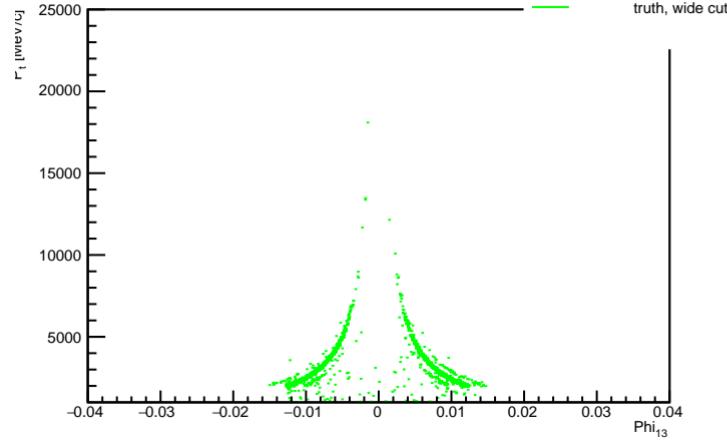
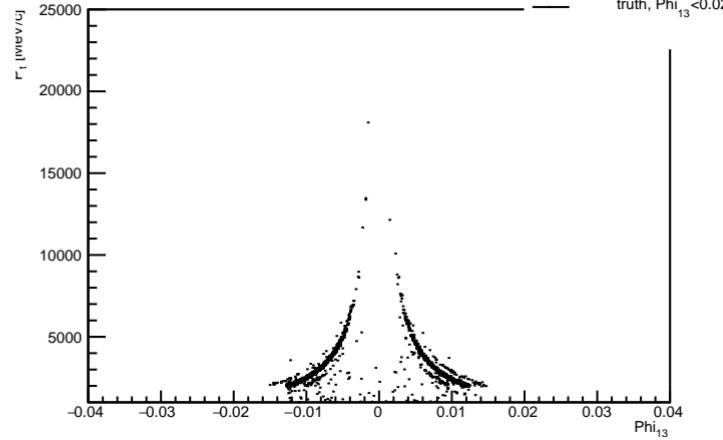


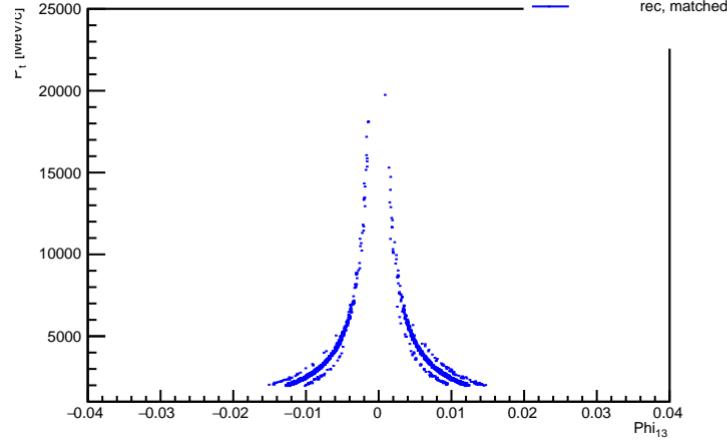
P_t Vs Φ_{13}



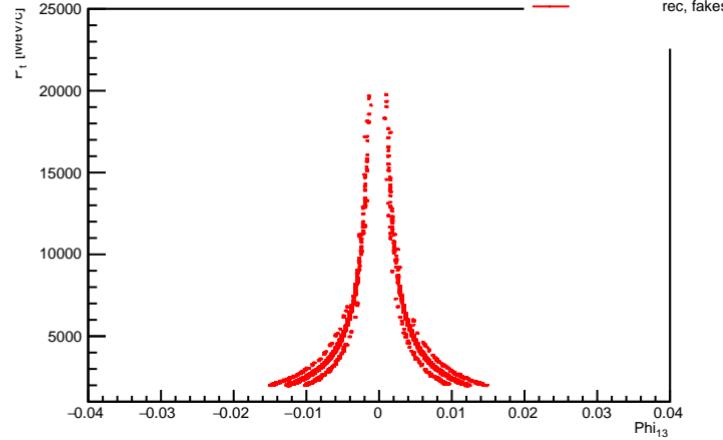
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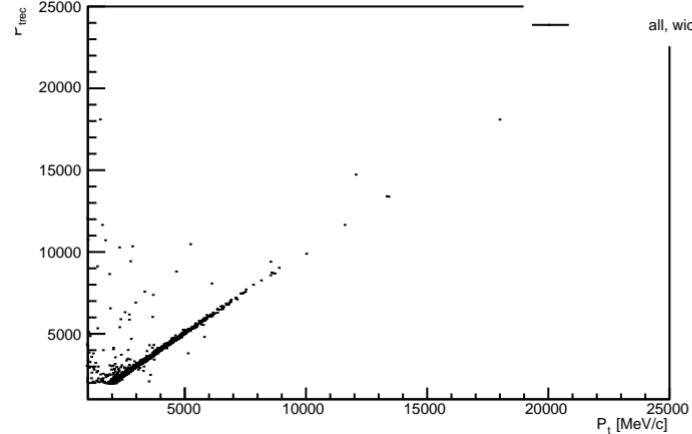
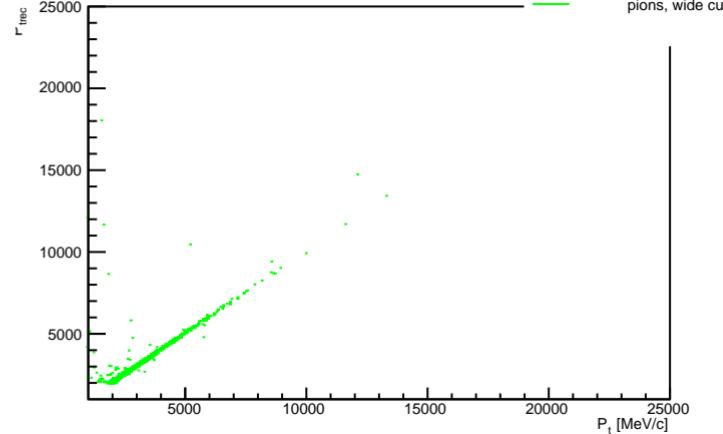
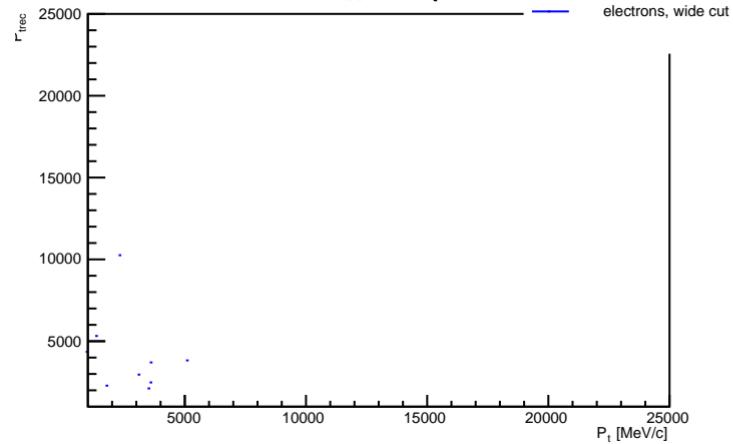
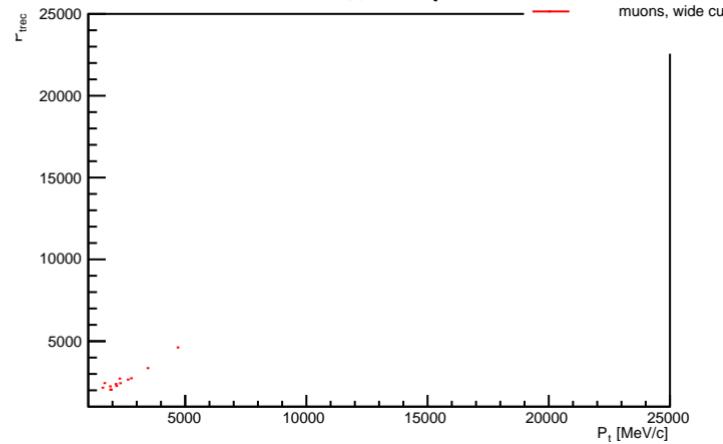


P_t Vs Φ_{13}

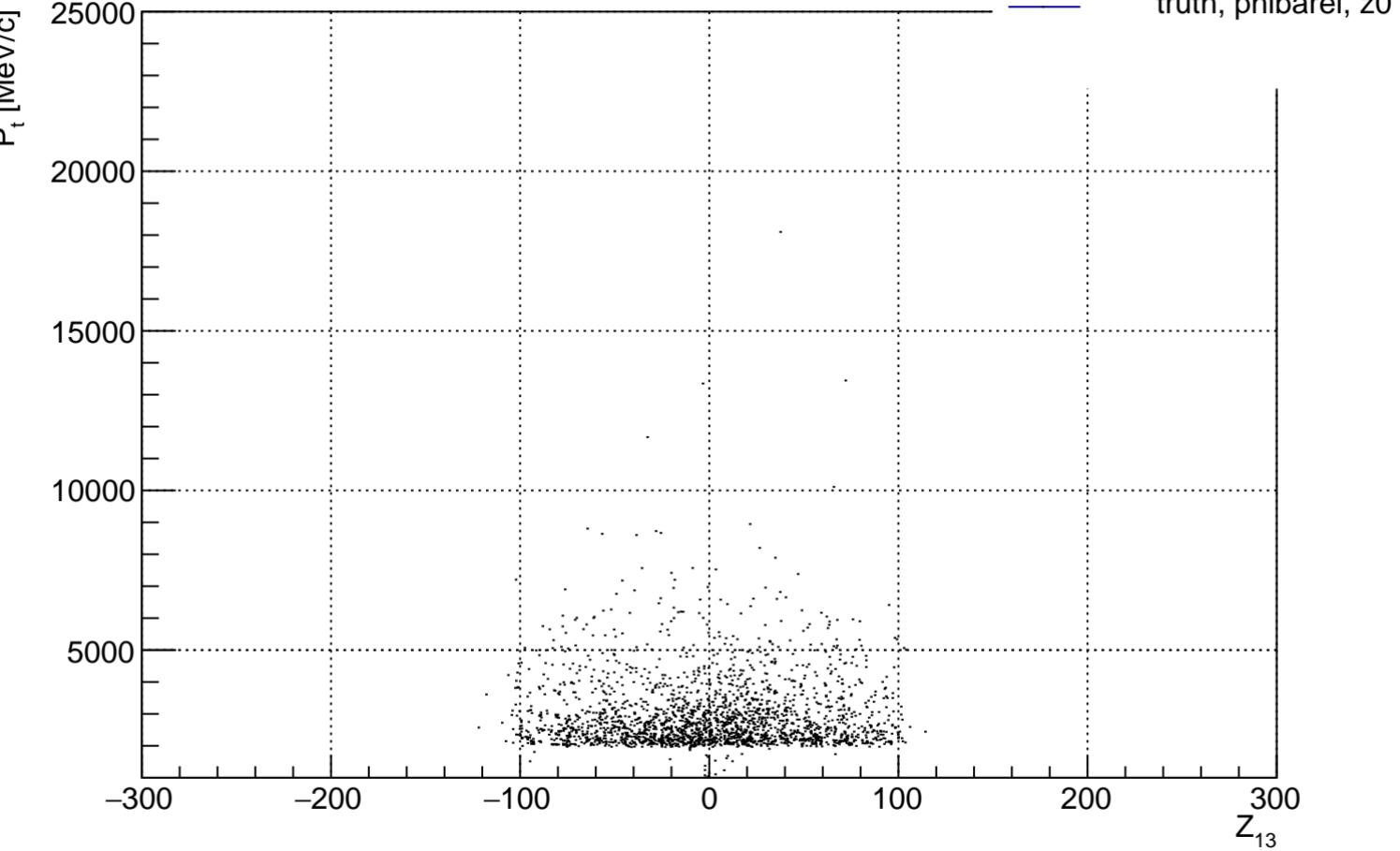


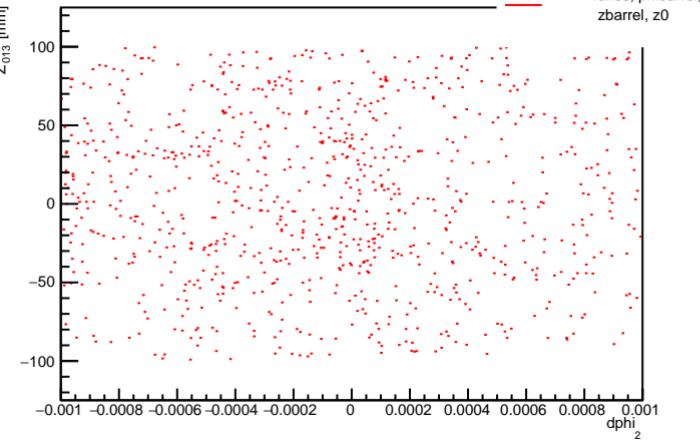
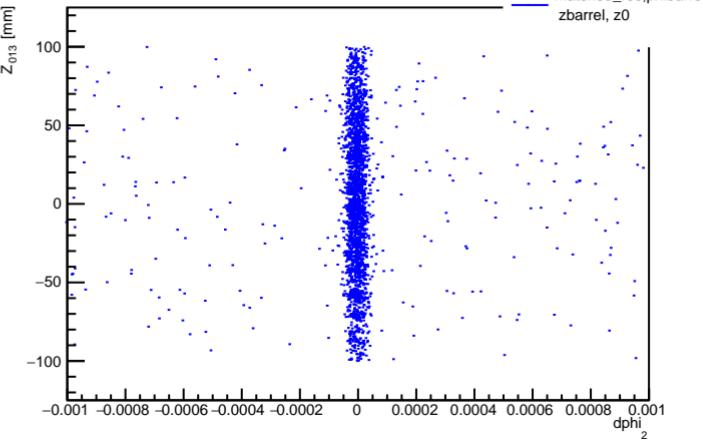
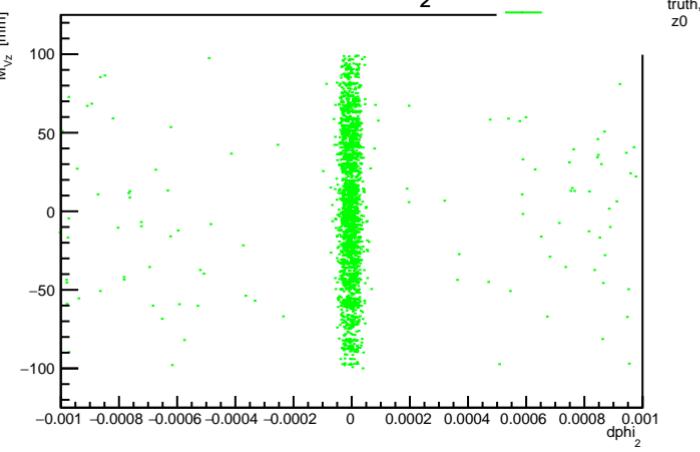
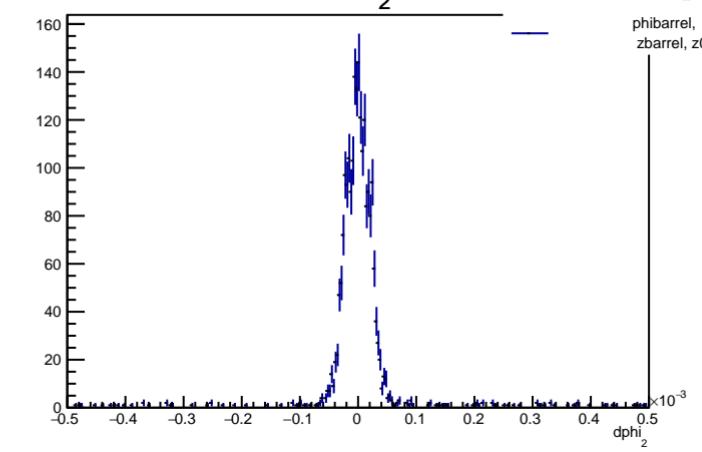
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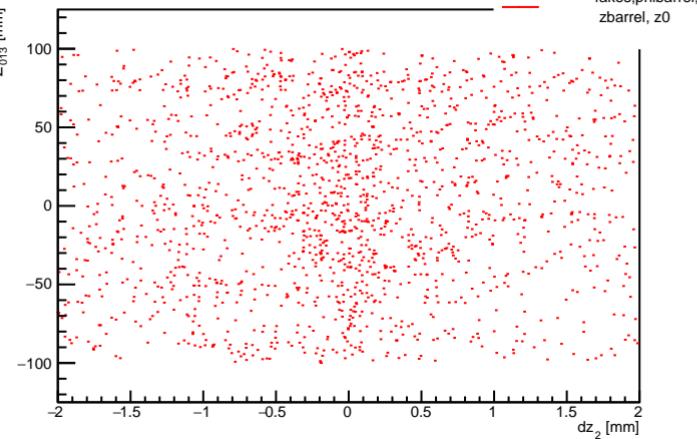
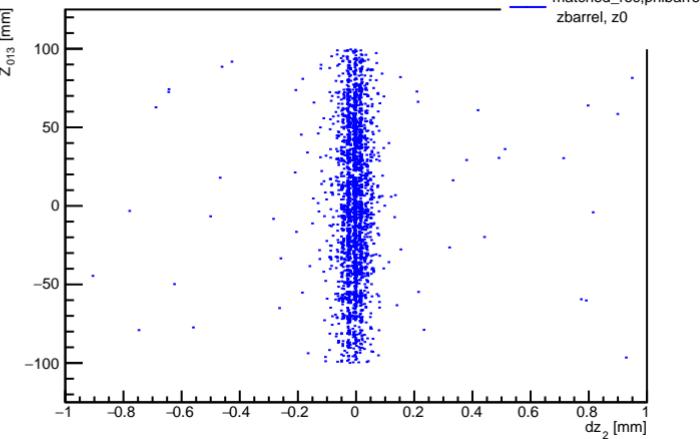
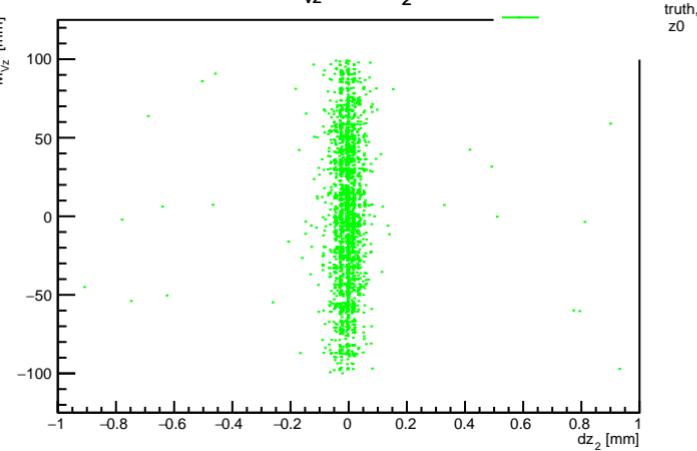
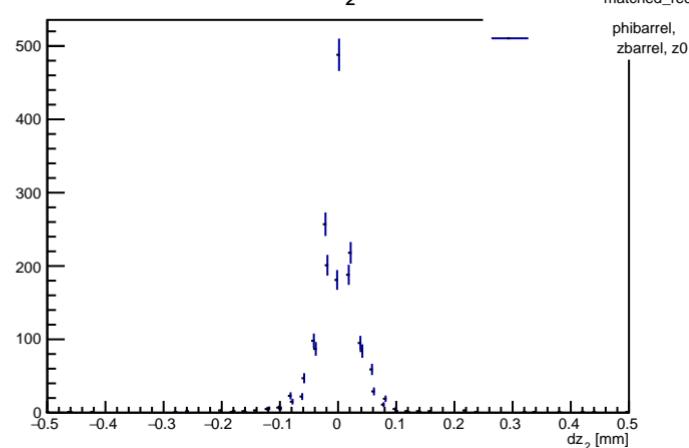


P_{trec} Vs P_t  P_{trec} Vs P_t  P_{trec} Vs P_t  P_{trec} Vs P_t 

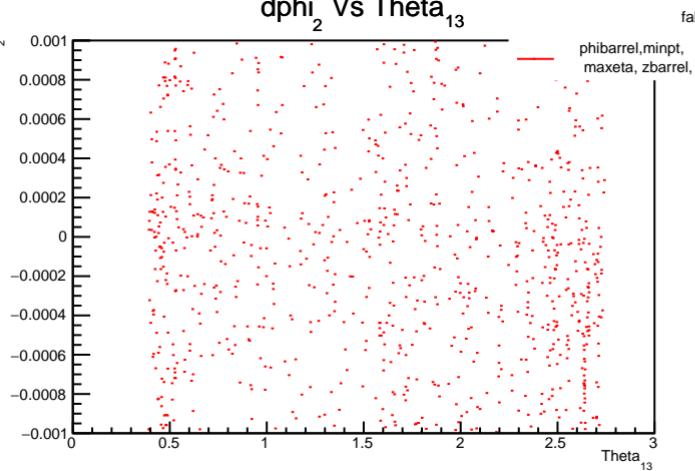
P_t Vs Z_{13}



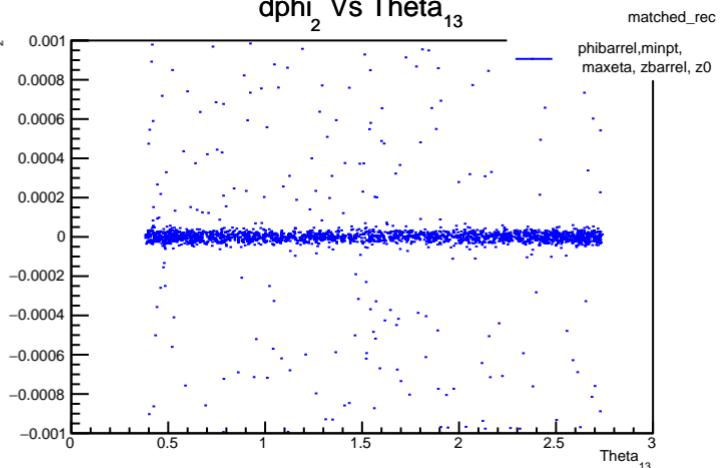
Z_{013} Vs $d\phi_{2}$  Z_{013} Vs $d\phi_{2}$  M_{vz} Vs $d\phi_{2}$  $d\phi_{2}$ 

