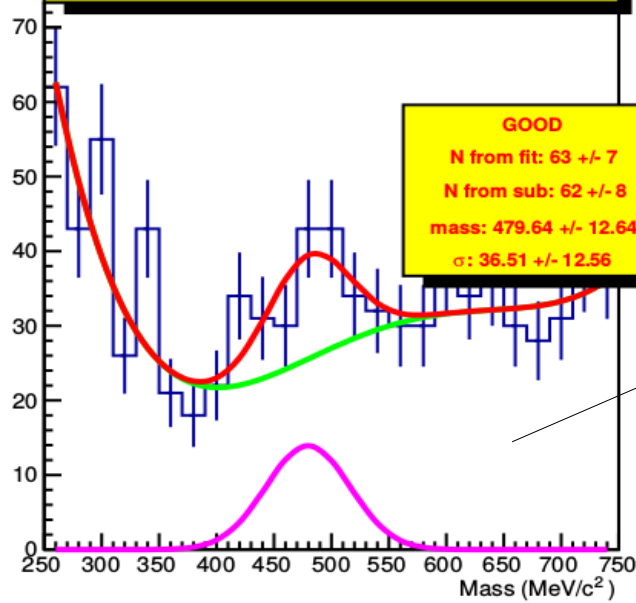


# Mass vs P in Wolfram TOF (cor)

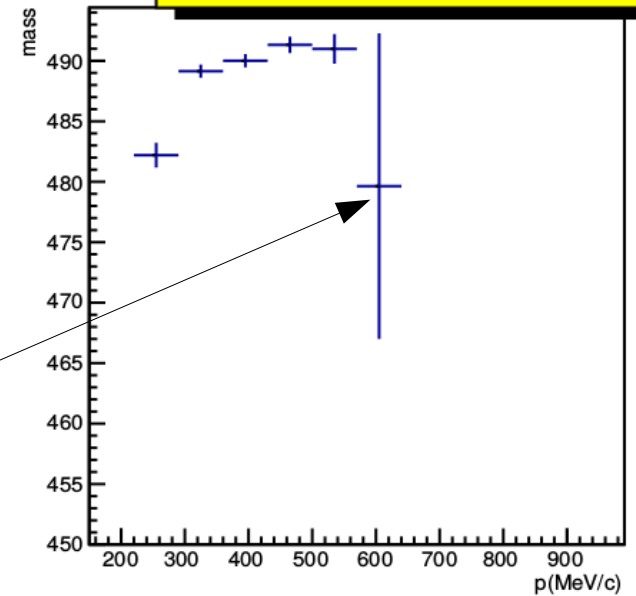
wolfkp TOF mass plot for  $52.5 < \theta < 65.0$   
&&  $500 < p < 570$



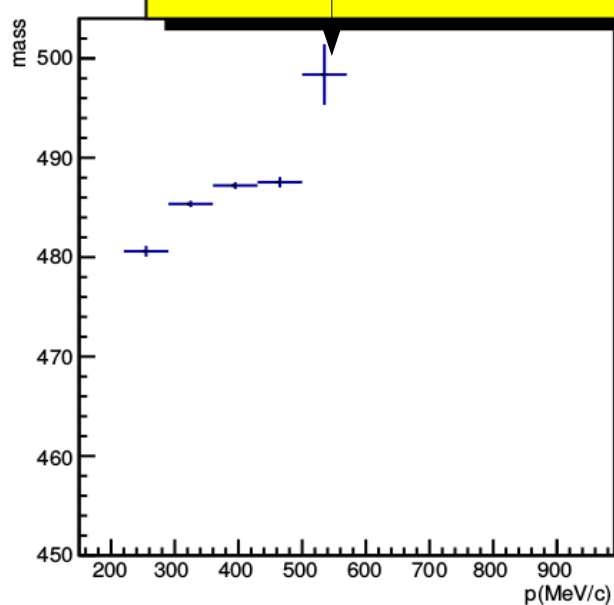
wolfkp TOF mass plot for  $40.0 < \theta < 52.5$   
&&  $570 < p < 640$