Z_{013} Vs dz_2  Z_{013} Vs dz_2  M_{vz} Vs dz_2  dz_2 

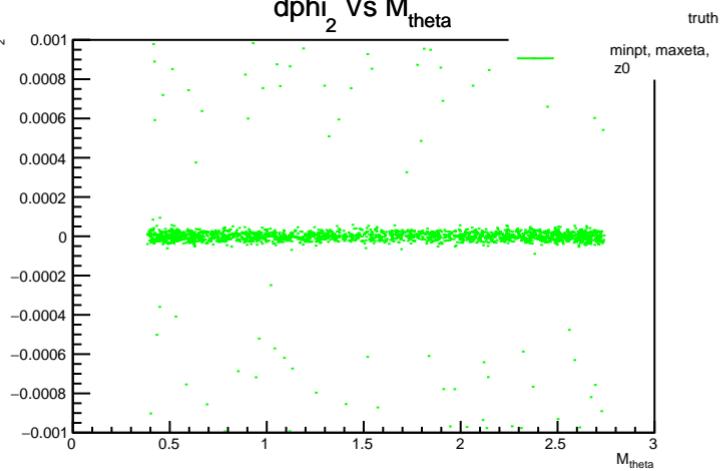
dphi₂ Vs Theta₁₃



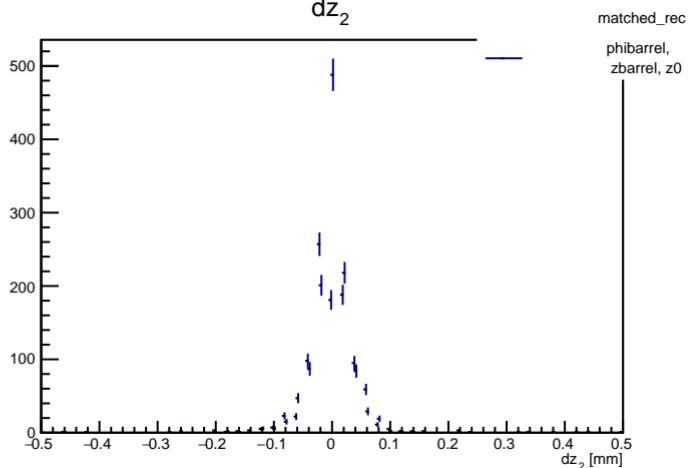
dphi₂ Vs Theta₁₃



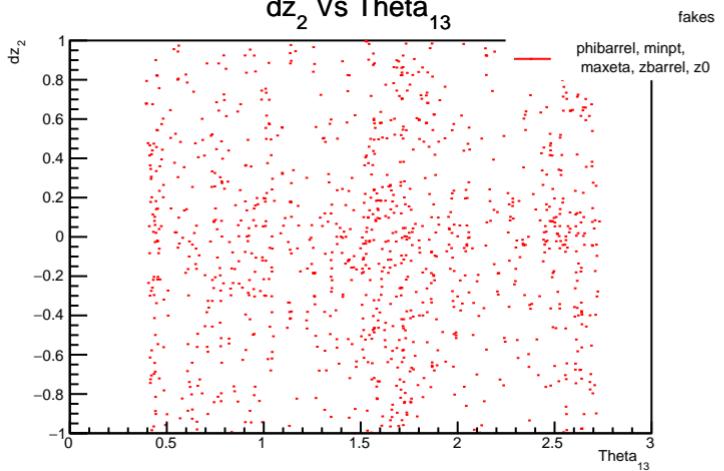
dphi₂ Vs M_{theta}



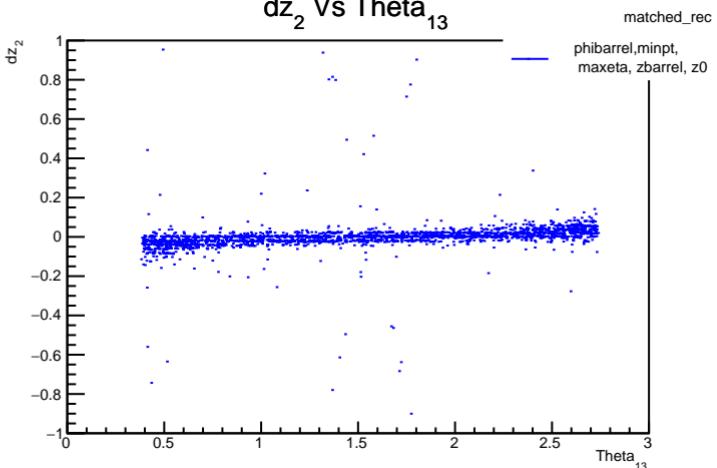
dz₂



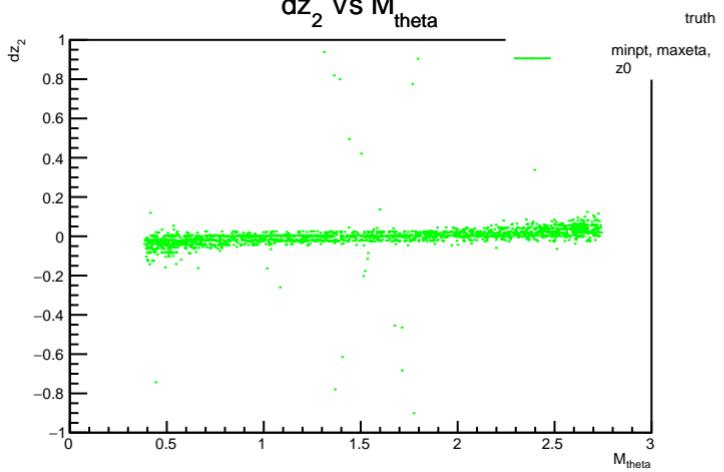
dz_2 Vs Θ_{13}



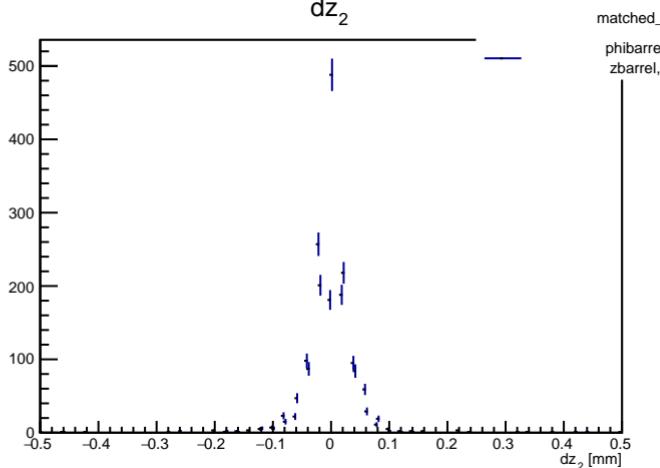
dz_2 Vs Θ_{13}



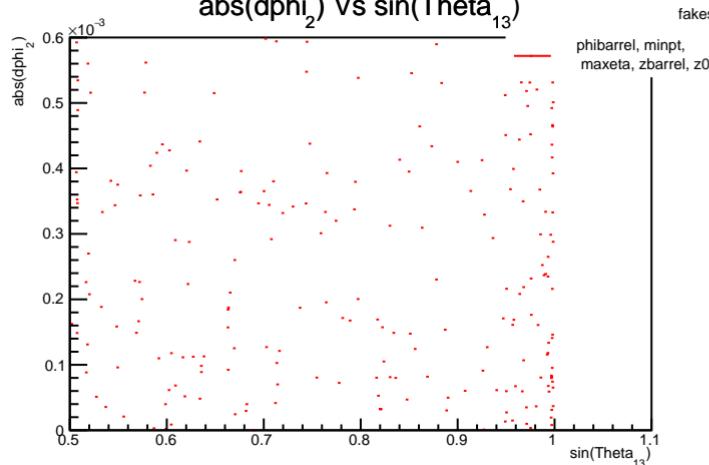
dz_2 Vs M_{θ}



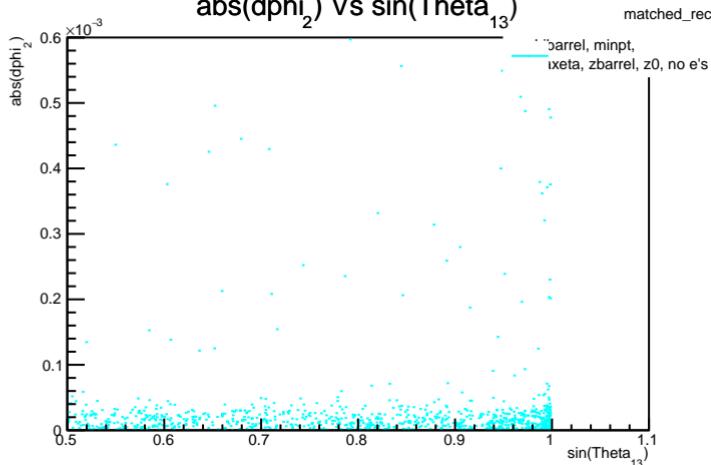
dz_2



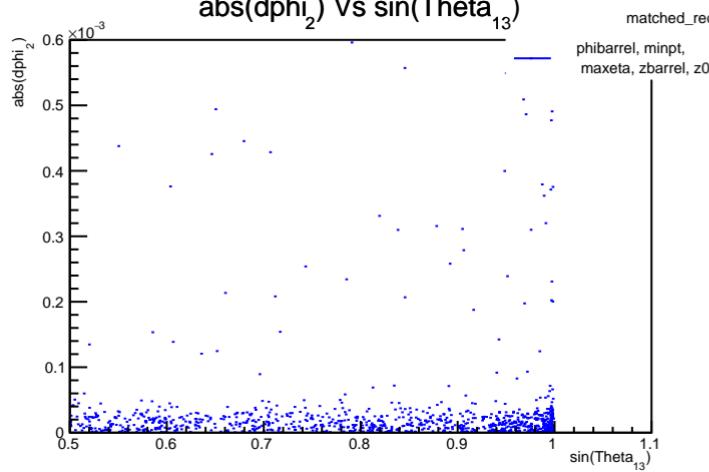
$\text{abs}(\text{dphi}_2)$ Vs $\sin(\Theta_{13})$



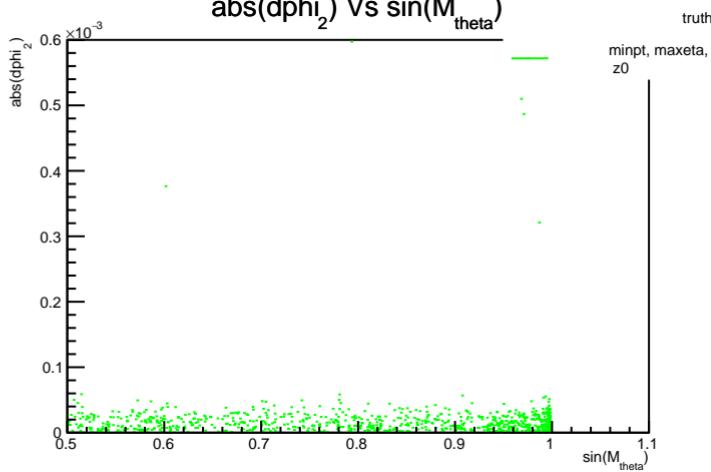
$\text{abs}(\text{dphi}_2)$ Vs $\sin(\Theta_{13})$



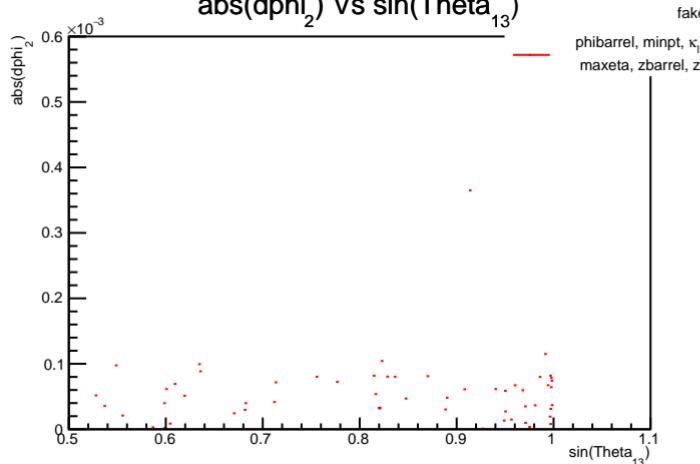
$\text{abs}(\text{dphi}_2)$ Vs $\sin(\Theta_{13})$



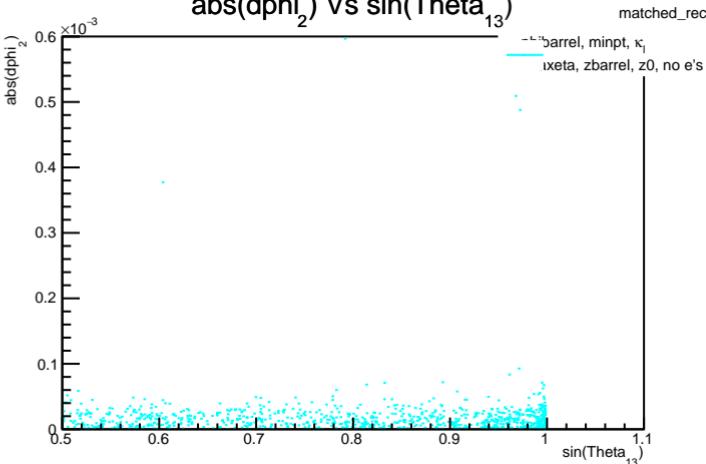
$\text{abs}(\text{dphi}_2)$ Vs $\sin(M_{\theta})$



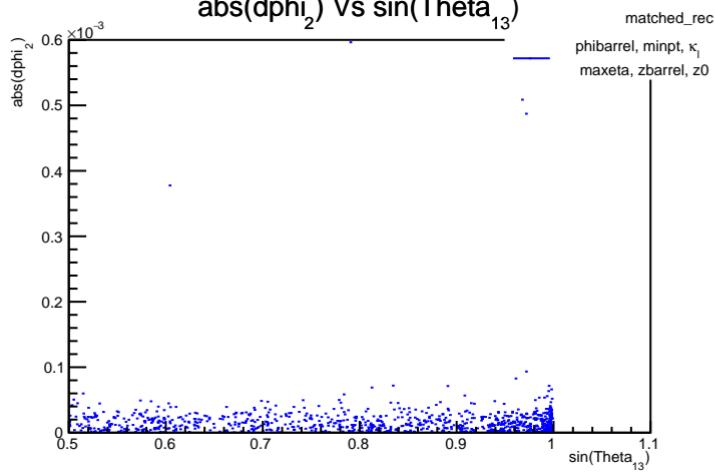
$\text{abs}(\text{dphi}_2)$ Vs $\sin(\Theta_{13})$



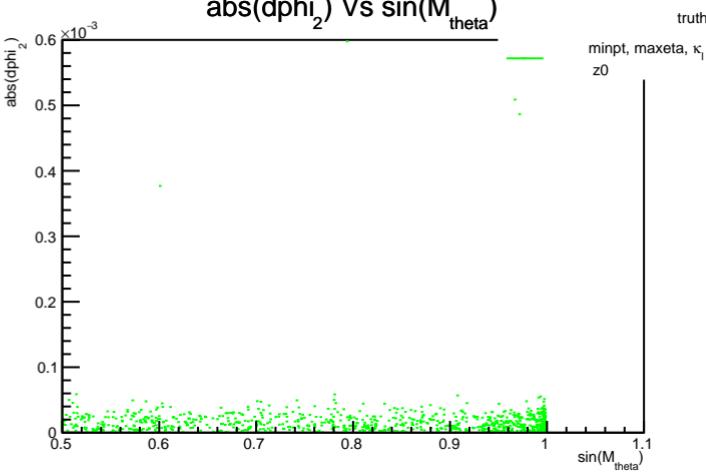
$\text{abs}(\text{dphi}_2)$ Vs $\sin(\Theta_{13})$



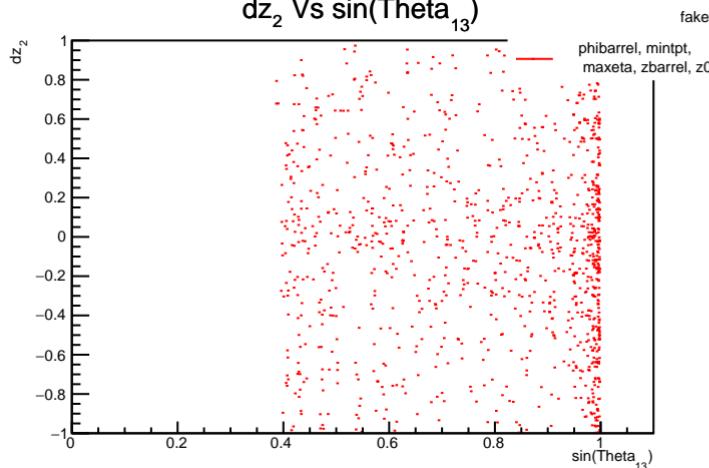
$\text{abs}(\text{dphi}_2)$ Vs $\sin(\Theta_{13})$



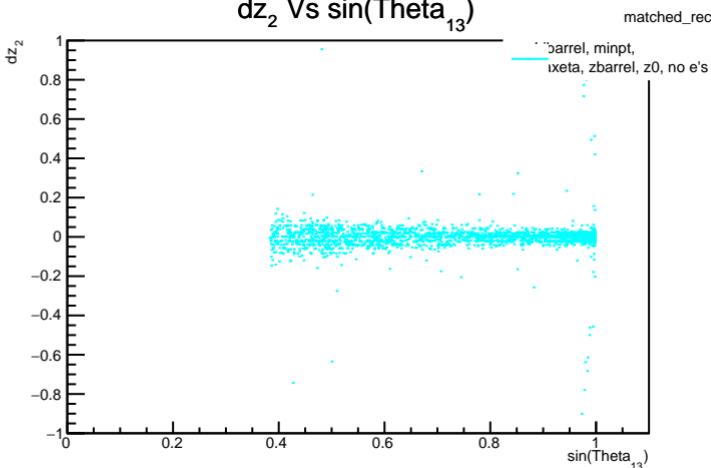
$\text{abs}(\text{dphi}_2)$ Vs $\sin(M_{\theta})$



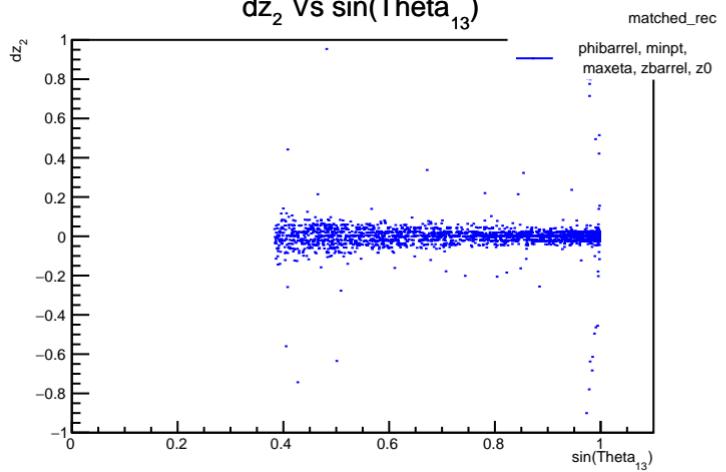
dz_2 Vs $\sin(\Theta_{13})$



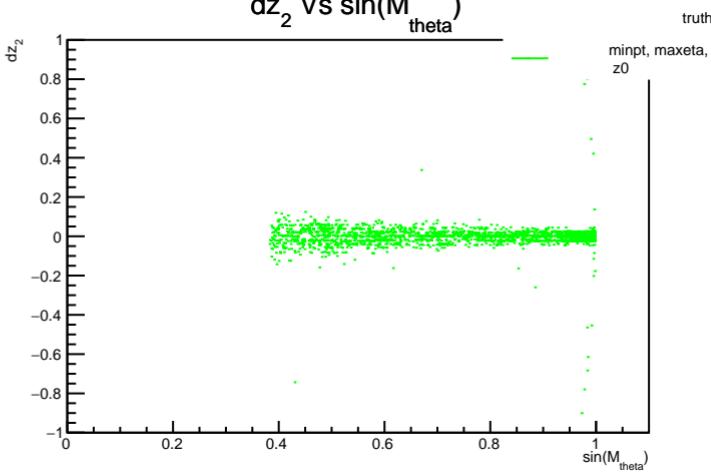
dz_2 Vs $\sin(\Theta_{13})$



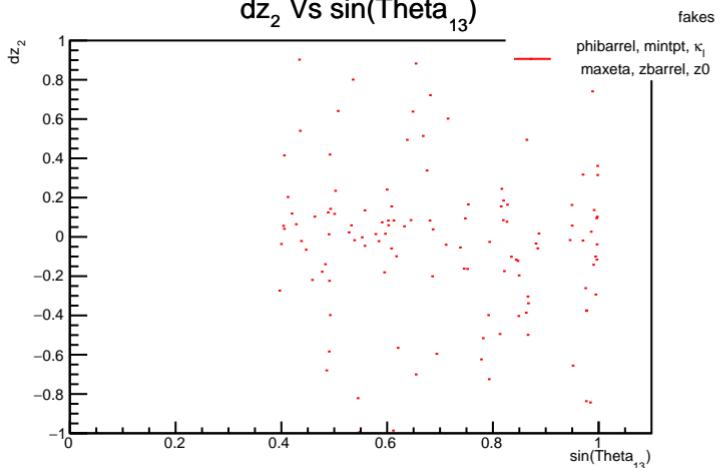
dz_2 Vs $\sin(\Theta_{13})$



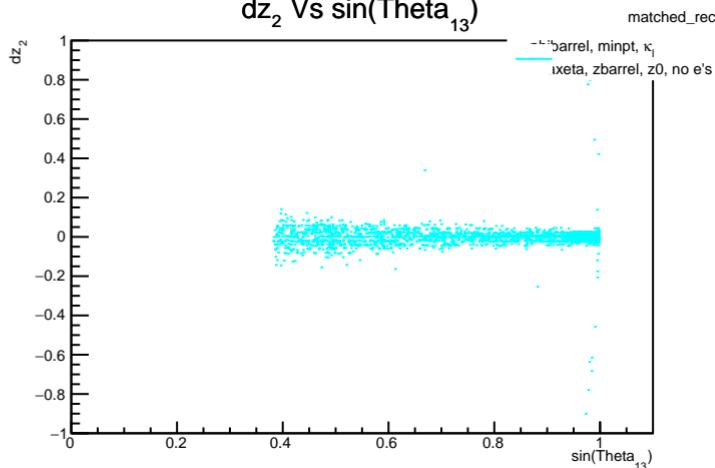
dz_2 Vs $\sin(M_{\theta})$



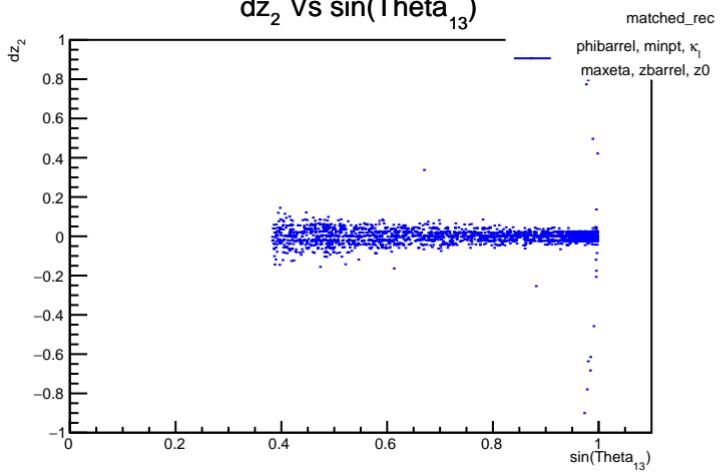
dz_2 Vs $\sin(\Theta_{13})$



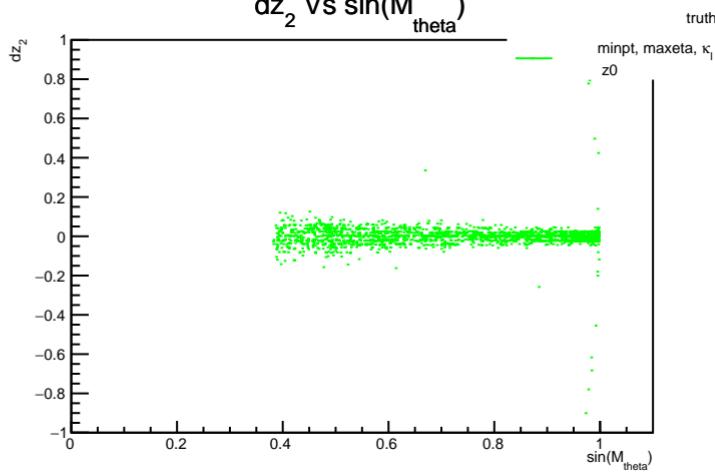
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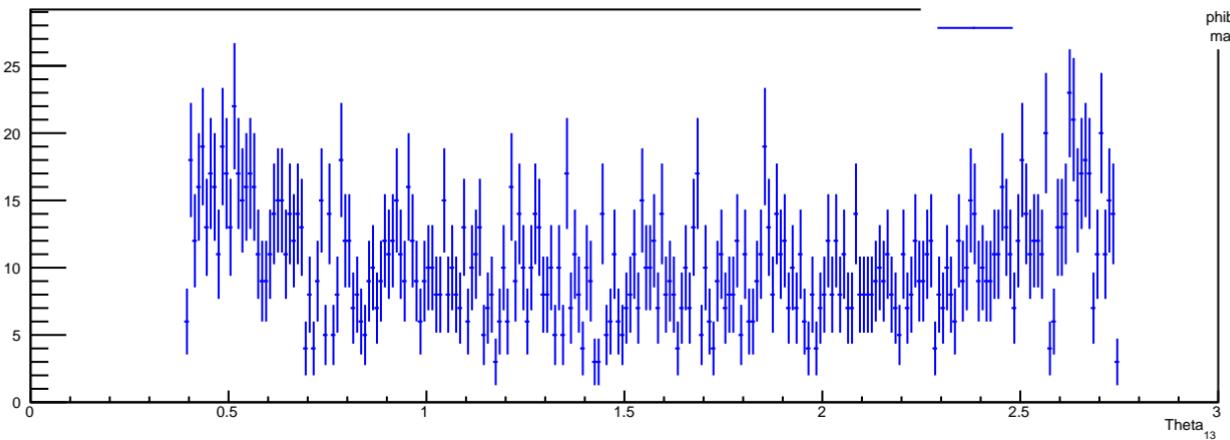
dz_2 Vs $\sin(\Theta_{13})$