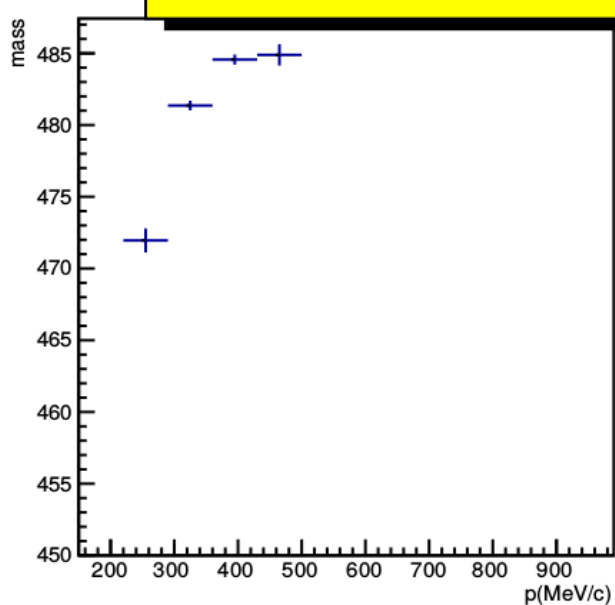
Results for  $40.0 < \theta < 52.5$



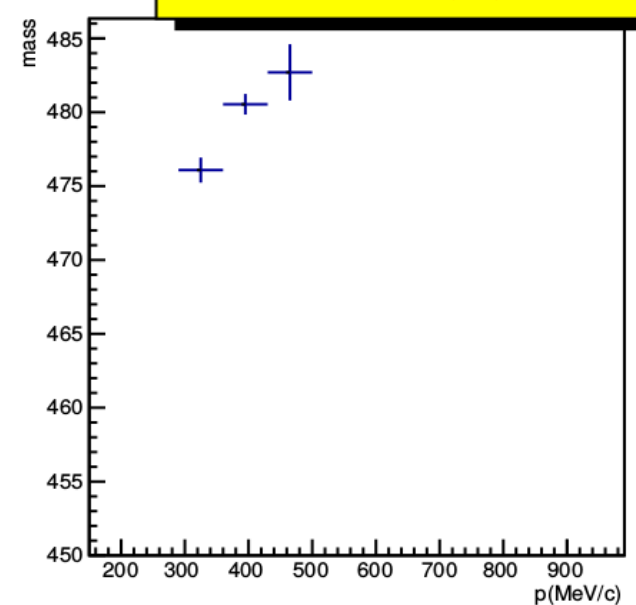
Results for  $52.5 < \theta < 65.0$



Results for  $65.0 < \theta < 77.5$

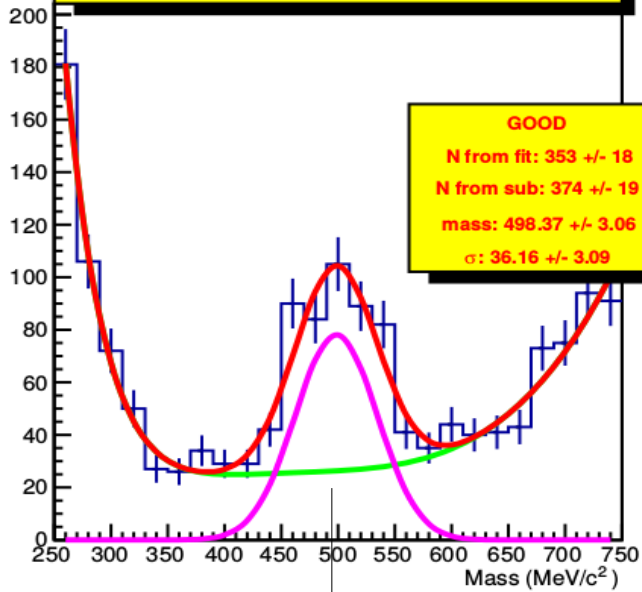


Results for  $77.5 < \theta < 90.0$

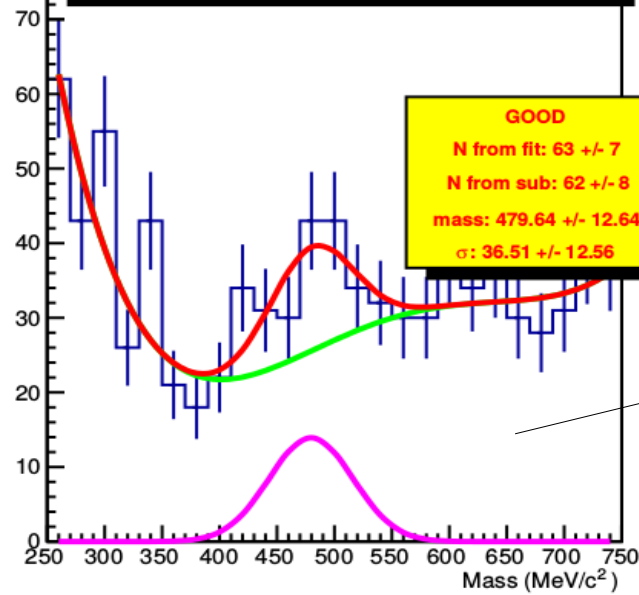


# Sigma vs P in Wolfram TOF (cor)

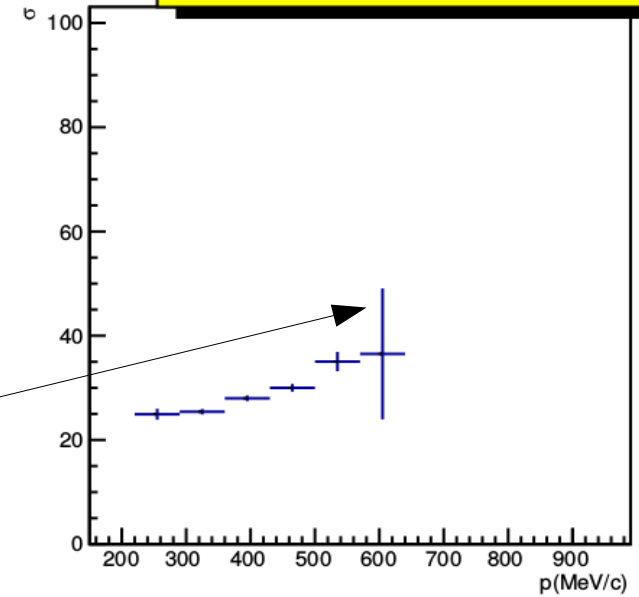
wolfkp TOF mass plot for  $52.5 < \theta < 65.0$   
&&  $500 < p < 570$