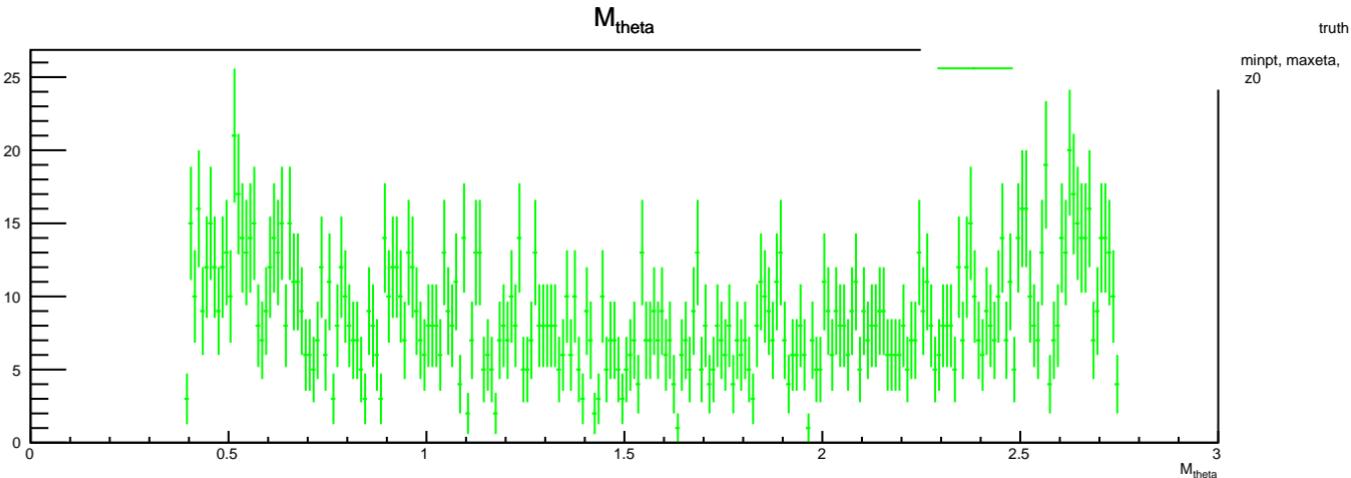
dz_2 Vs $\sin(M_{\theta})$

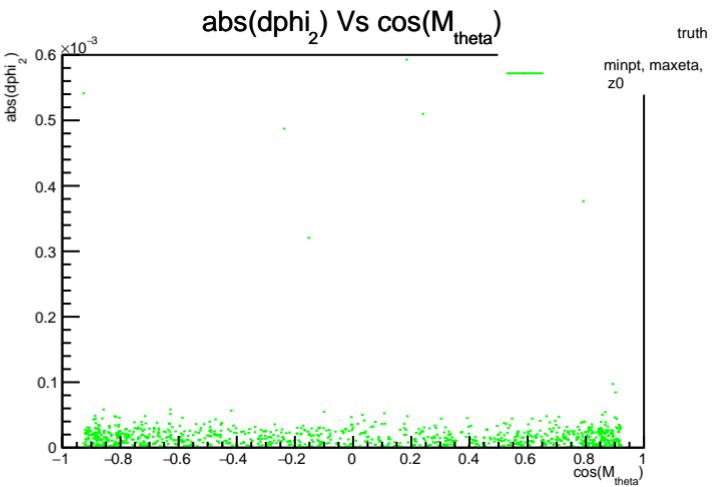
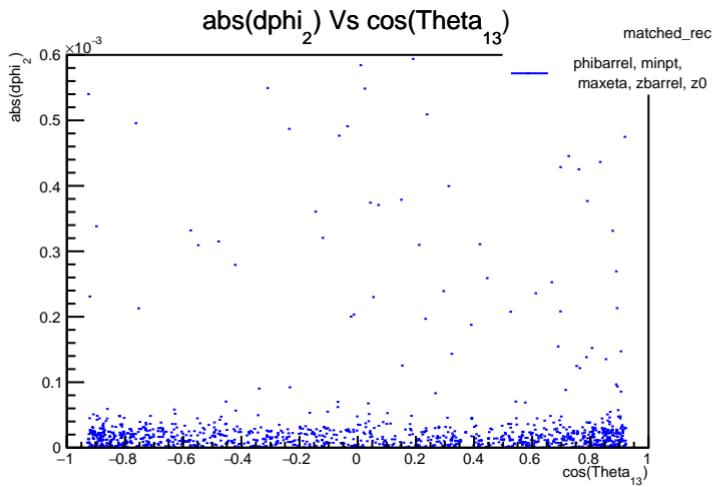
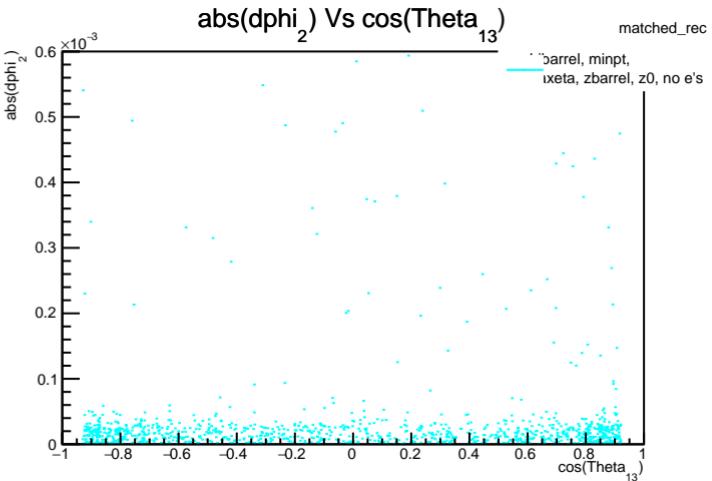
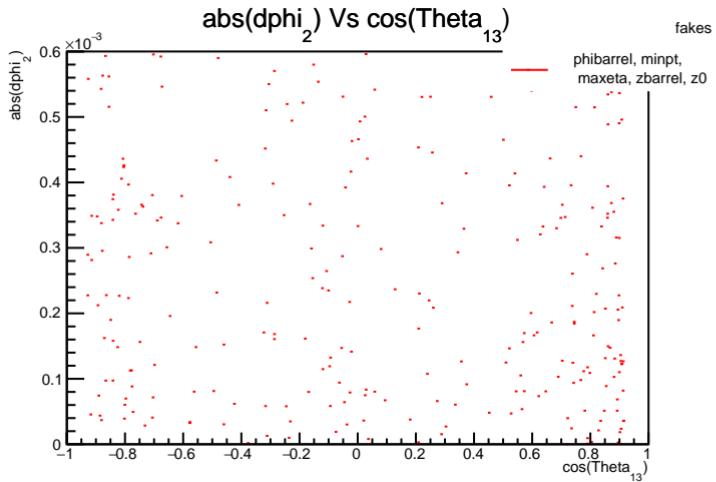


Θ_{13}

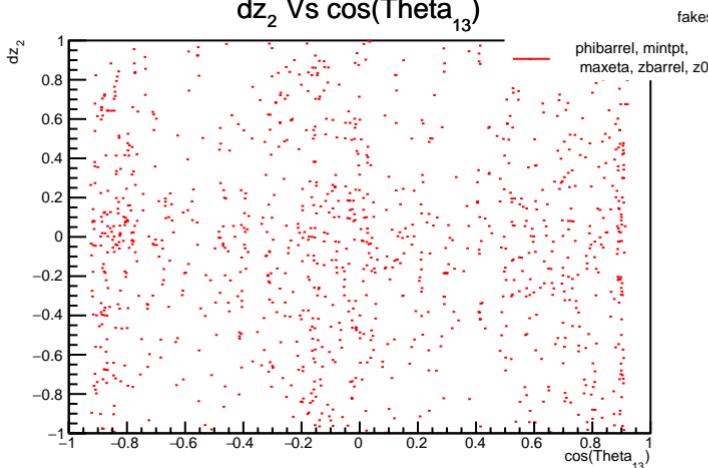


M_{θ}

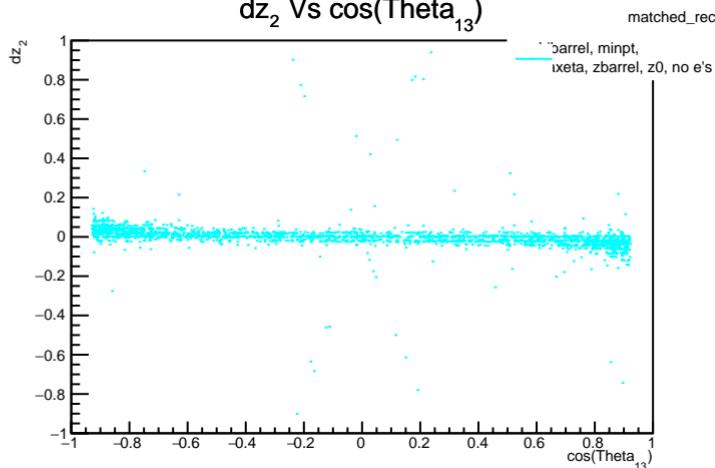




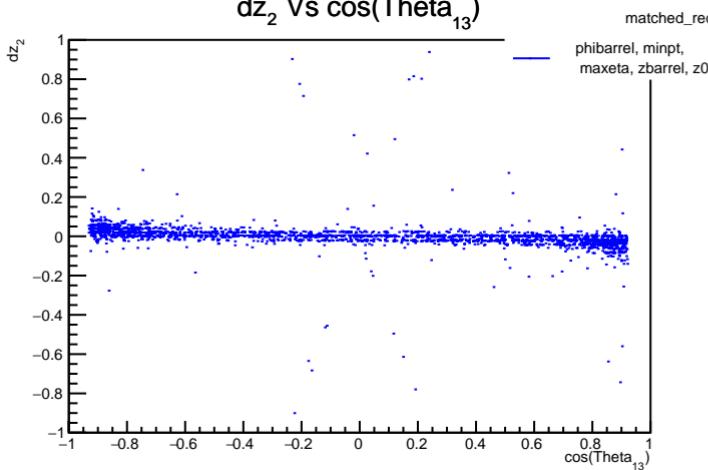
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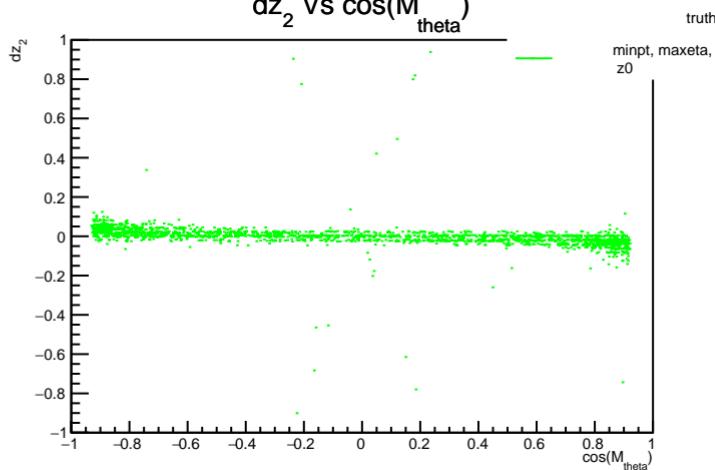
dz_2 Vs $\cos(\Theta_{13})$

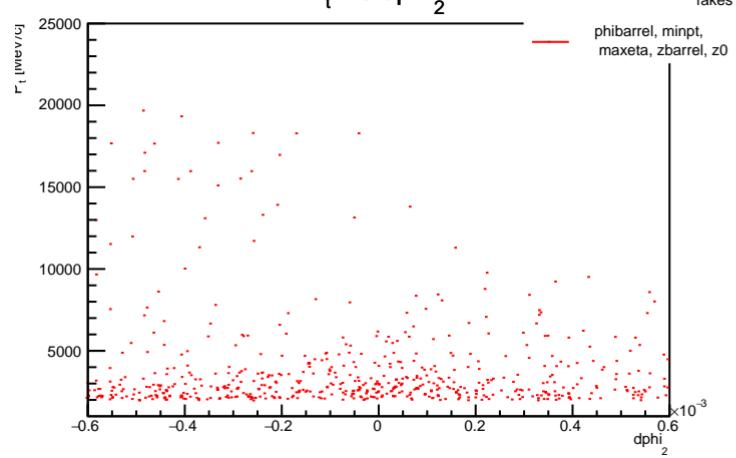
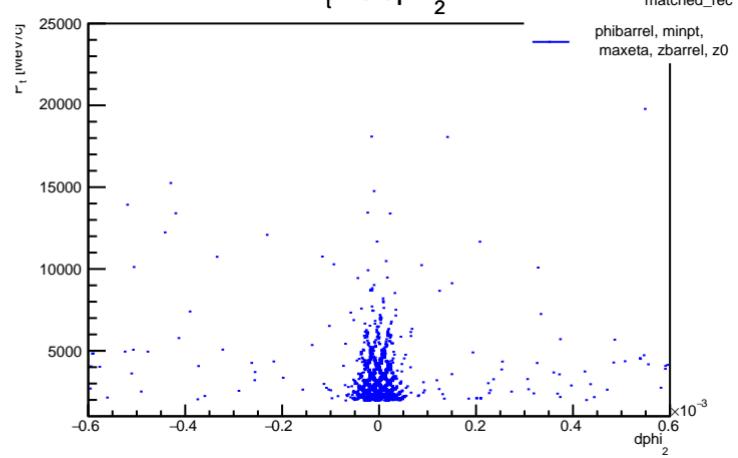
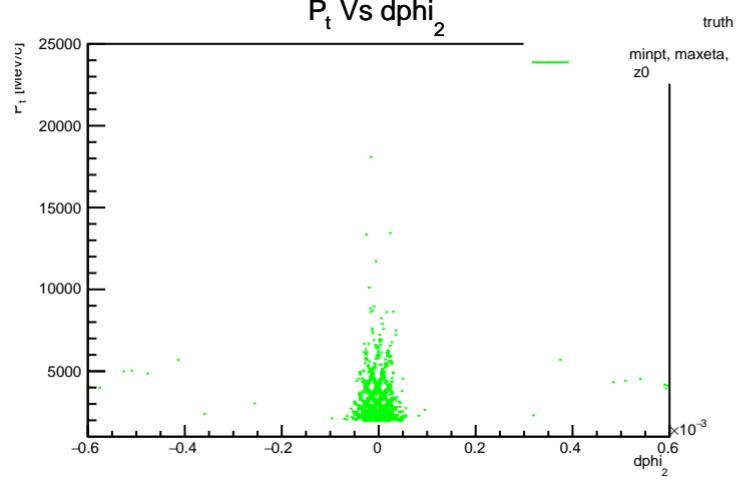
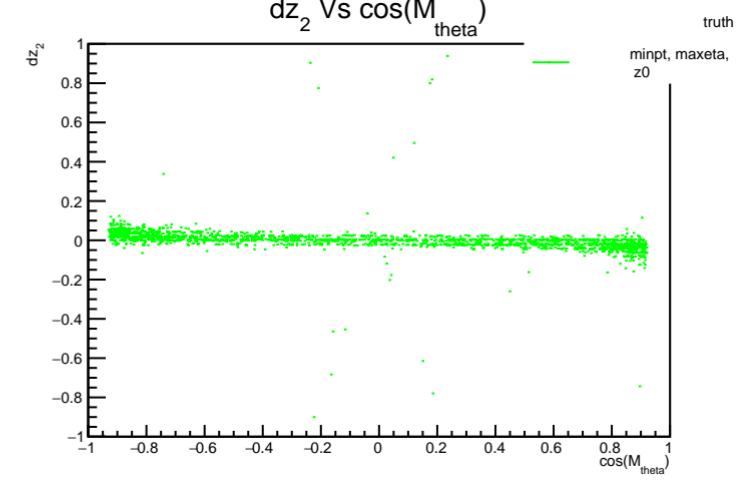


dz_2 Vs $\cos(\Theta_{13})$

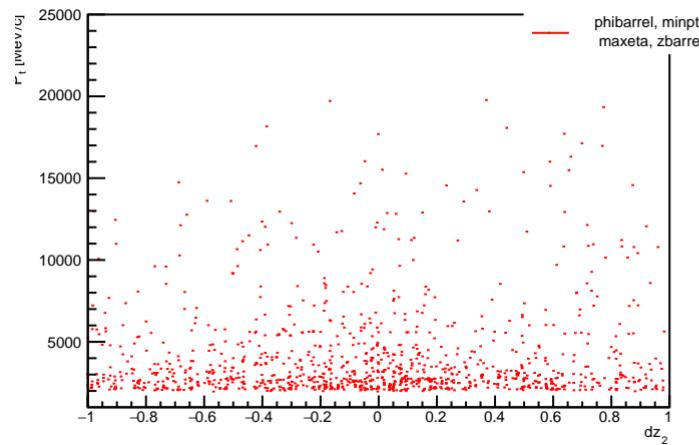


dz_2 Vs $\cos(M_{\theta})$

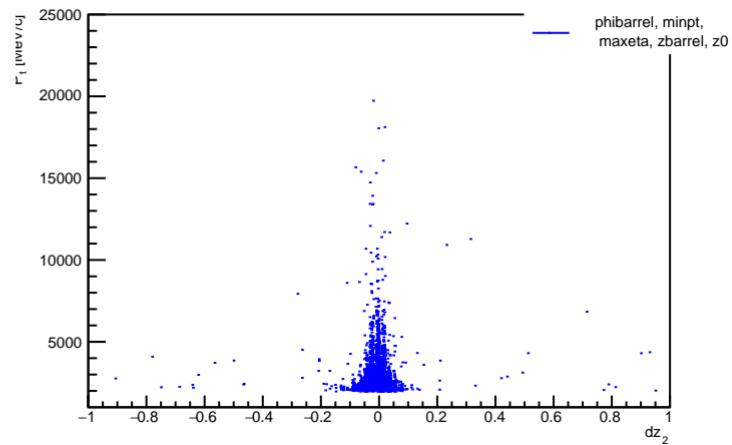


P_t Vs $d\phi_{i_2}$  P_t Vs $d\phi_{i_2}$  P_t Vs $d\phi_{i_2}$  dz_2 Vs $\cos(M_{\theta})$ 

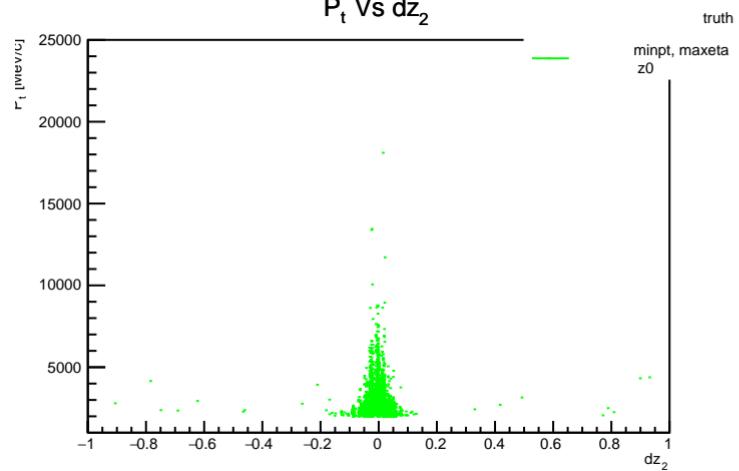
P_t Vs dz_2



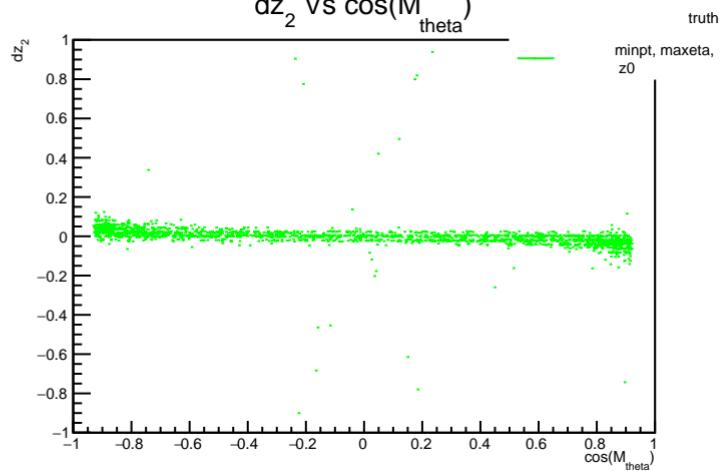
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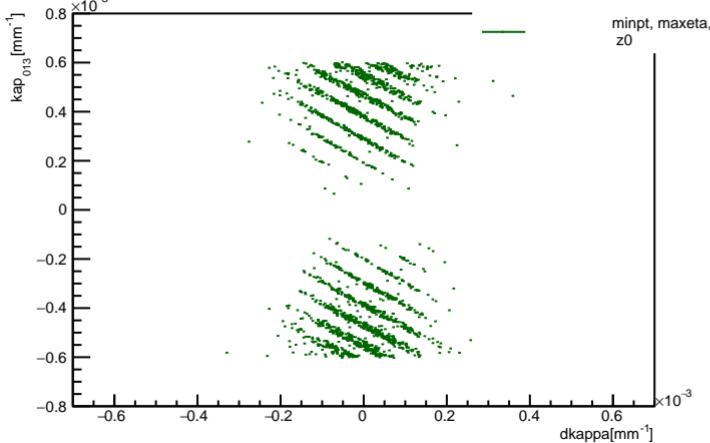
P_t Vs dz_2



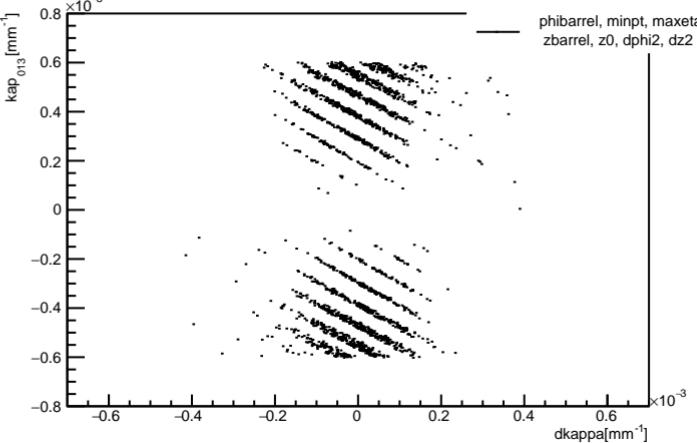
dz_2 Vs $\cos(M_{\theta})$



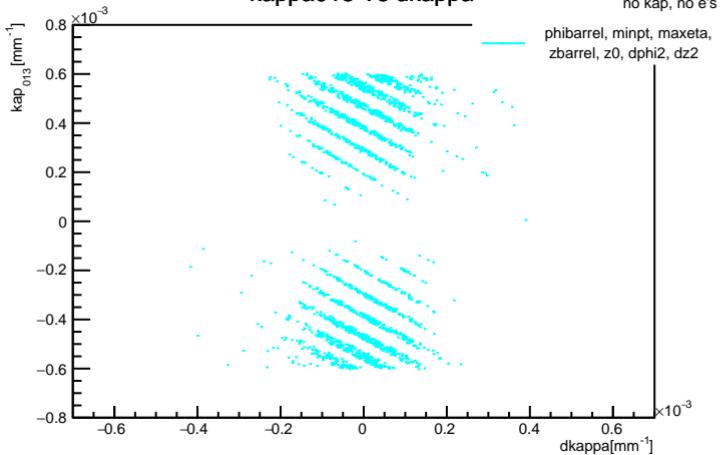
kappa013 Vs dkappa



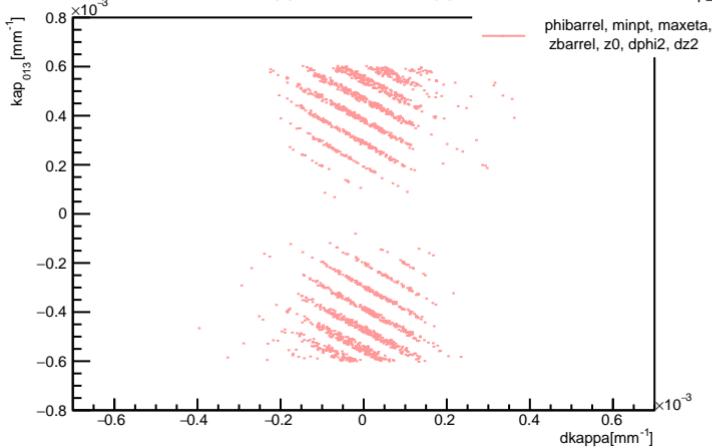
kappa013 Vs dkappa



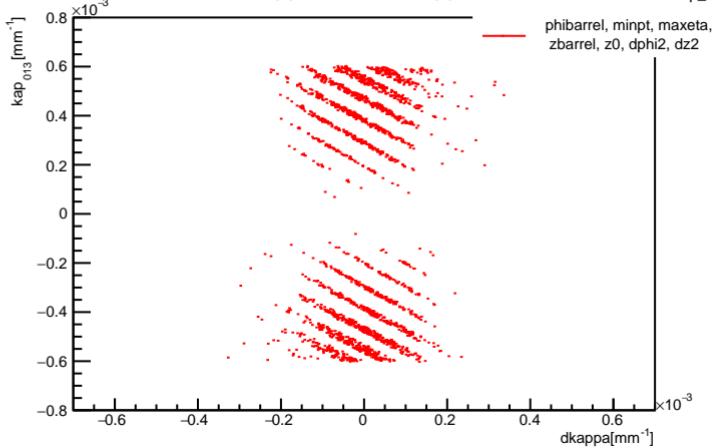
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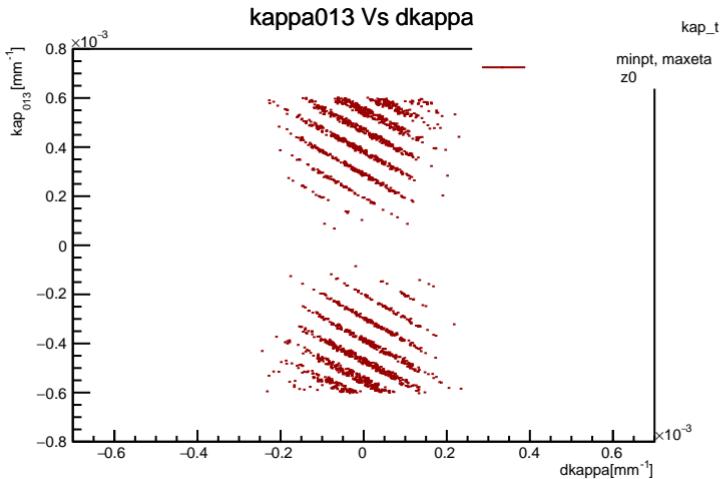
kappa013 Vs dkappa



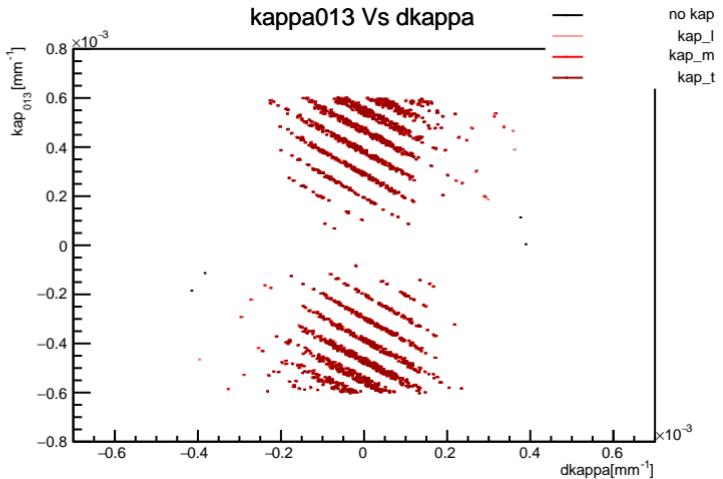
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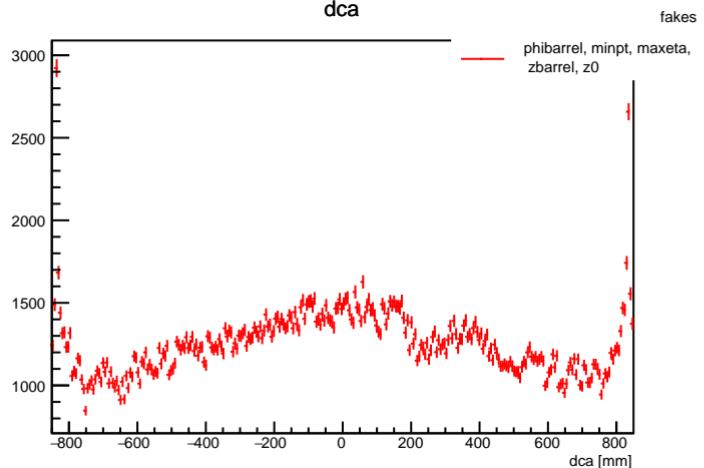
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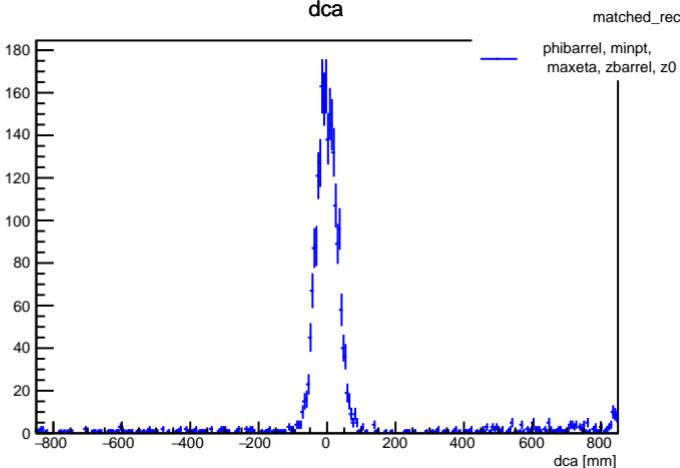
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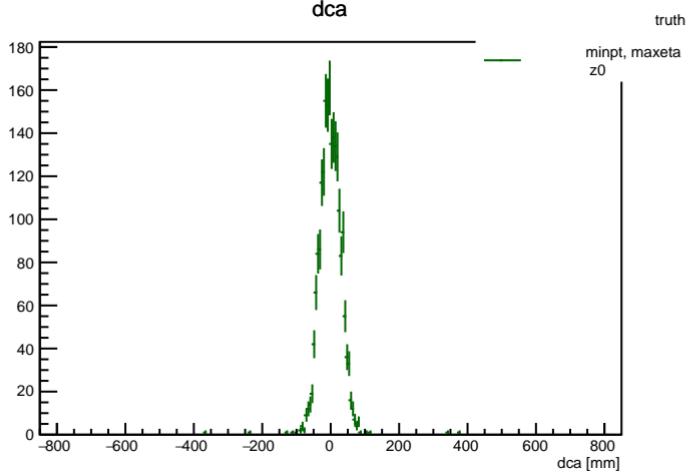
dca



dca

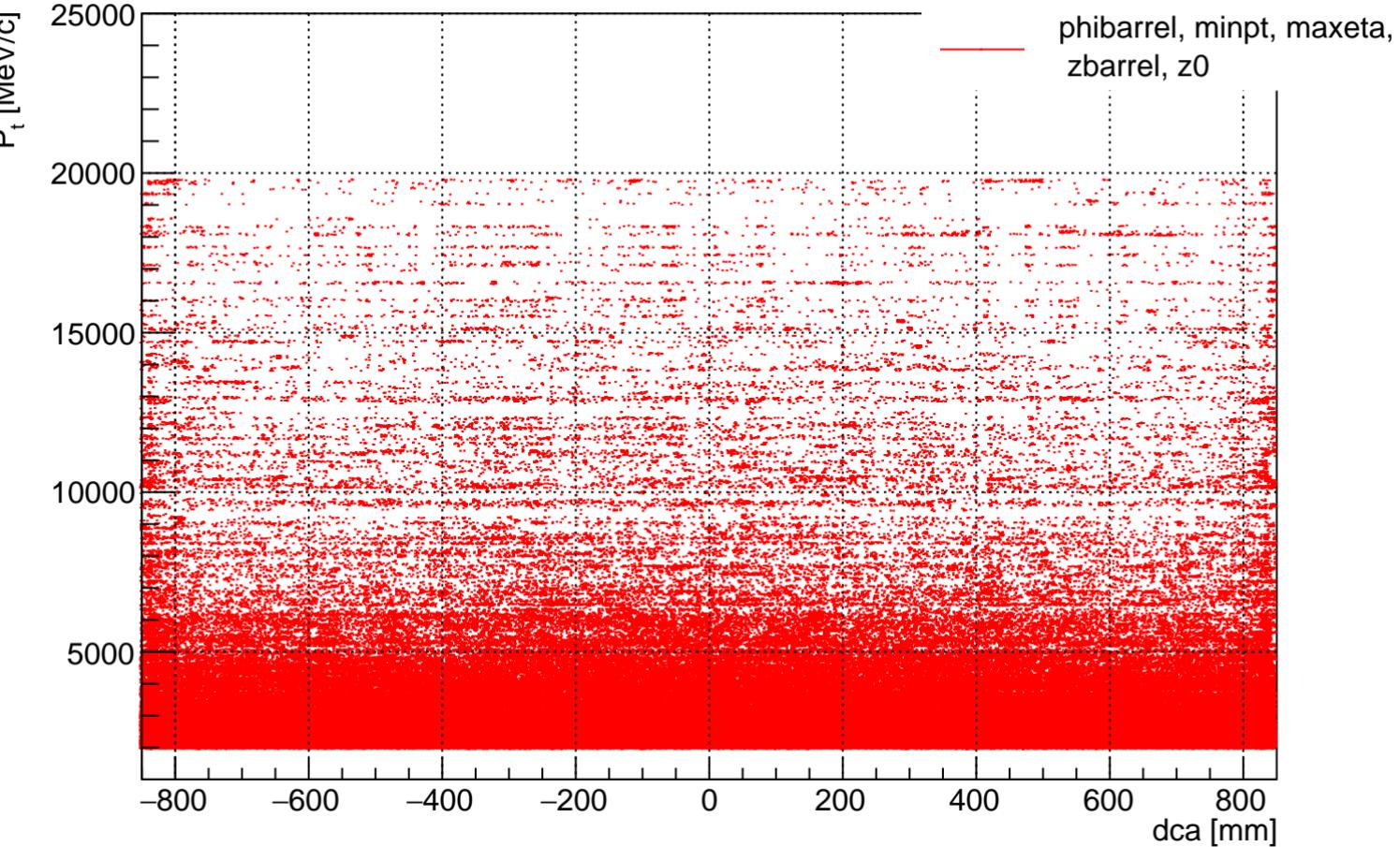


dca

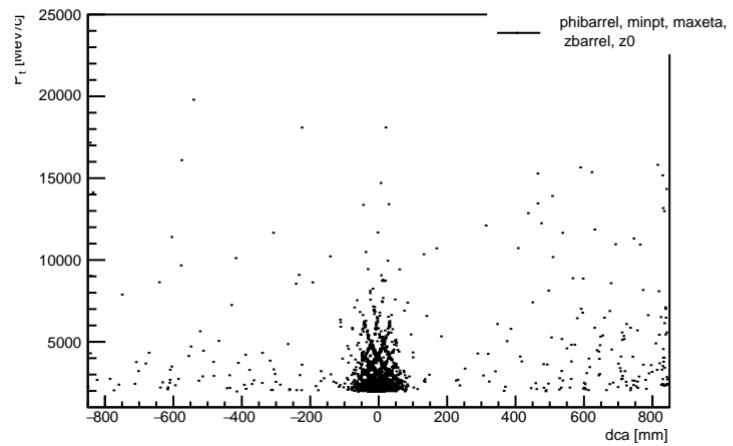


P_t Vs dca

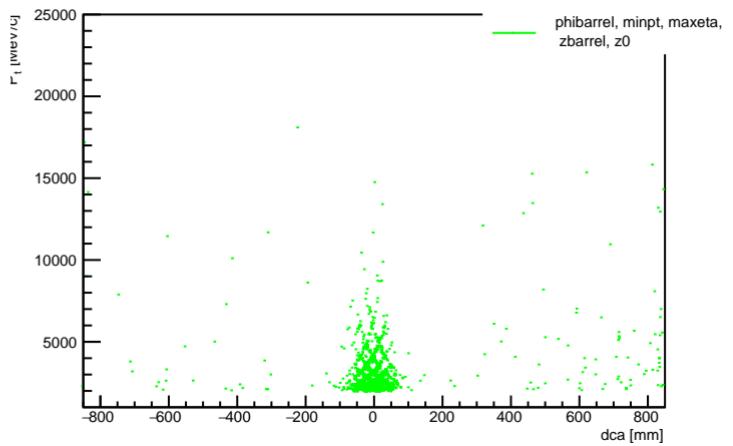
fakes



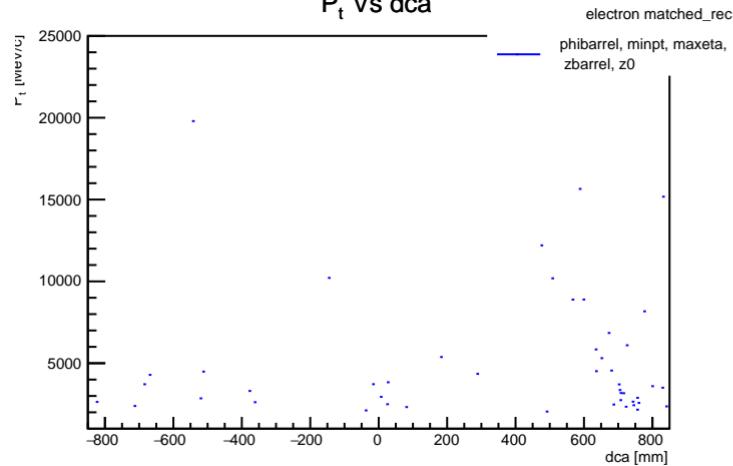
P_t Vs dca



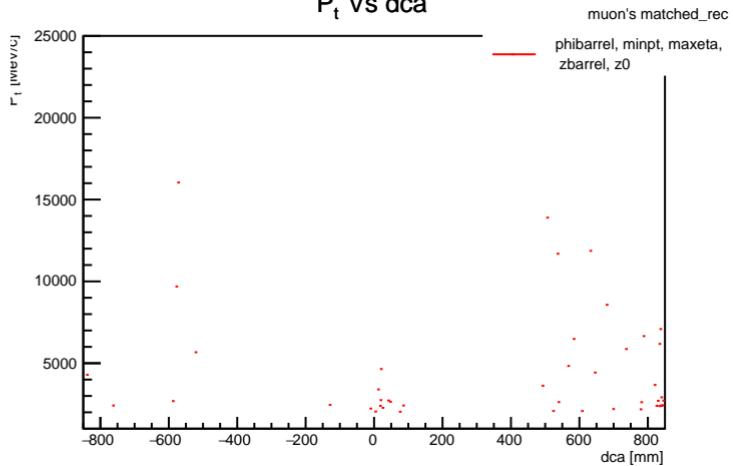
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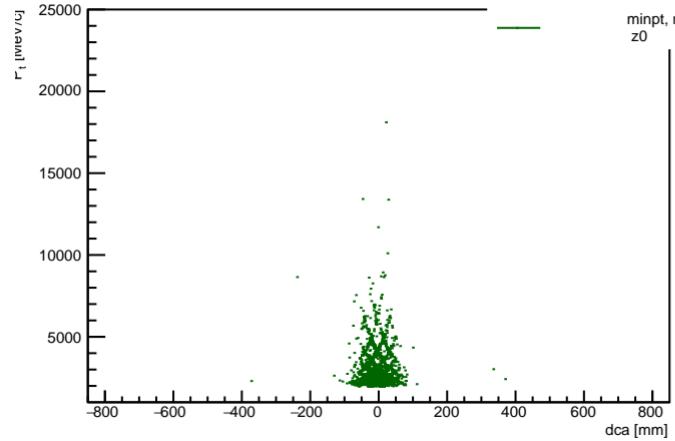
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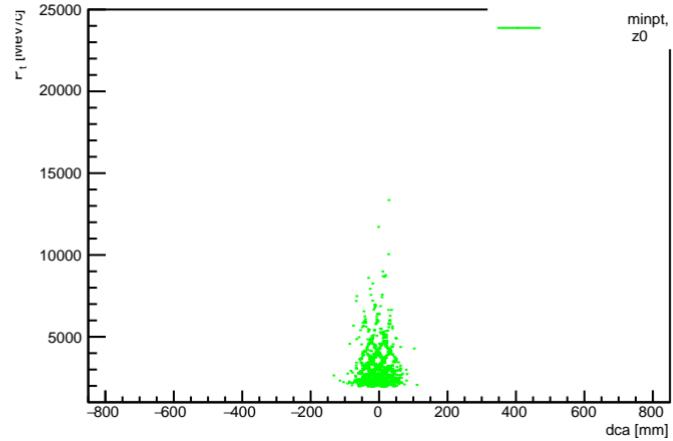
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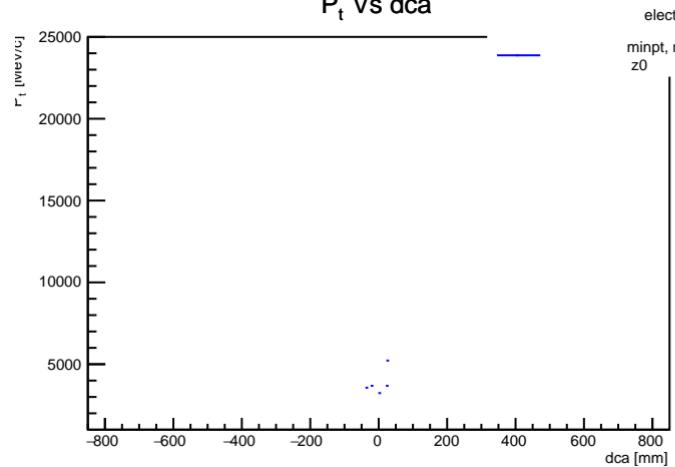
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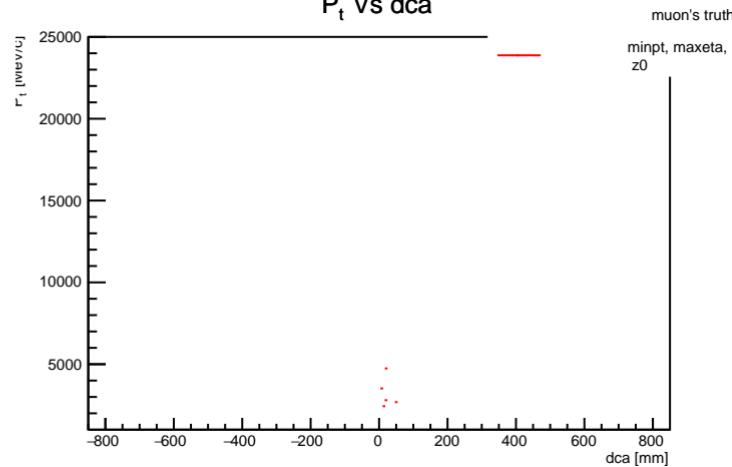
P_t Vs dca



P_t Vs dca

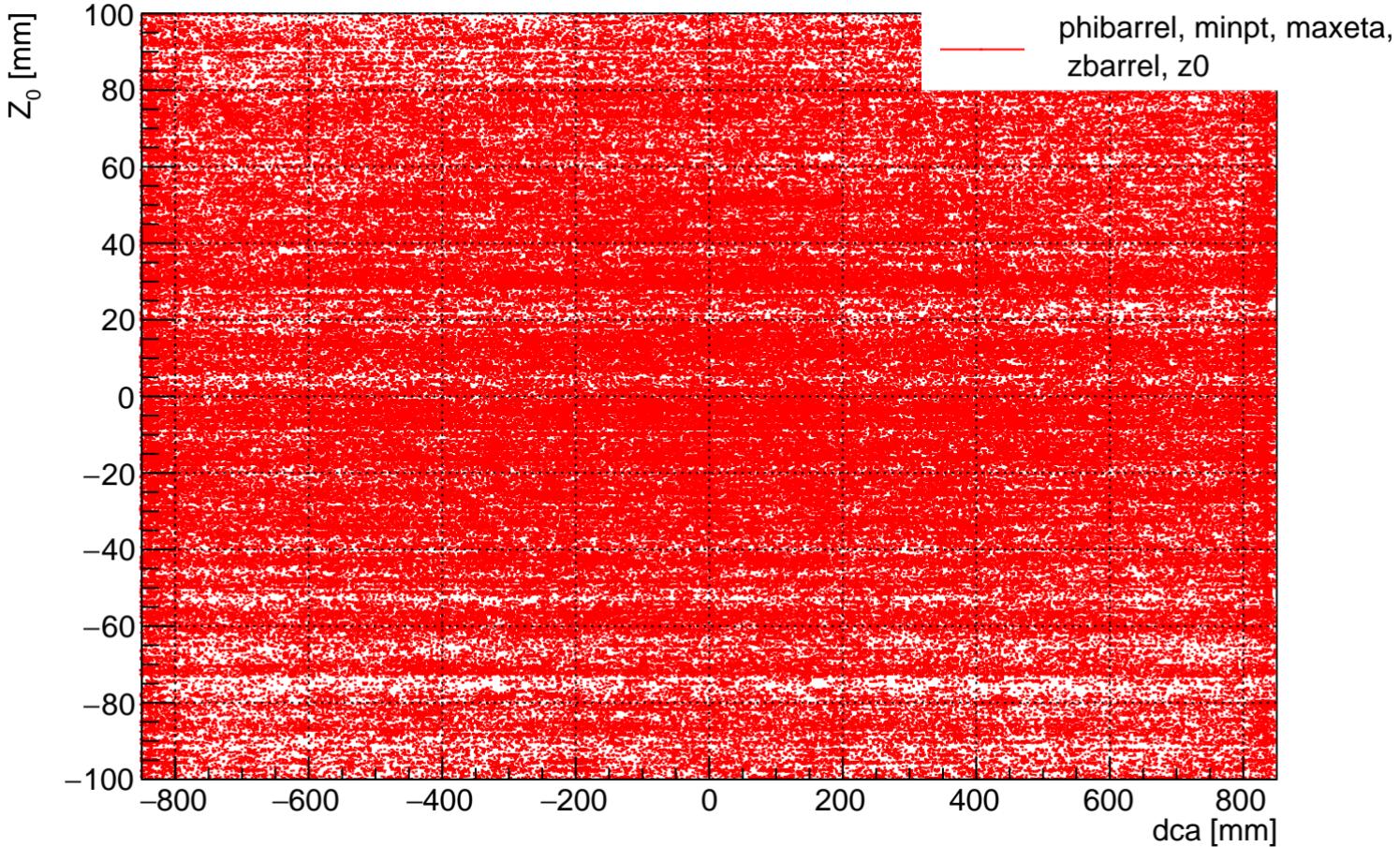


P_t Vs dca

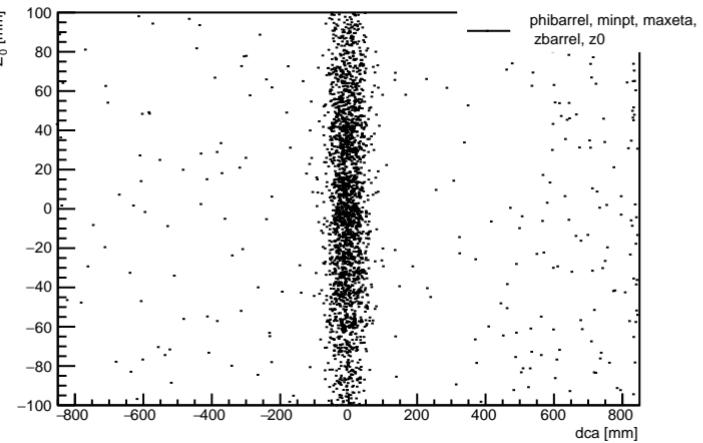


Z_0 Vs dca

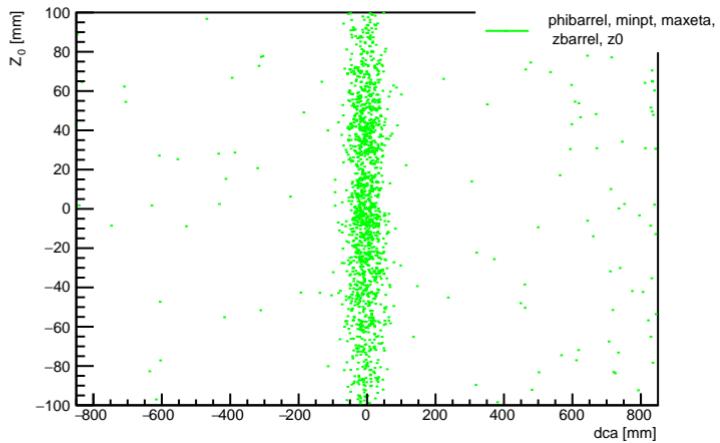
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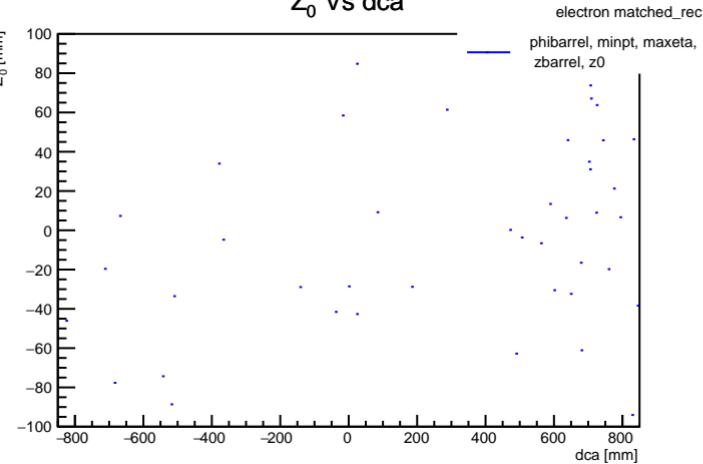
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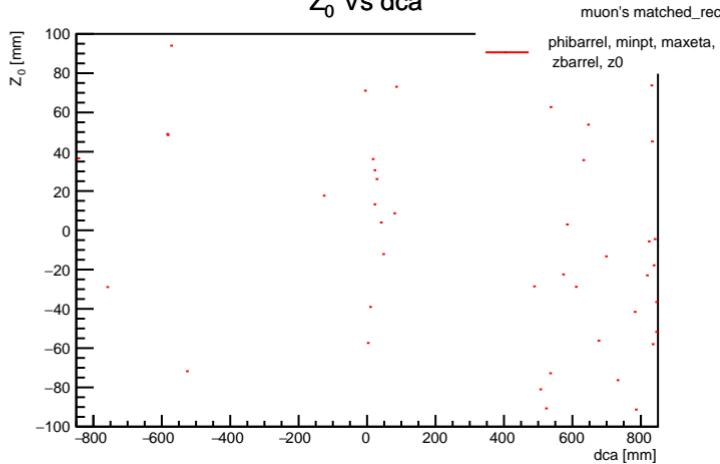
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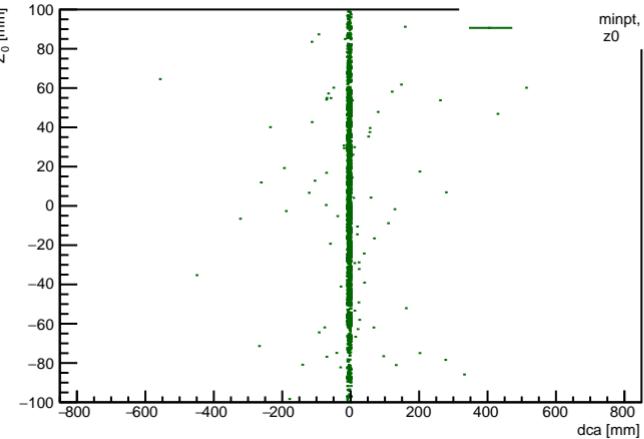
Z_0 Vs dca