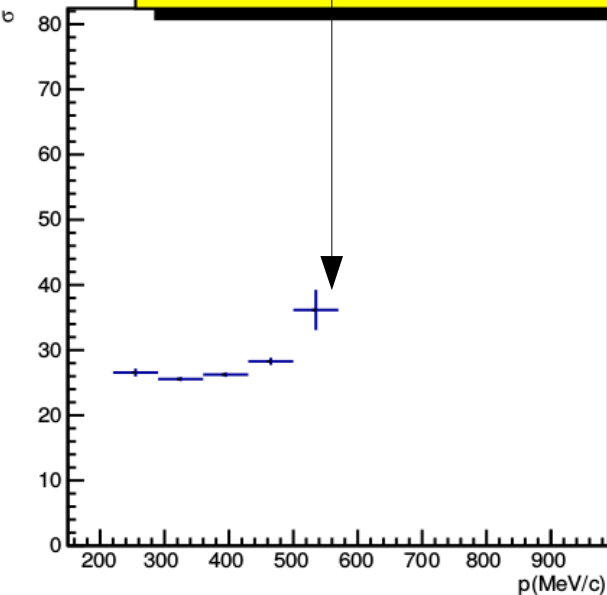
wolfkp TOF mass plot for  $40.0 < \theta < 52.5$   
&&  $570 < p < 640$



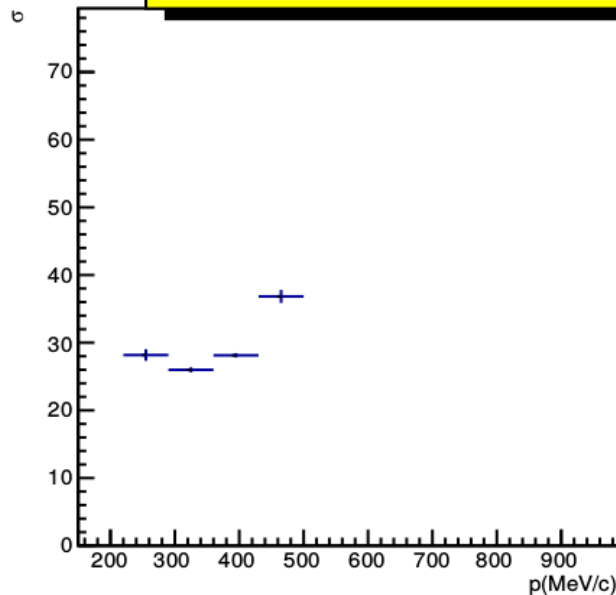
Results for  $40.0 < \theta < 52.5$



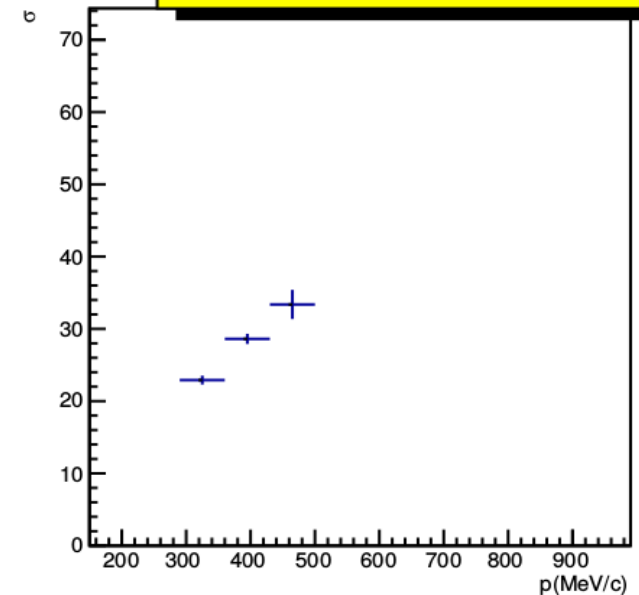
Results for  $52.5 < \theta < 65.0$



Results for  $65.0 < \theta < 77.5$



Results for  $77.5 < \theta < 90.0$



# Conclusions

Eloss + B correction doesn't affect the MvsP trend  
(still present)

Some fits do not look very good due to strange  
Background behaviour

Possible alternative:

- Build K mass histogram from fit (MC)
- Use  $\pi$ , K, p histograms to fit (normalized) the mass spectrum