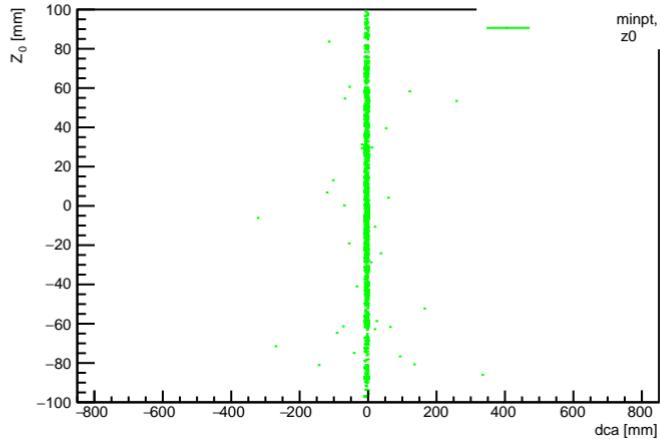
Z_0 Vs dca



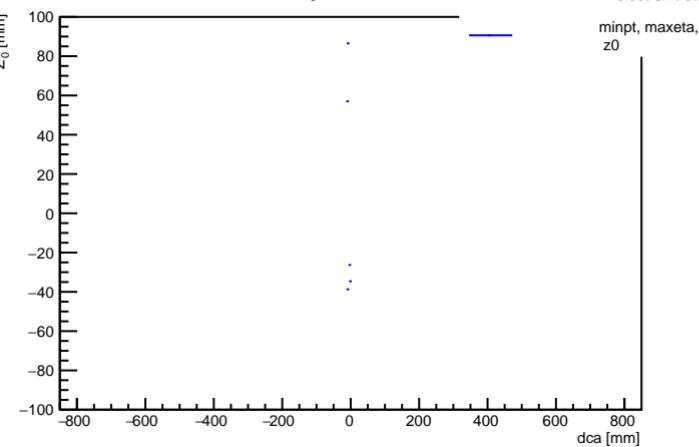
Z_0 Vs dca



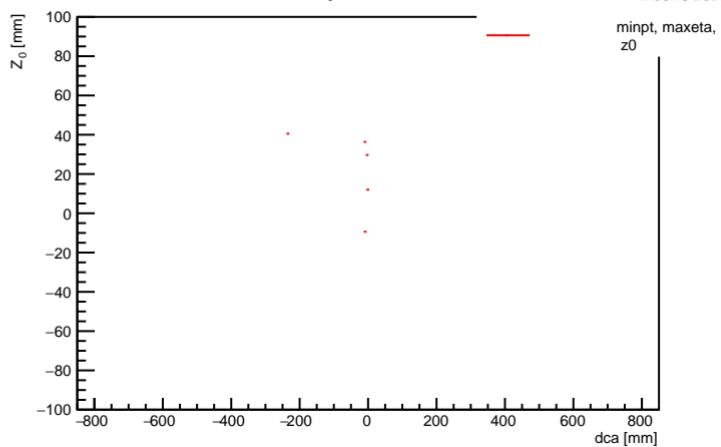
Z_0 Vs dca



Z_0 Vs dca



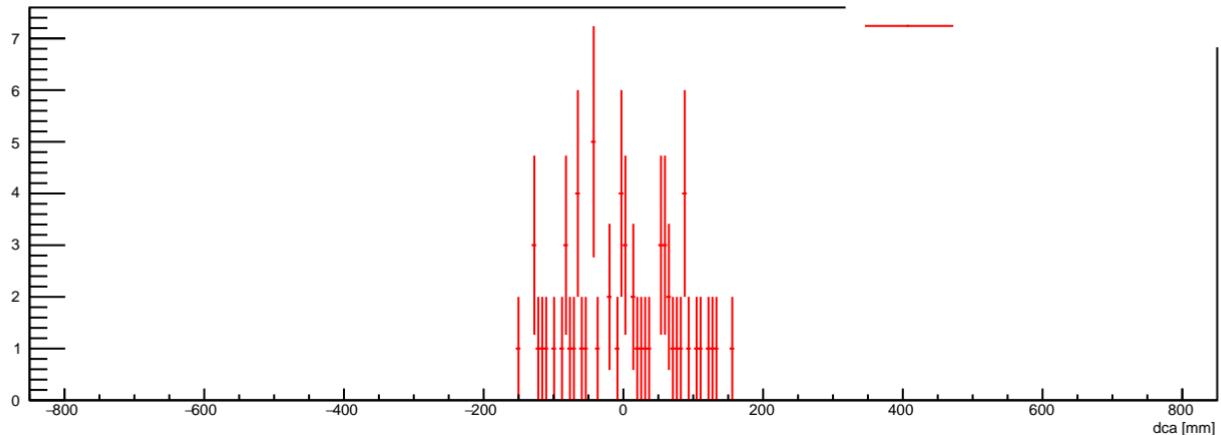
Z_0 Vs dca



fakes

w/o kappa cut

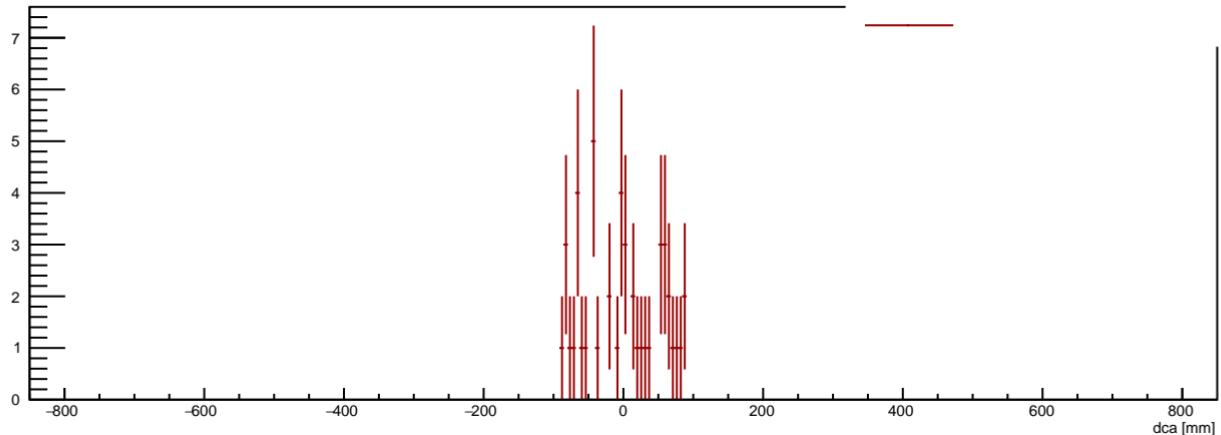
dca



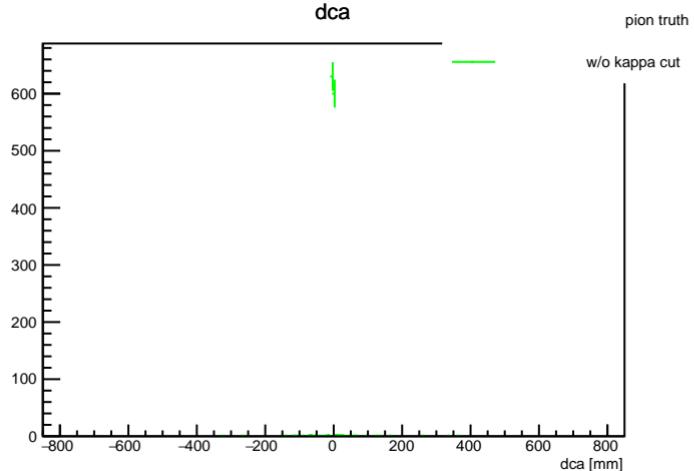
fakes

with kappa cut

dca



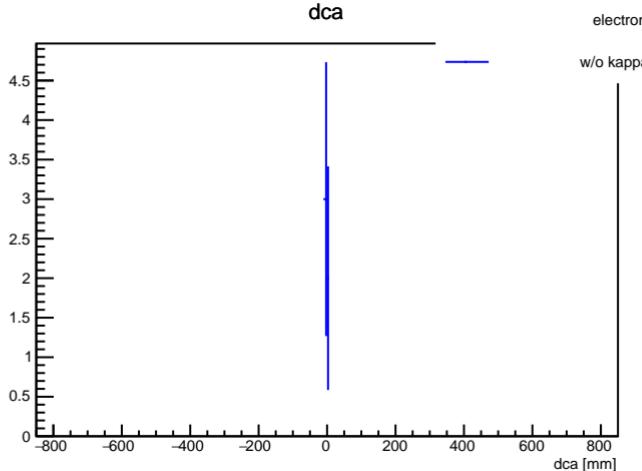
dca



pion truth

w/o kappa cut

dca

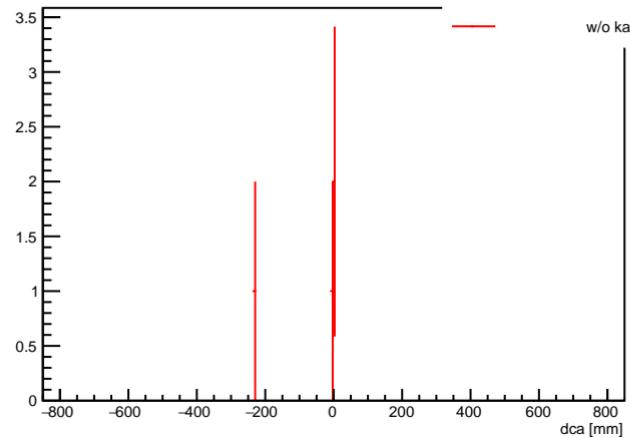


electron truth

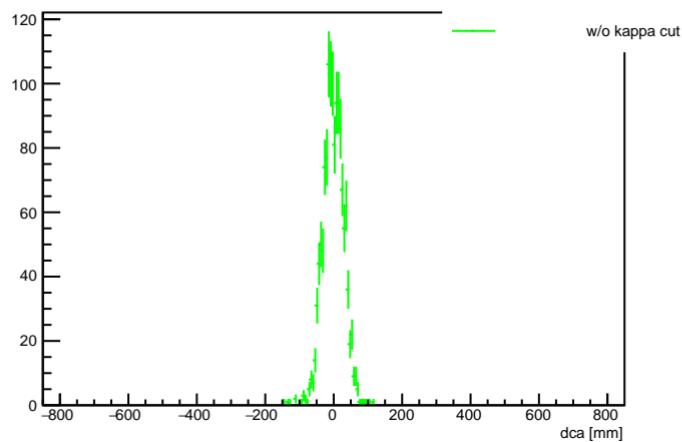
muon truth

w/o kappa cut

dca



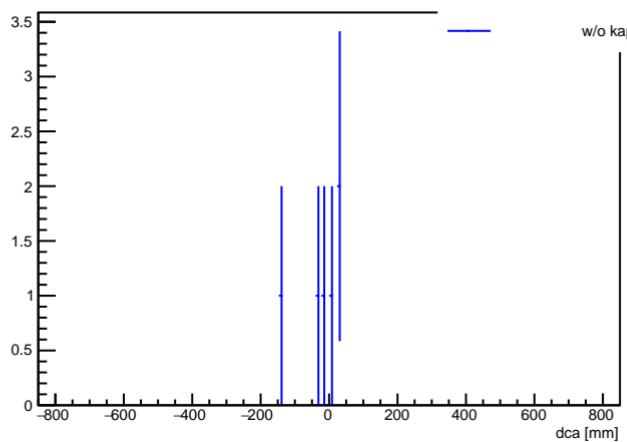
dca



pion matched_rec

w/o kappa cut

dca



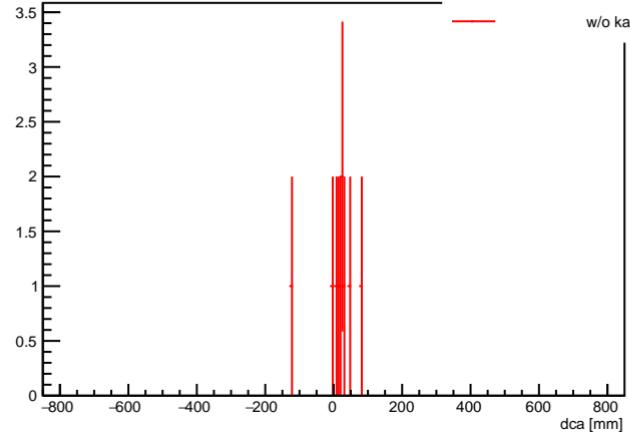
electron matched_rec

w/o kappa cut

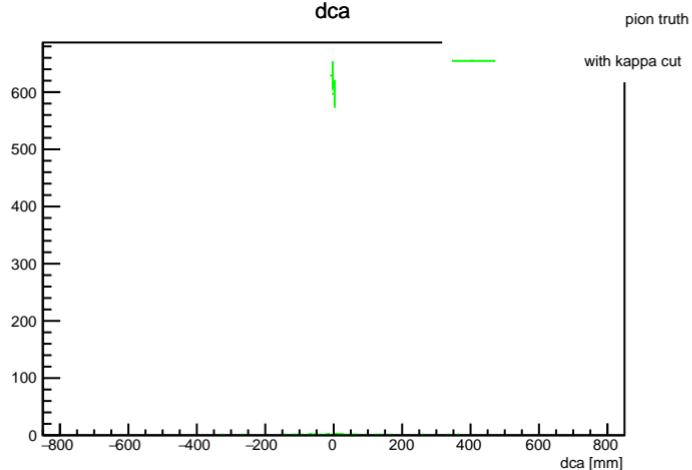
dca

muon matched_rec

w/o kappa cut



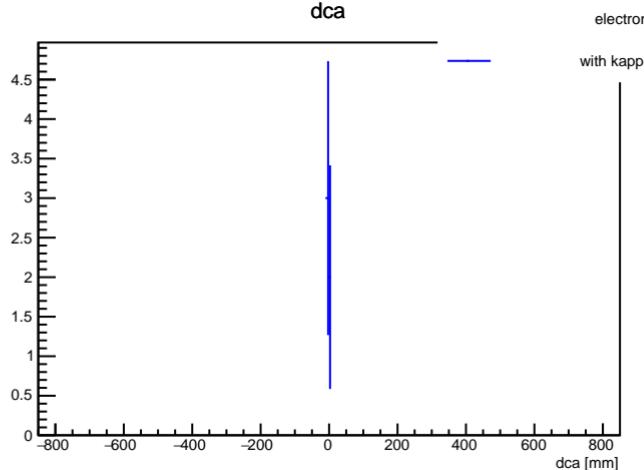
dca



pion truth

with kappa cut

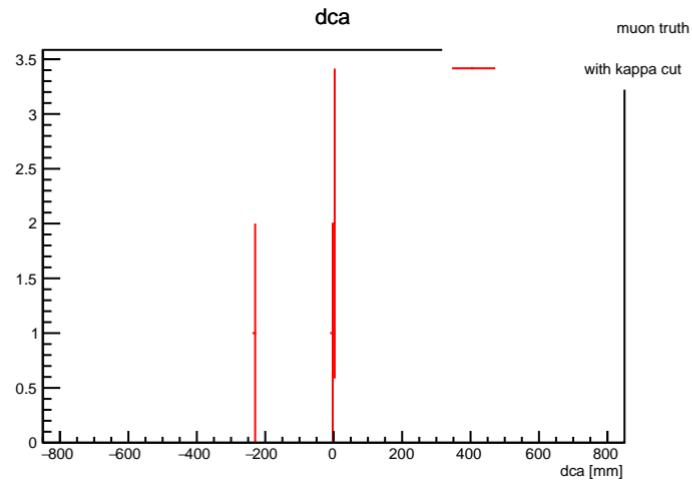
dca



electron truth

with kappa cut

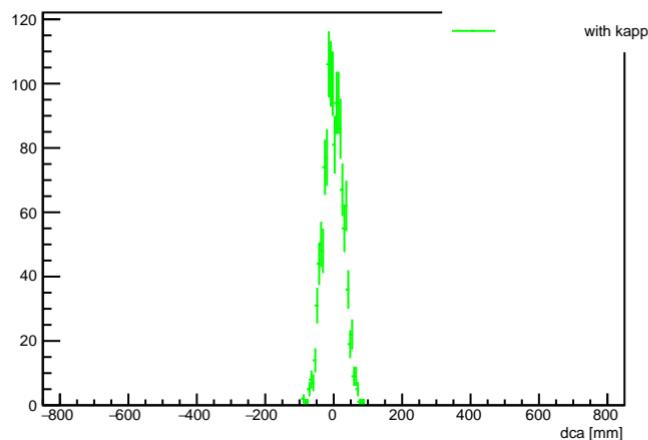
dca



muon truth

with kappa cut

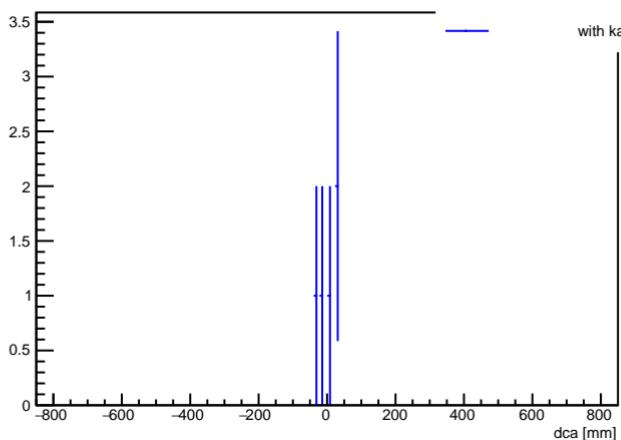
dca



pion matched_rec

with kappa cut

dca



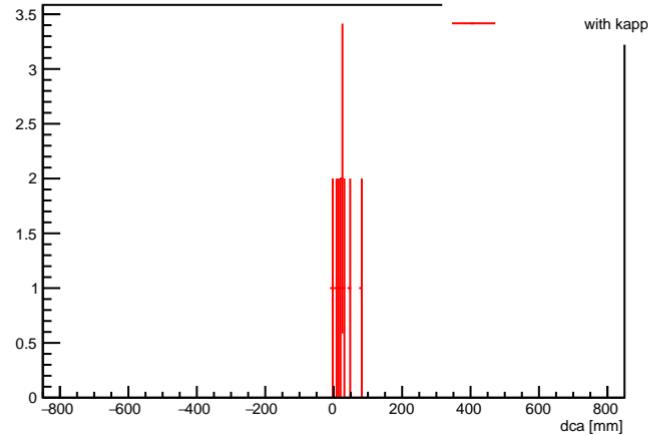
electron matched_rec

with kappa cut

dca

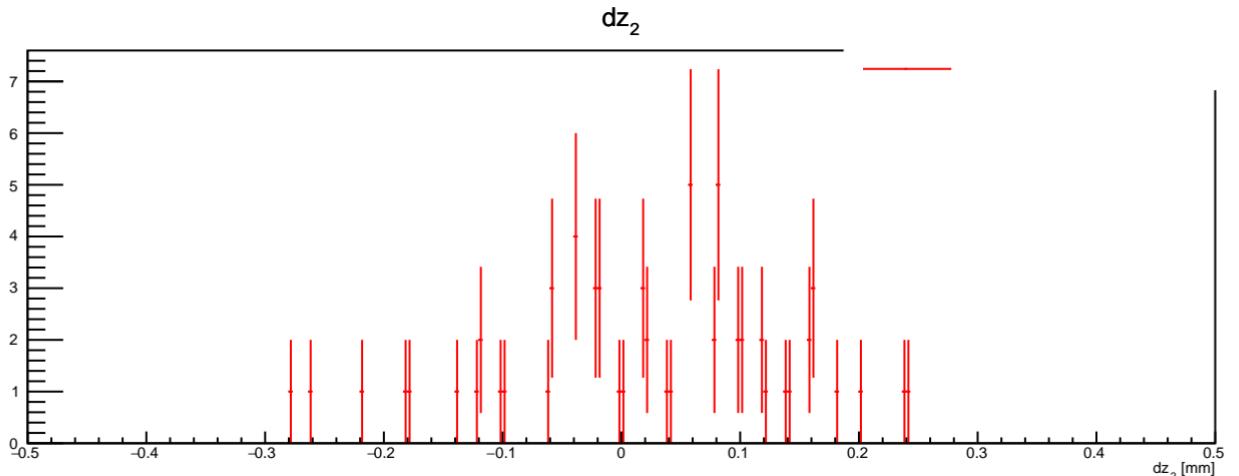
muon matched_rec

with kappa cut



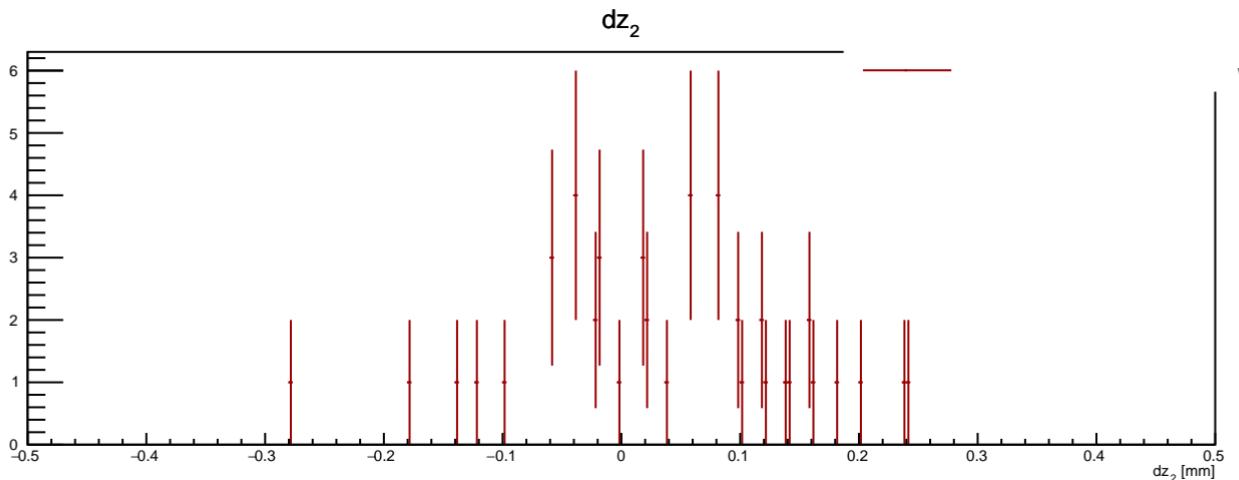
fakes

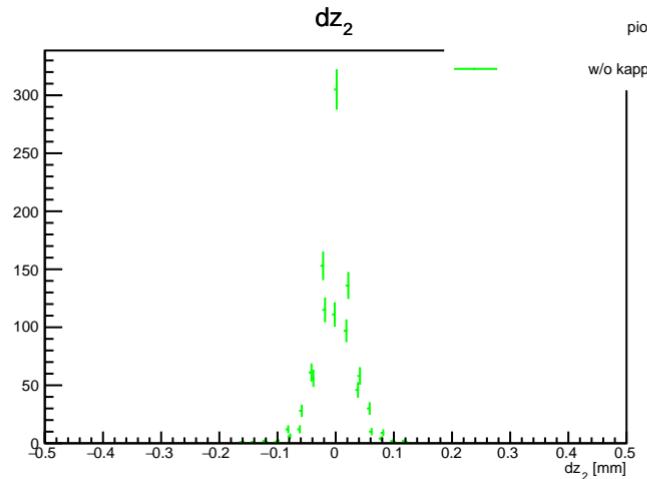
w/o kappa cut



fakes

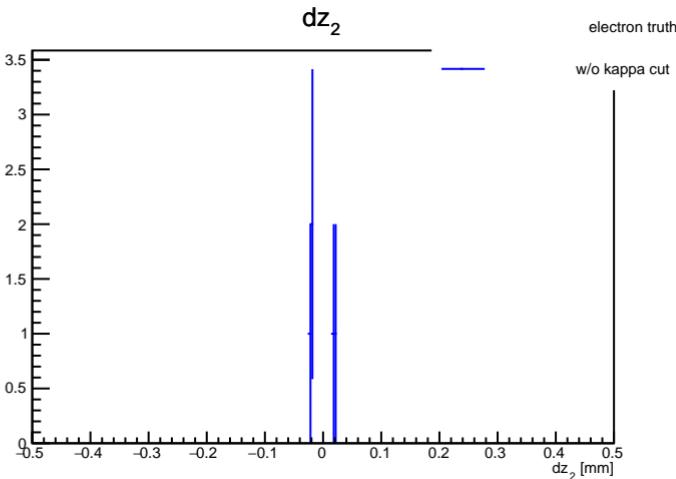
with kappa cut





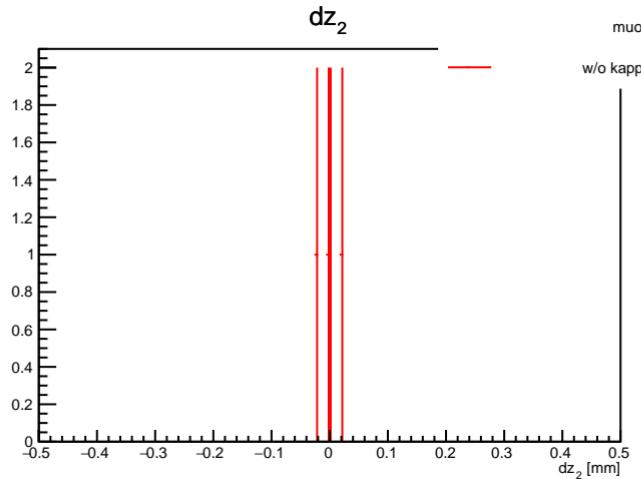
pion truth

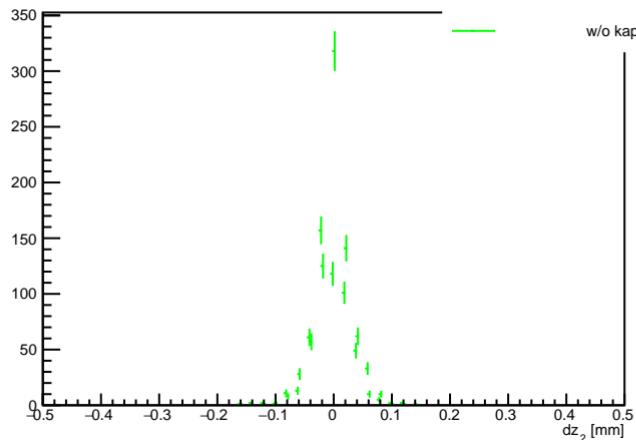
w/o kappa cut



muon truth

w/o kappa cut



dz_2 

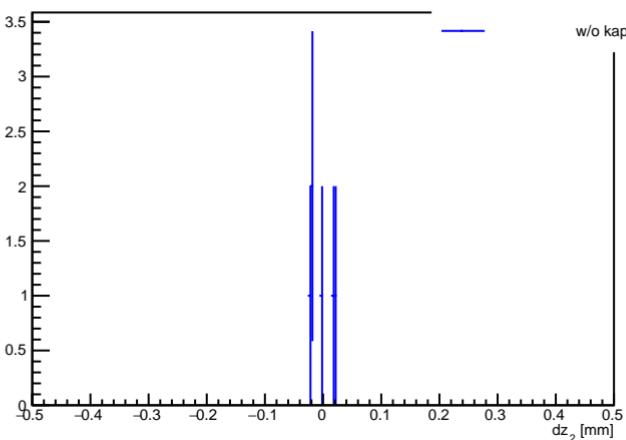
pion matched_rec

w/o kappa cut

 dz_2

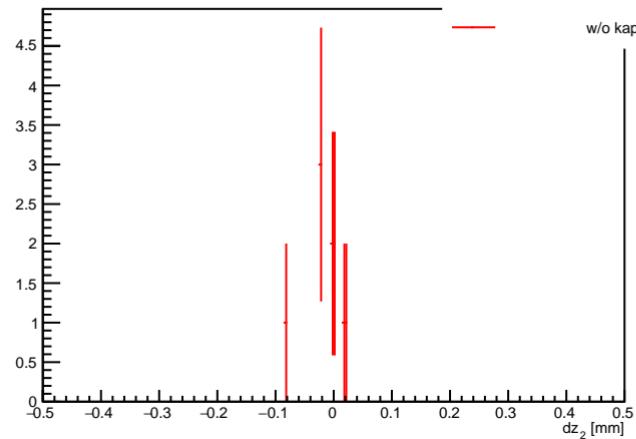
electron matched_rec

w/o kappa cut

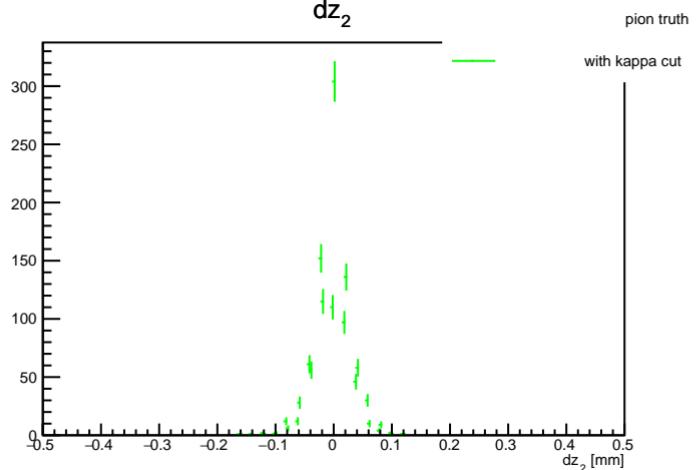
 dz_2

muon matched_rec

w/o kappa cut



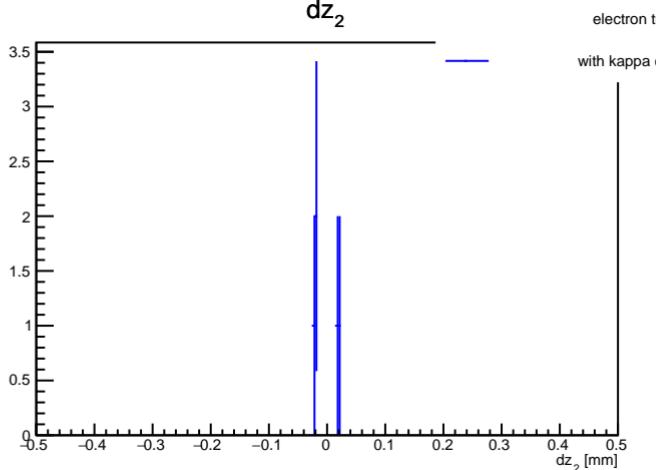
dz_2



pion truth

with kappa cut

dz_2

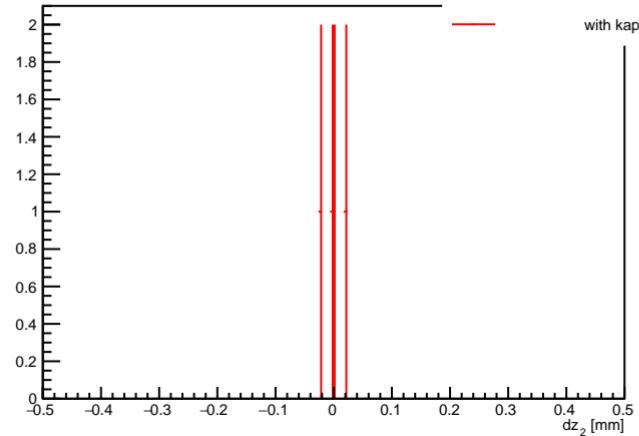


electron truth

with kappa cut

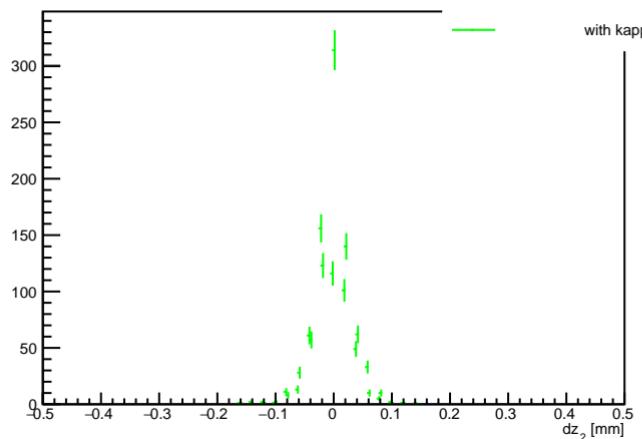
dz_2

muon truth

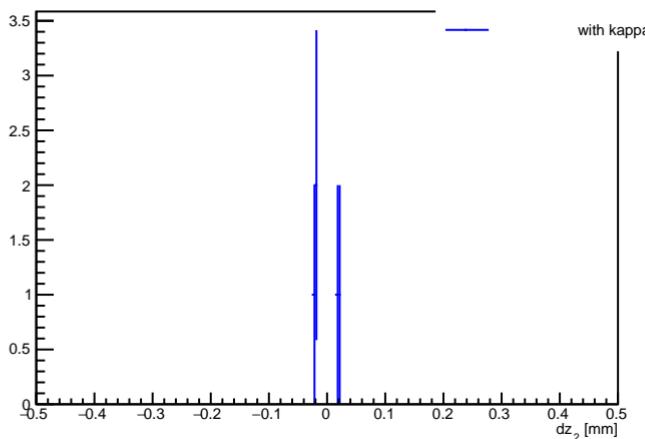


with kappa cut

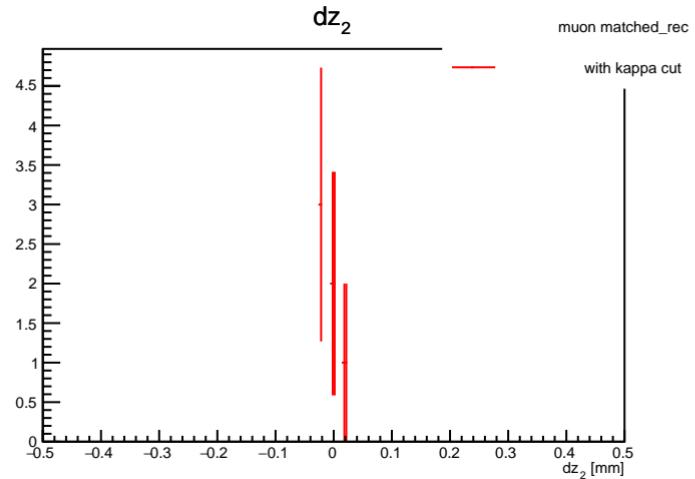
dz_2

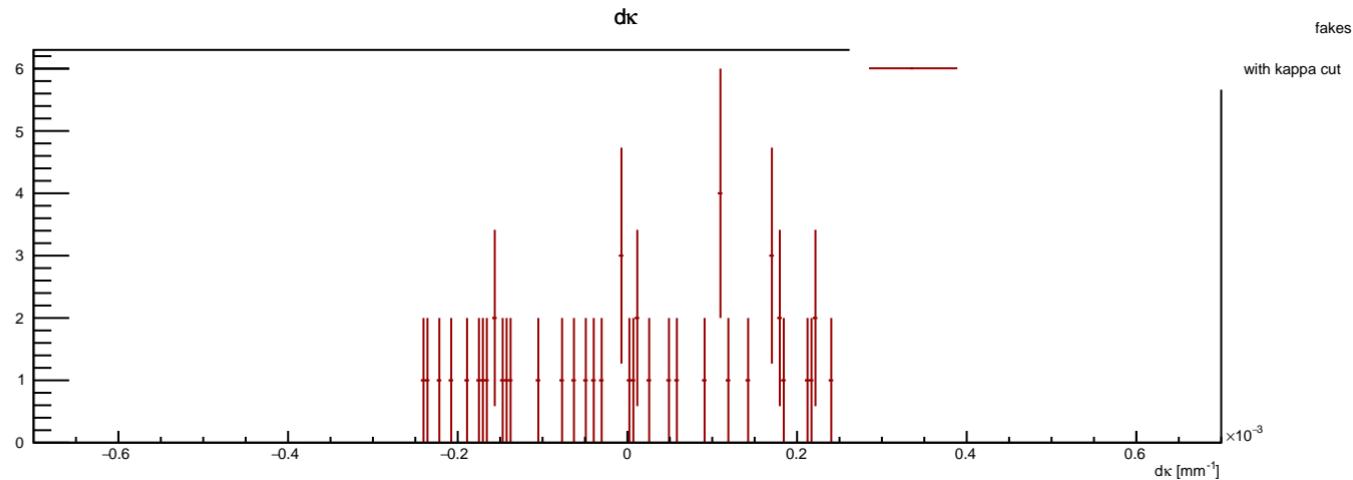
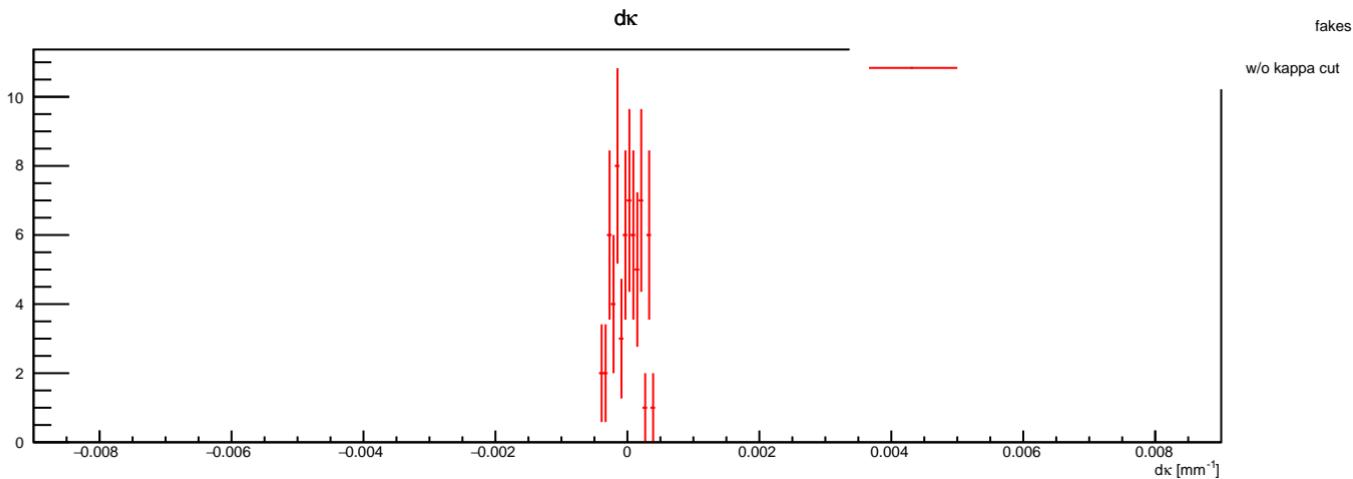


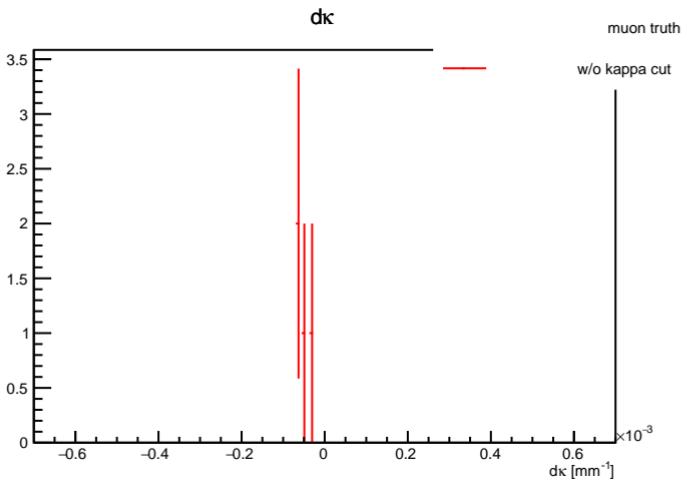
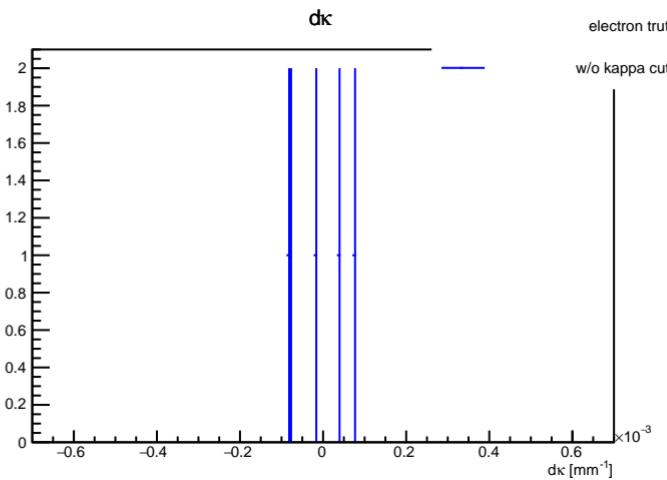
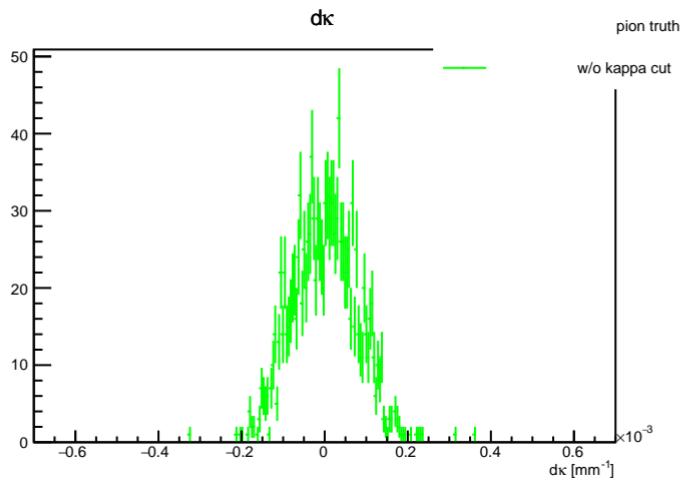
dz_2

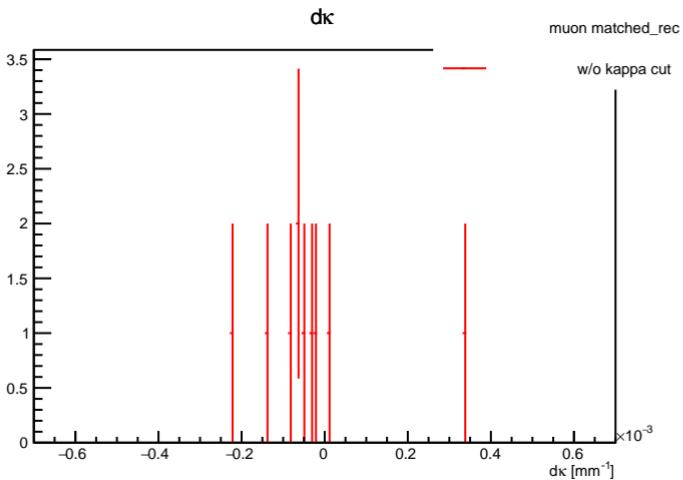
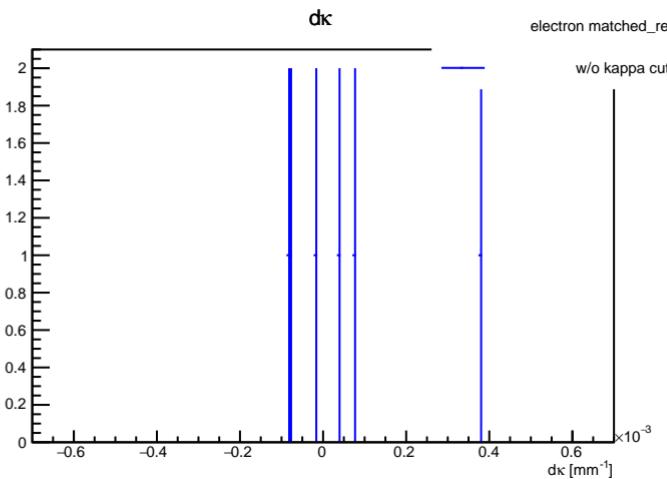
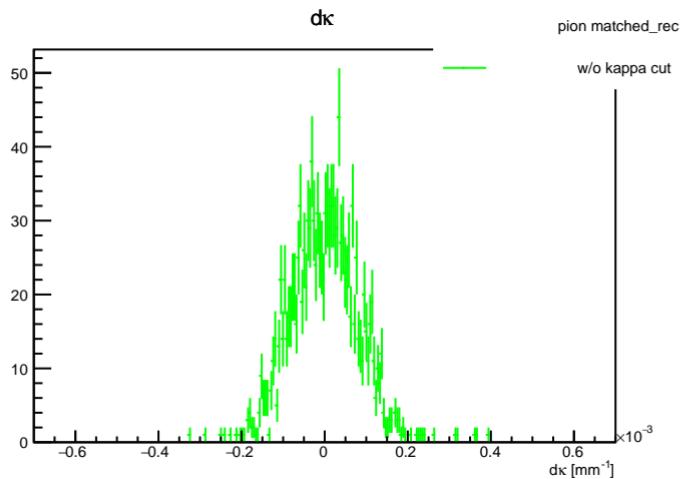


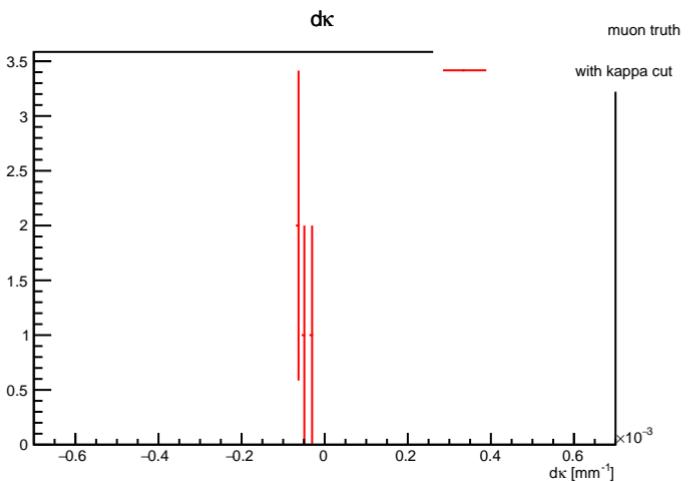
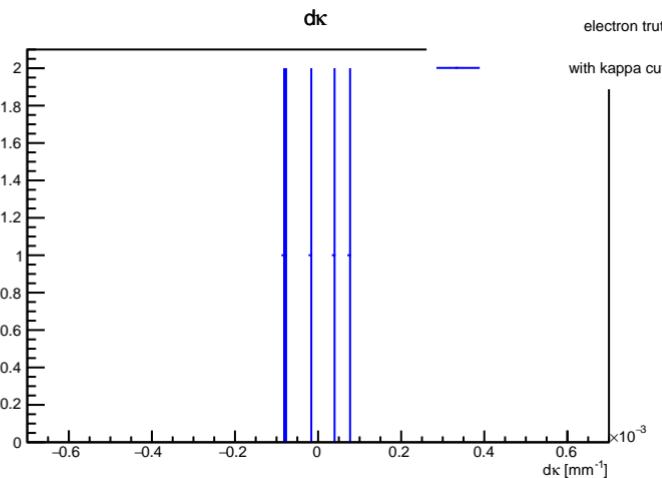
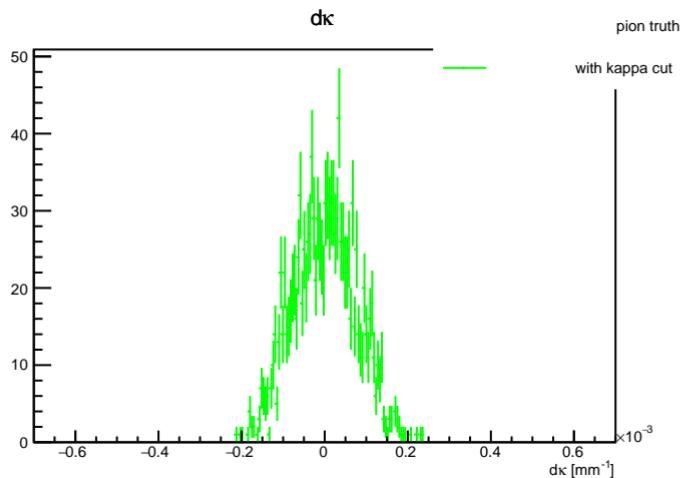
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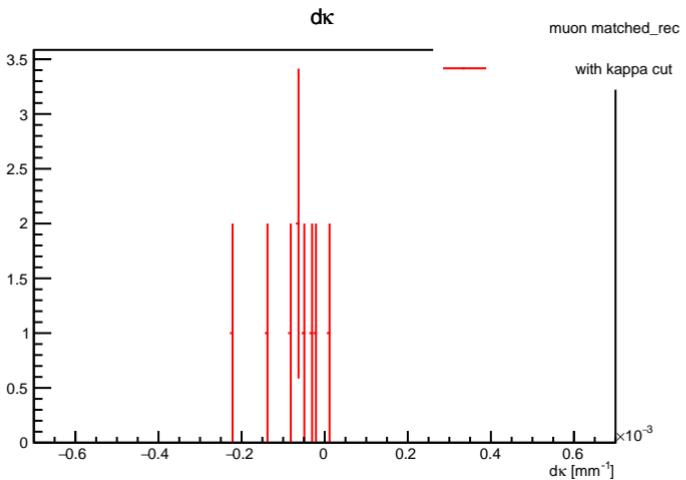
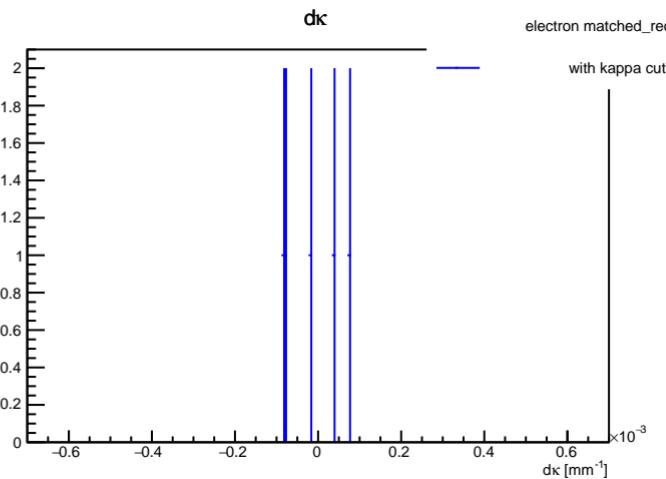
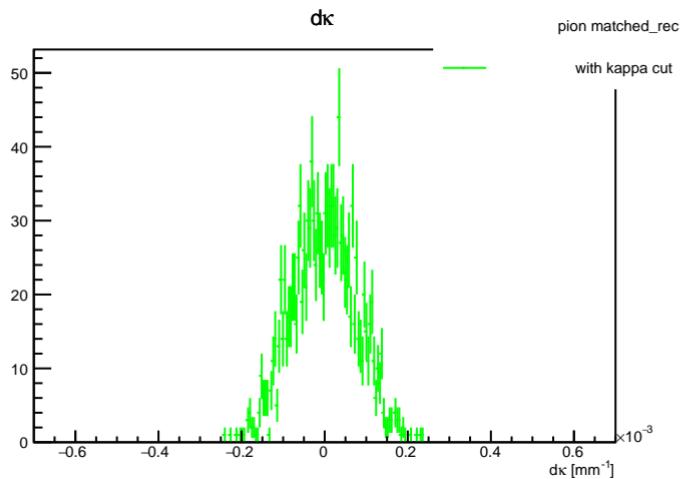




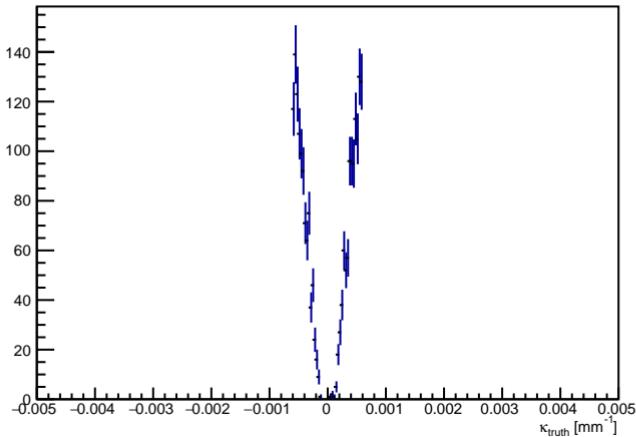




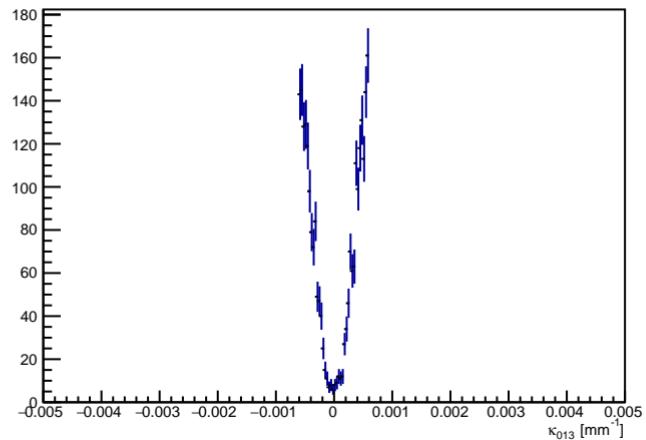




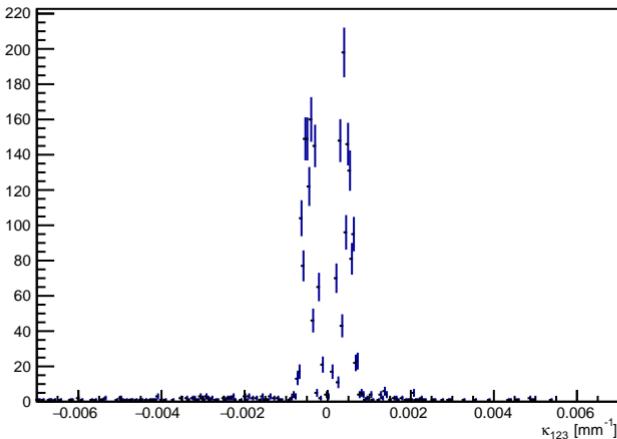
kappa truth

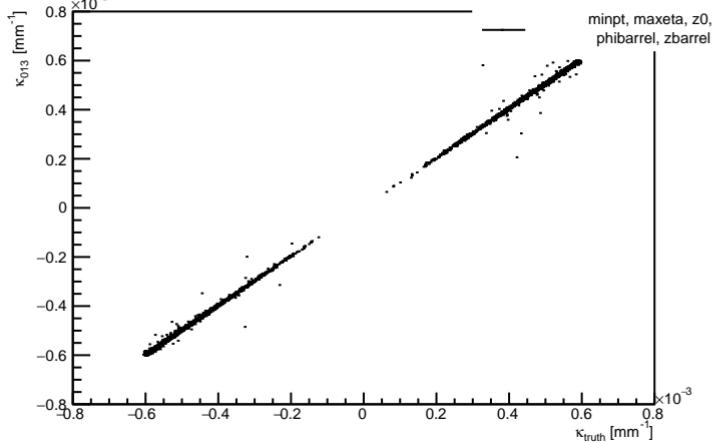
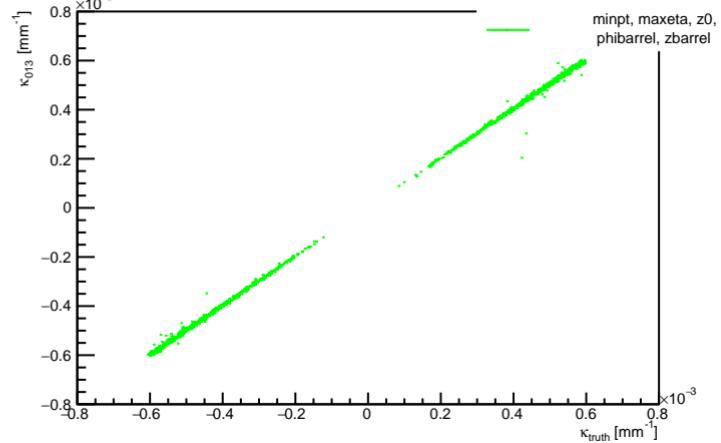
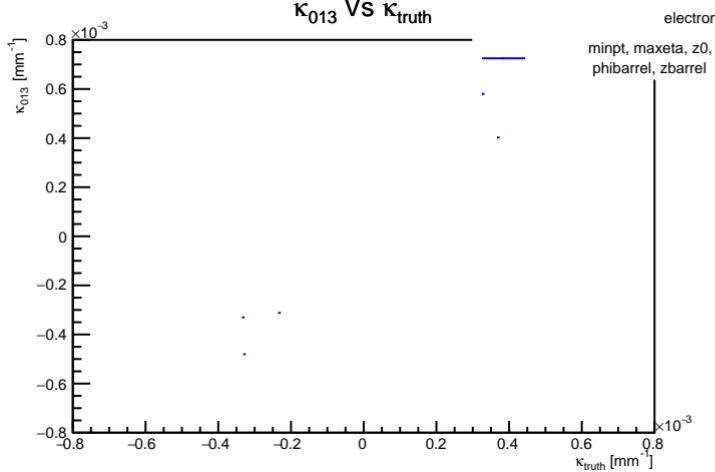
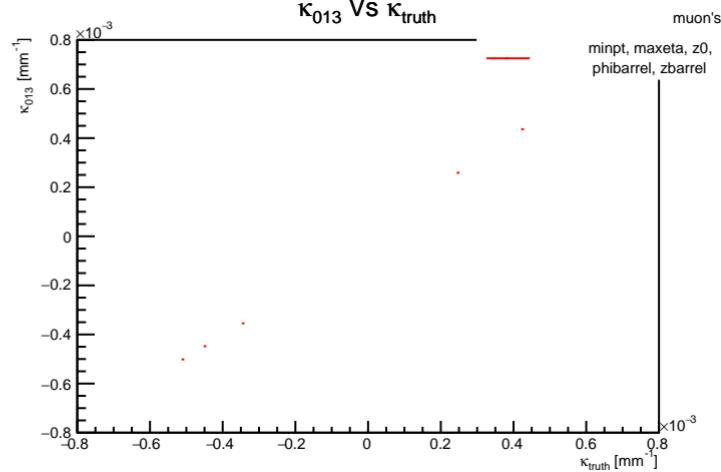


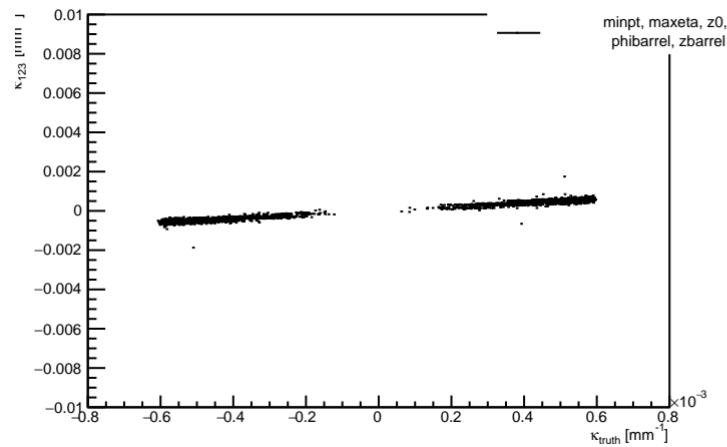
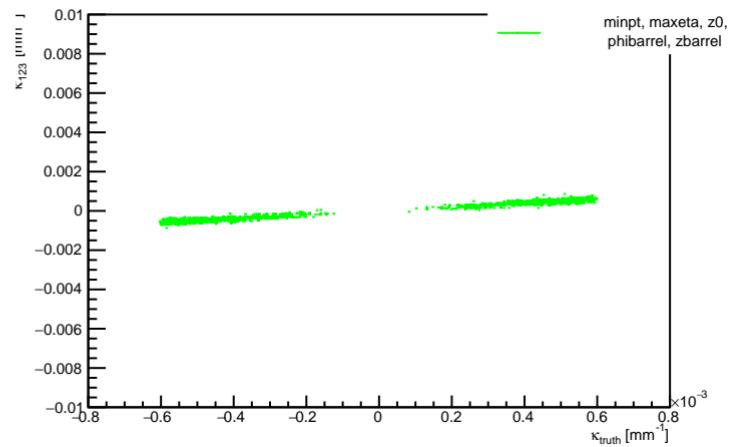
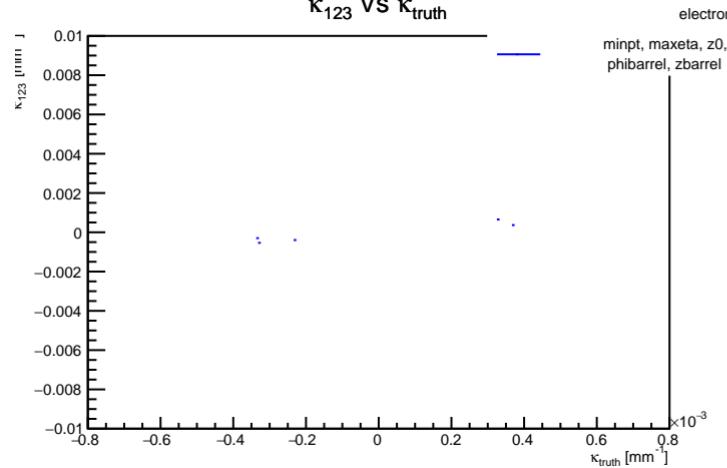
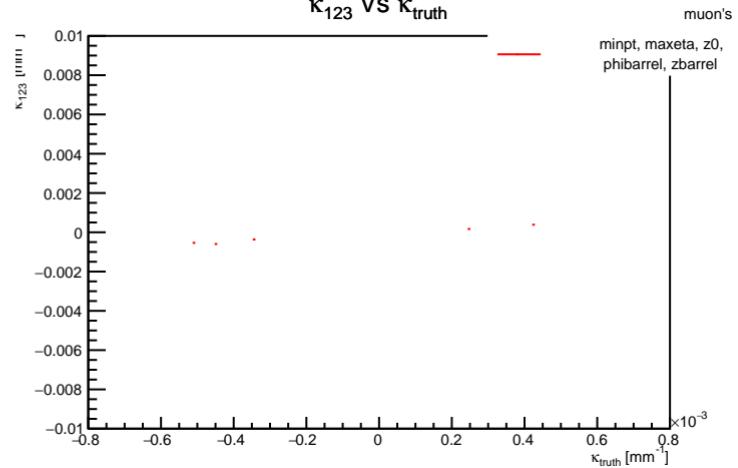
kappa rec with bml constraint



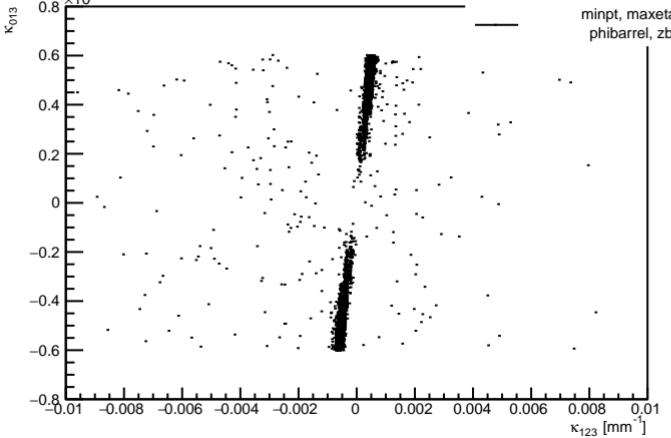
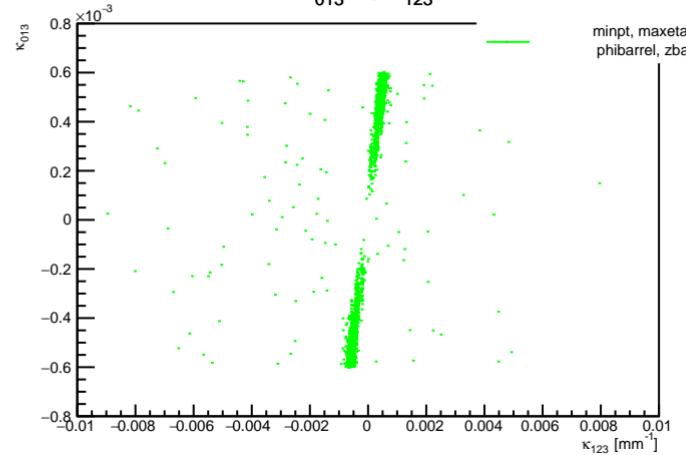
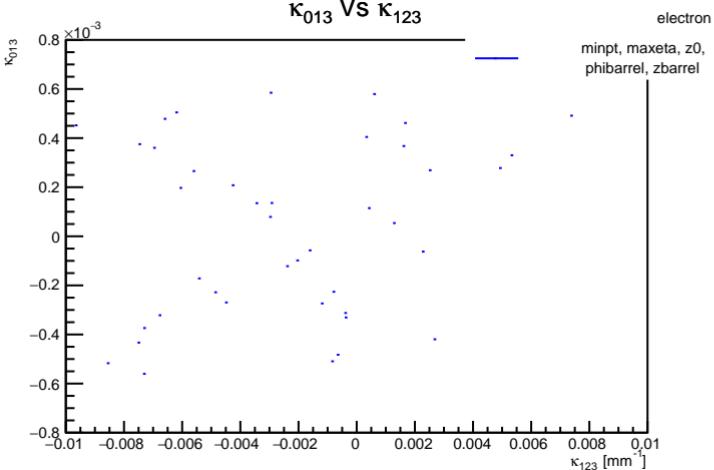
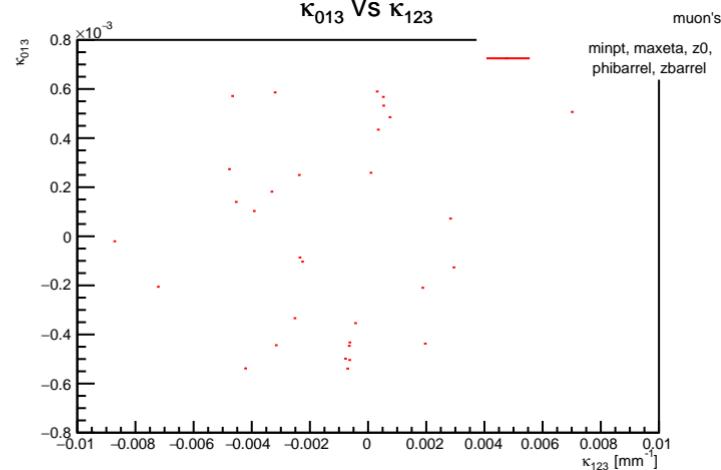
kappa rec w/o bml constraint



κ_{013} Vs κ_{truth}  κ_{013} Vs κ_{truth}  κ_{013} Vs κ_{truth}  κ_{013} Vs κ_{truth} 

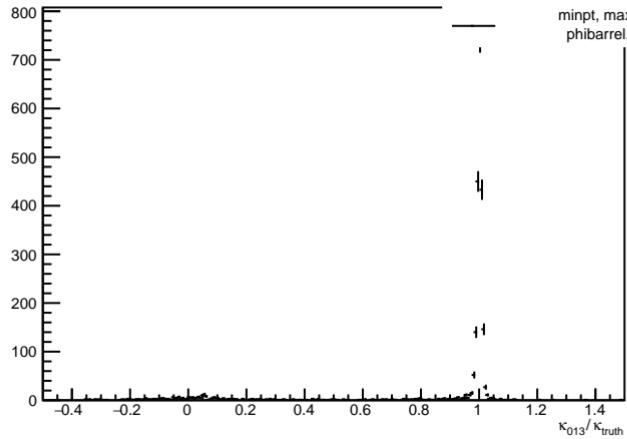
κ_{123} Vs κ_{truth}  κ_{123} Vs κ_{truth}  κ_{123} Vs κ_{truth}  κ_{123} Vs κ_{truth} 

pion

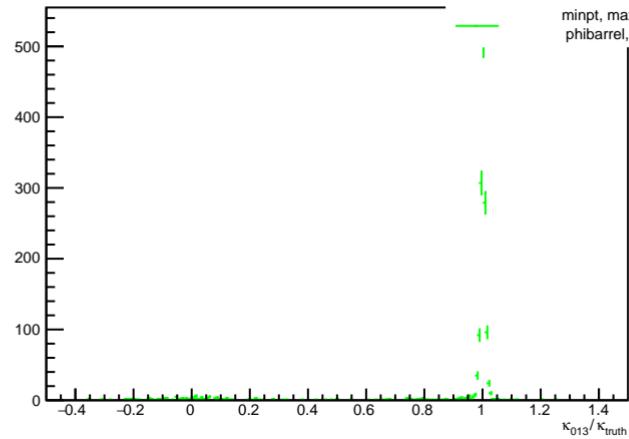
κ_{013} Vs κ_{123}  κ_{013} Vs κ_{123}  κ_{013} Vs κ_{123}  κ_{013} Vs κ_{123} 

$\kappa_{013}/\kappa_{\text{truth}}$

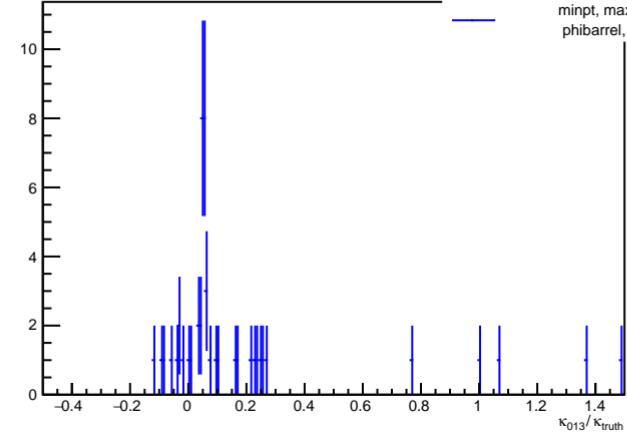
all

 $\kappa_{013}/\kappa_{\text{truth}}$

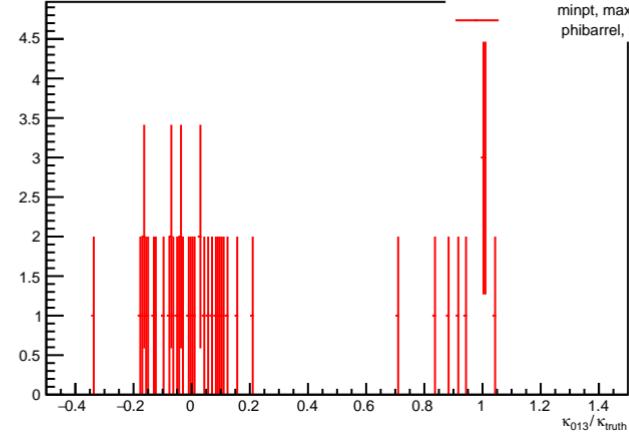
pion

 $\kappa_{013}/\kappa_{\text{truth}}$

electron

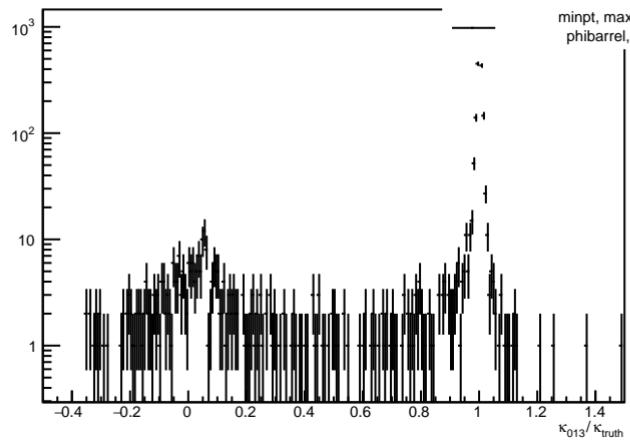
 $\kappa_{013}/\kappa_{\text{truth}}$

muon's

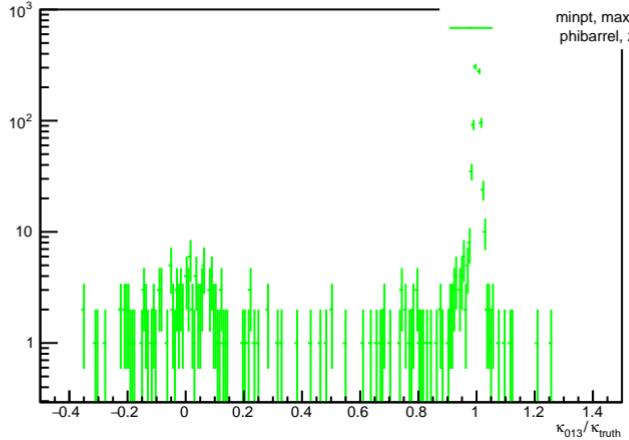


$\kappa_{013}/\kappa_{\text{truth}}$

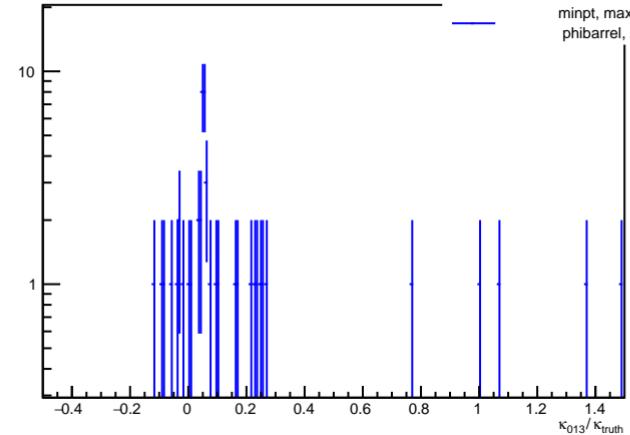
all

 $\kappa_{013}/\kappa_{\text{truth}}$

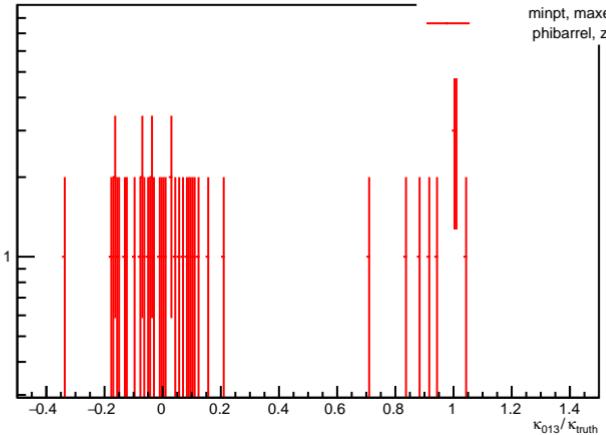
pion

 $\kappa_{013}/\kappa_{\text{truth}}$

electron

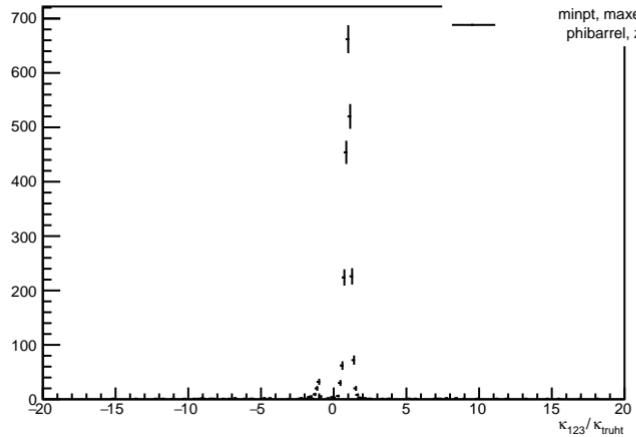
 $\kappa_{013}/\kappa_{\text{truth}}$

muon's

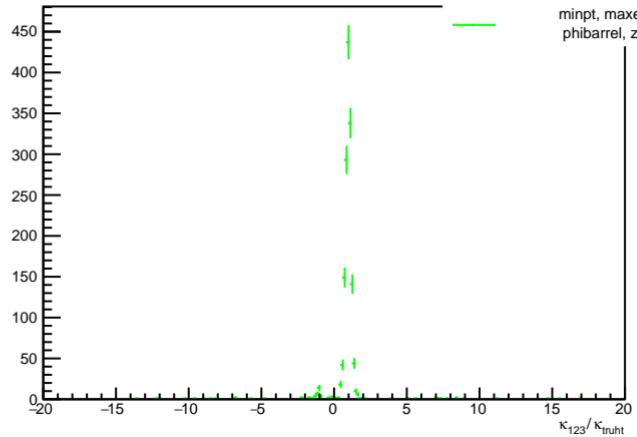


$\kappa_{123}/\kappa_{\text{truth}}$

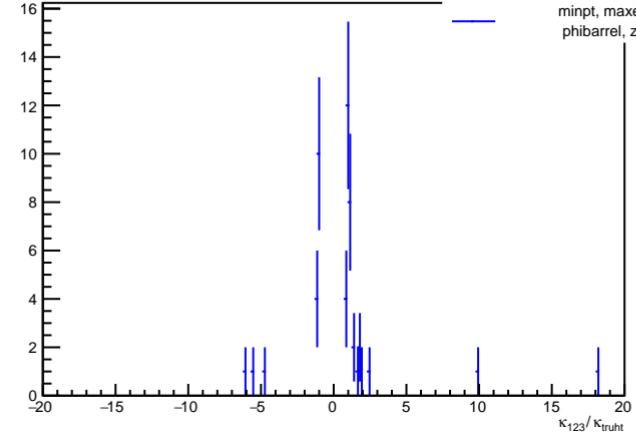
all

 $\kappa_{123}/\kappa_{\text{truth}}$

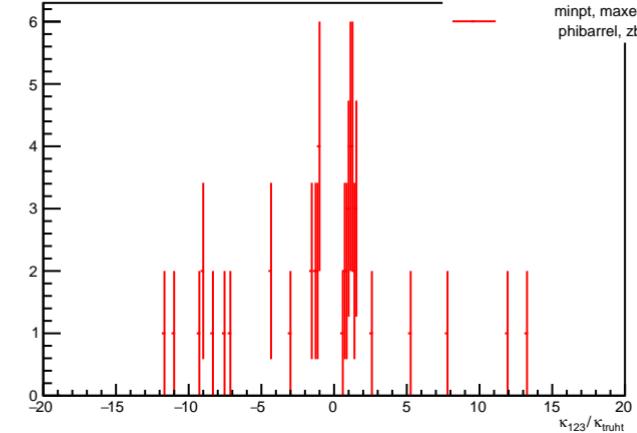
pion

 $\kappa_{123}/\kappa_{\text{truth}}$

electron

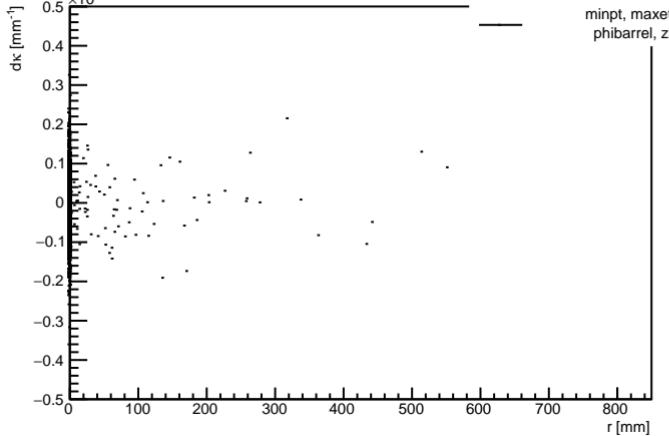
 $\kappa_{123}/\kappa_{\text{truth}}$

muon's



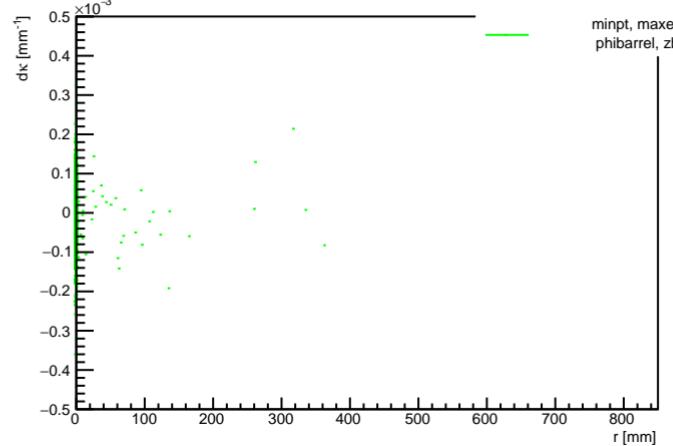
dk Vs r

all



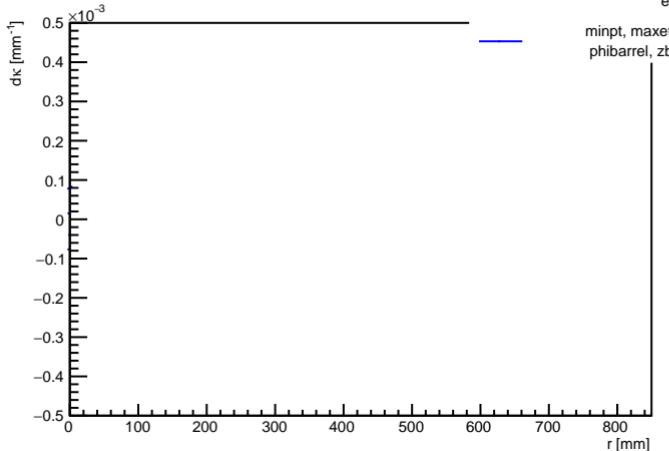
dk Vs r

pion



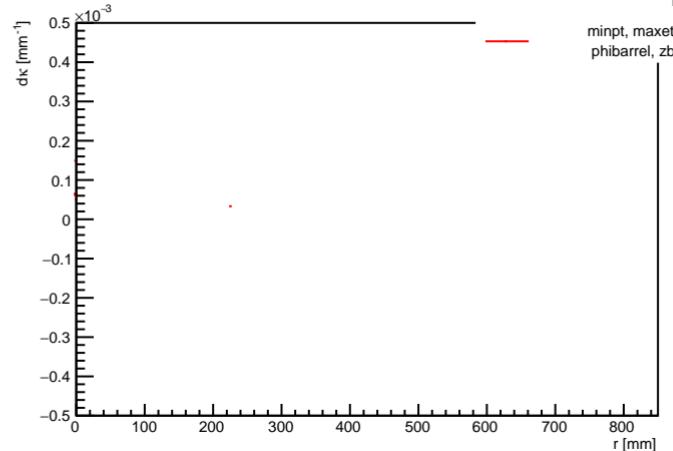
dk Vs r

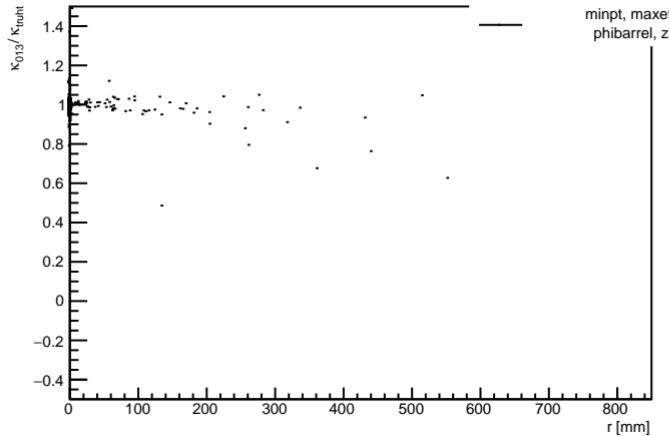
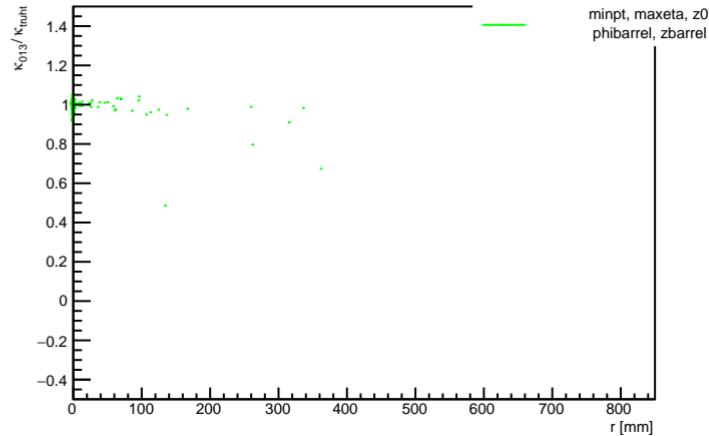
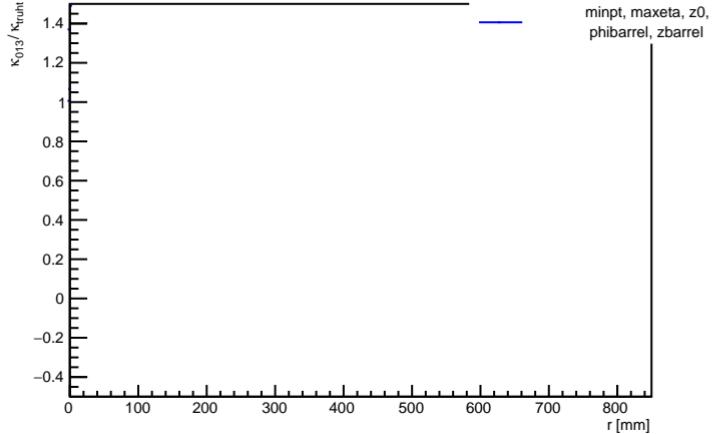
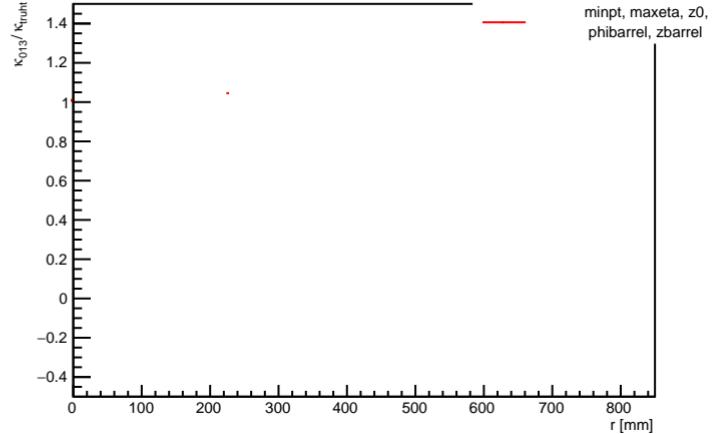
electron



dk Vs r

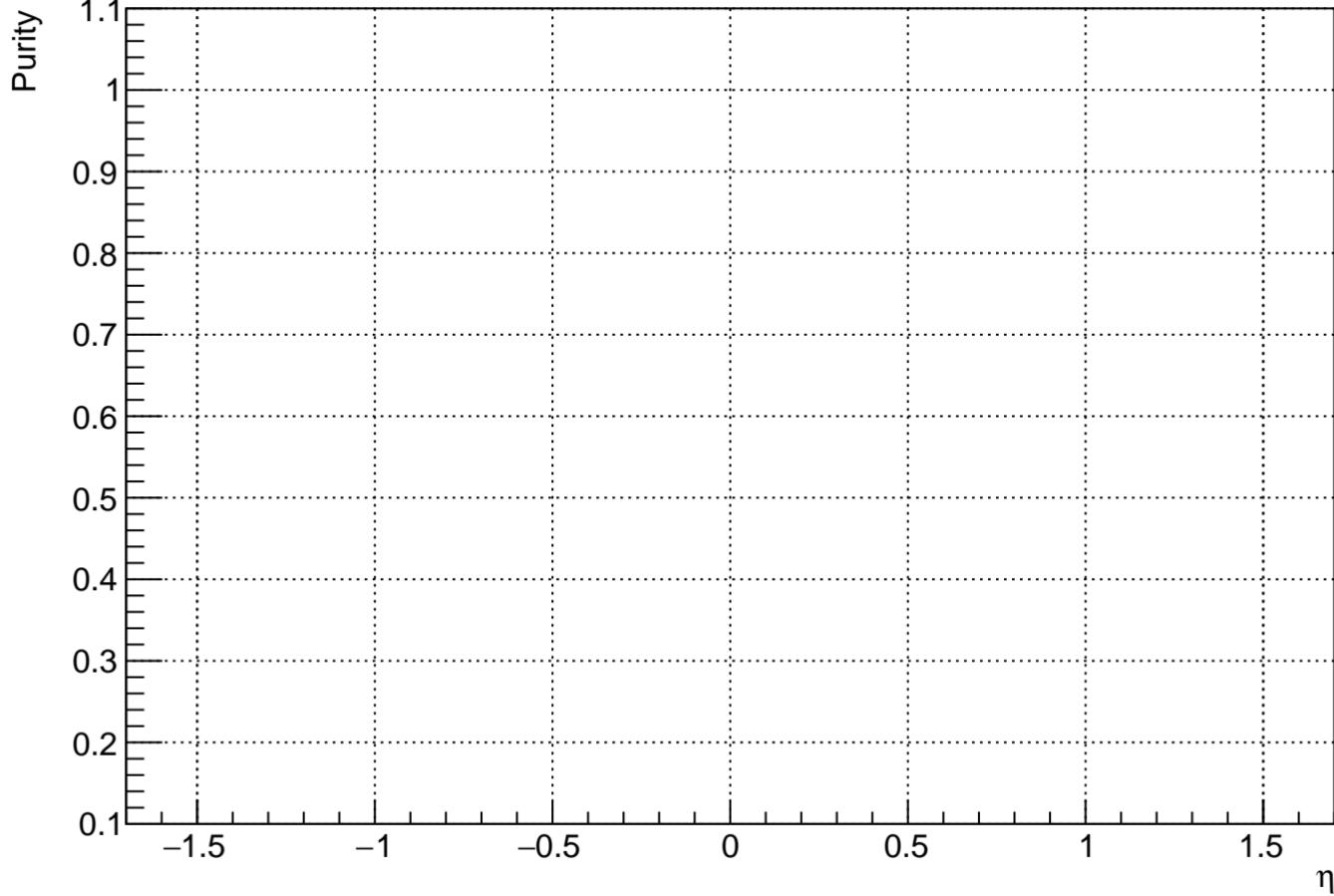
muon's



$\kappa_{013}/\kappa_{\text{truth}}$ Vs r  $\kappa_{013}/\kappa_{\text{truth}}$ Vs r  $\kappa_{013}/\kappa_{\text{truth}}$ Vs r  $\kappa_{013}/\kappa_{\text{truth}}$ Vs r 

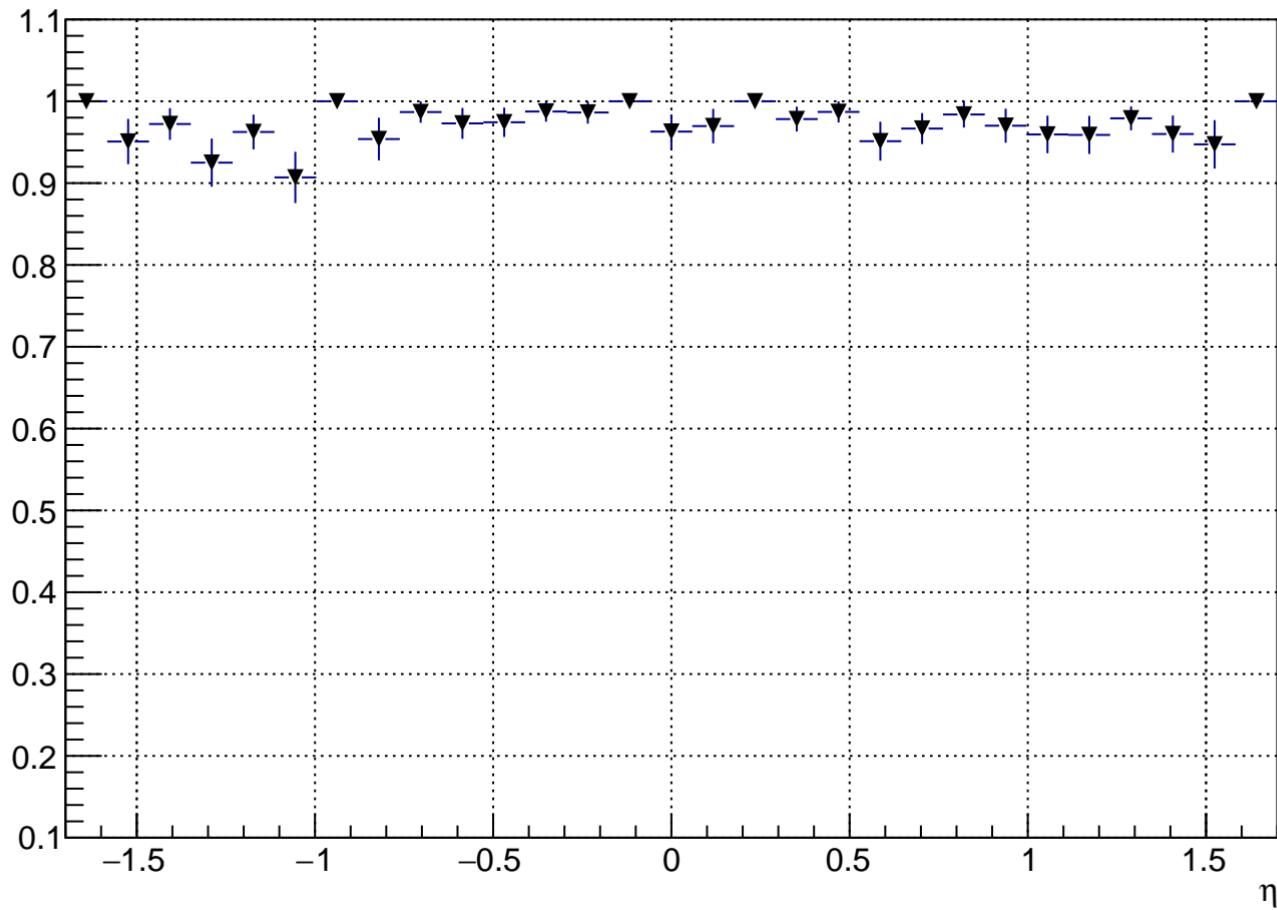
pion

Purity vs η



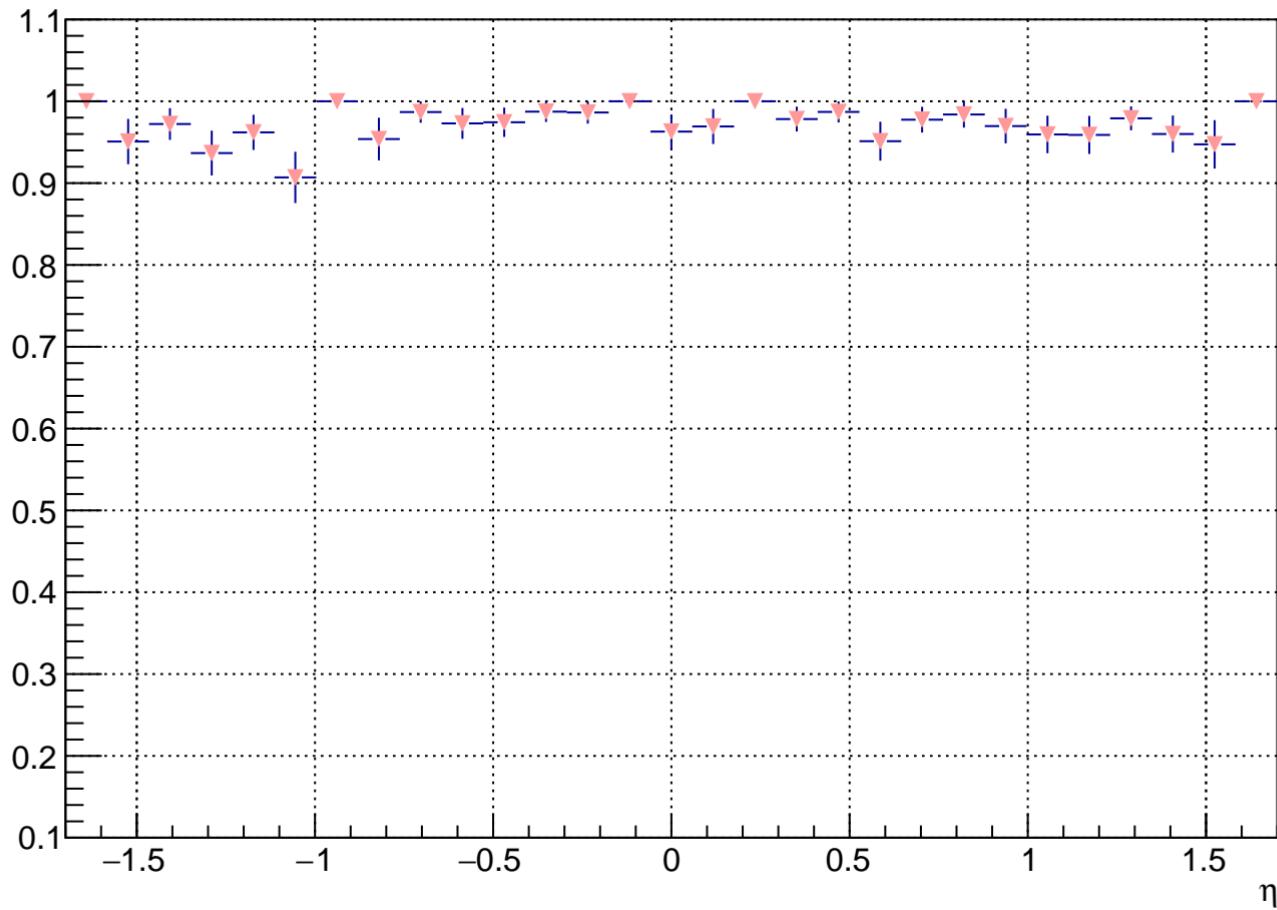
Purity vs η

Purity

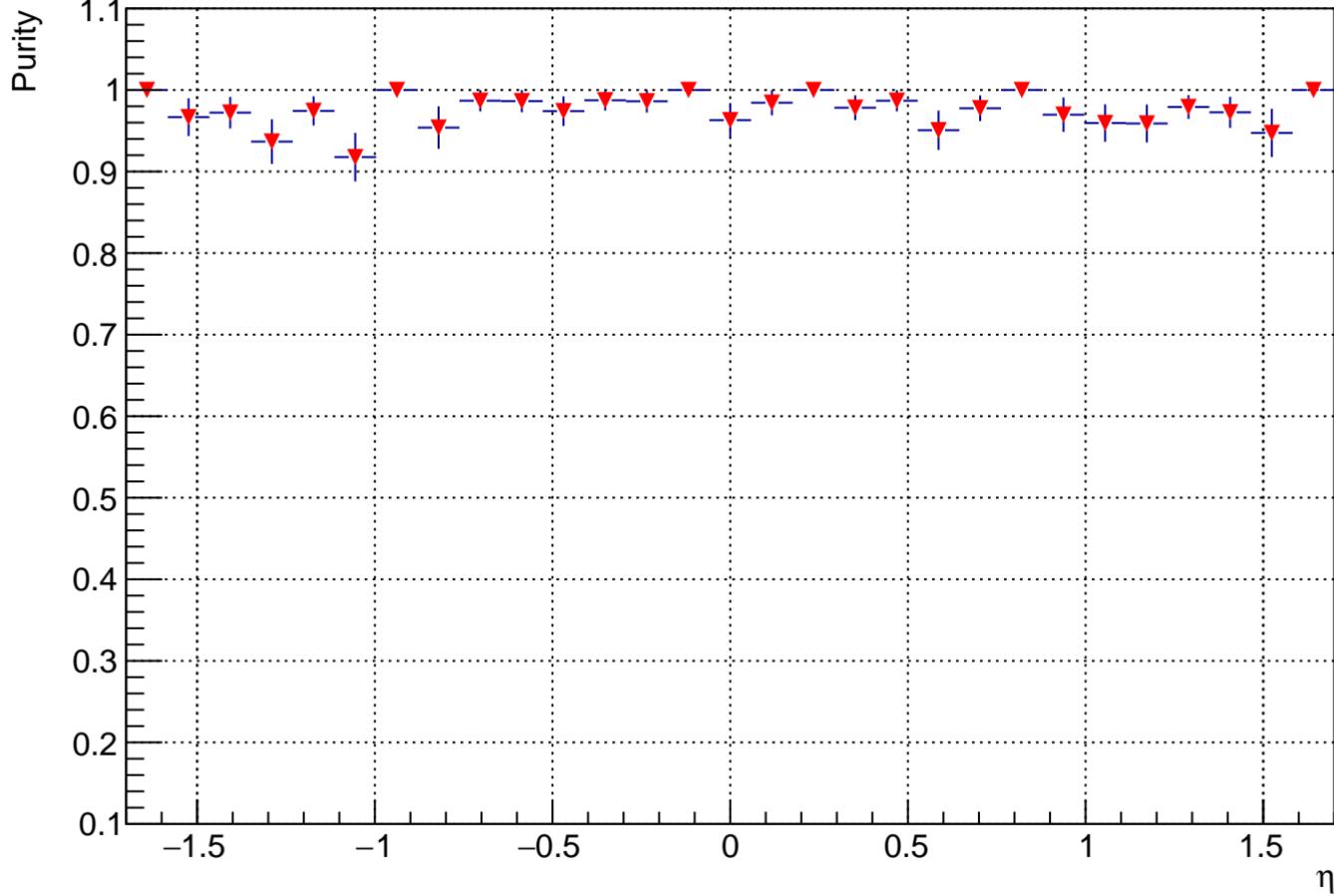


Purity vs η

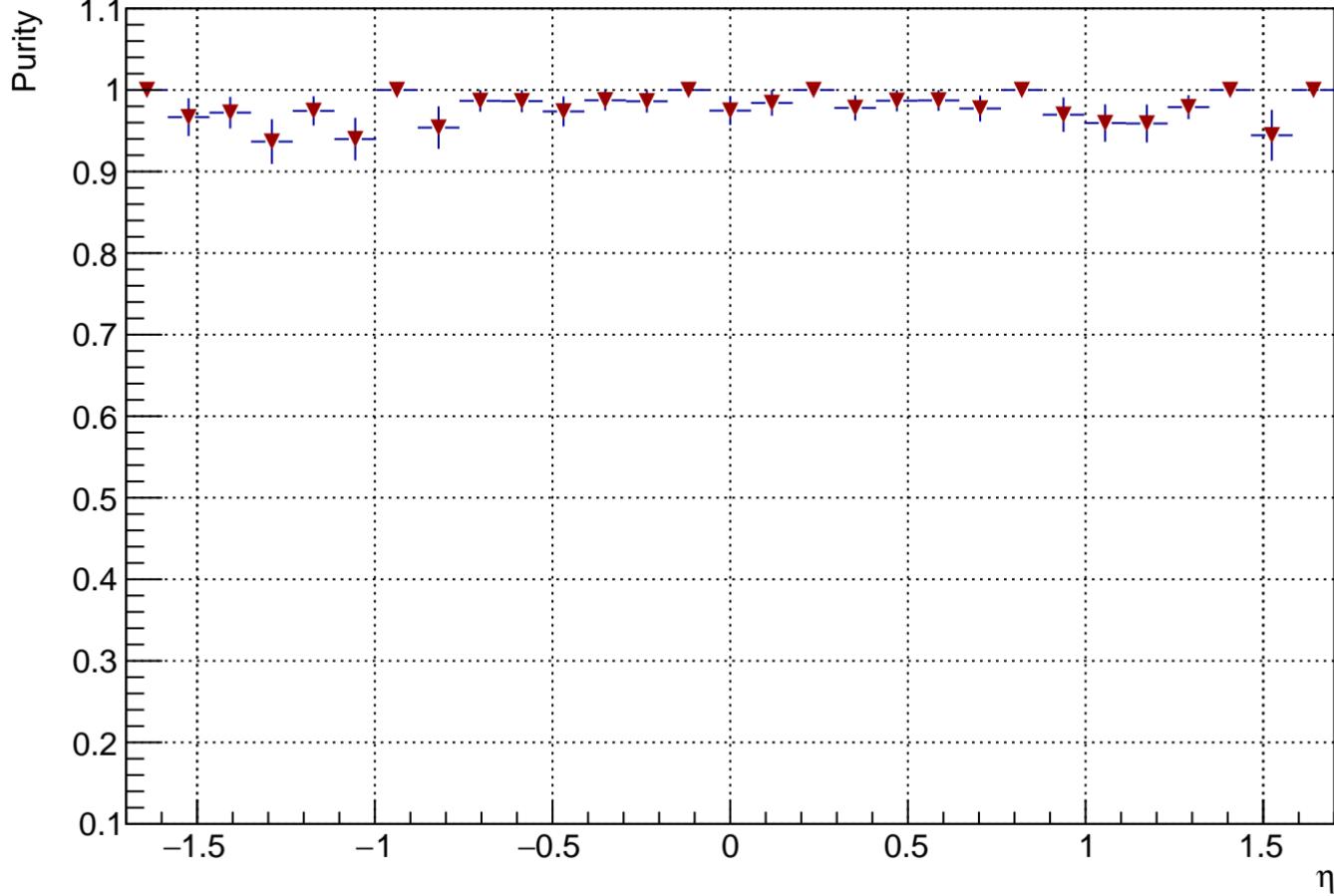
Purity



Purity vs η

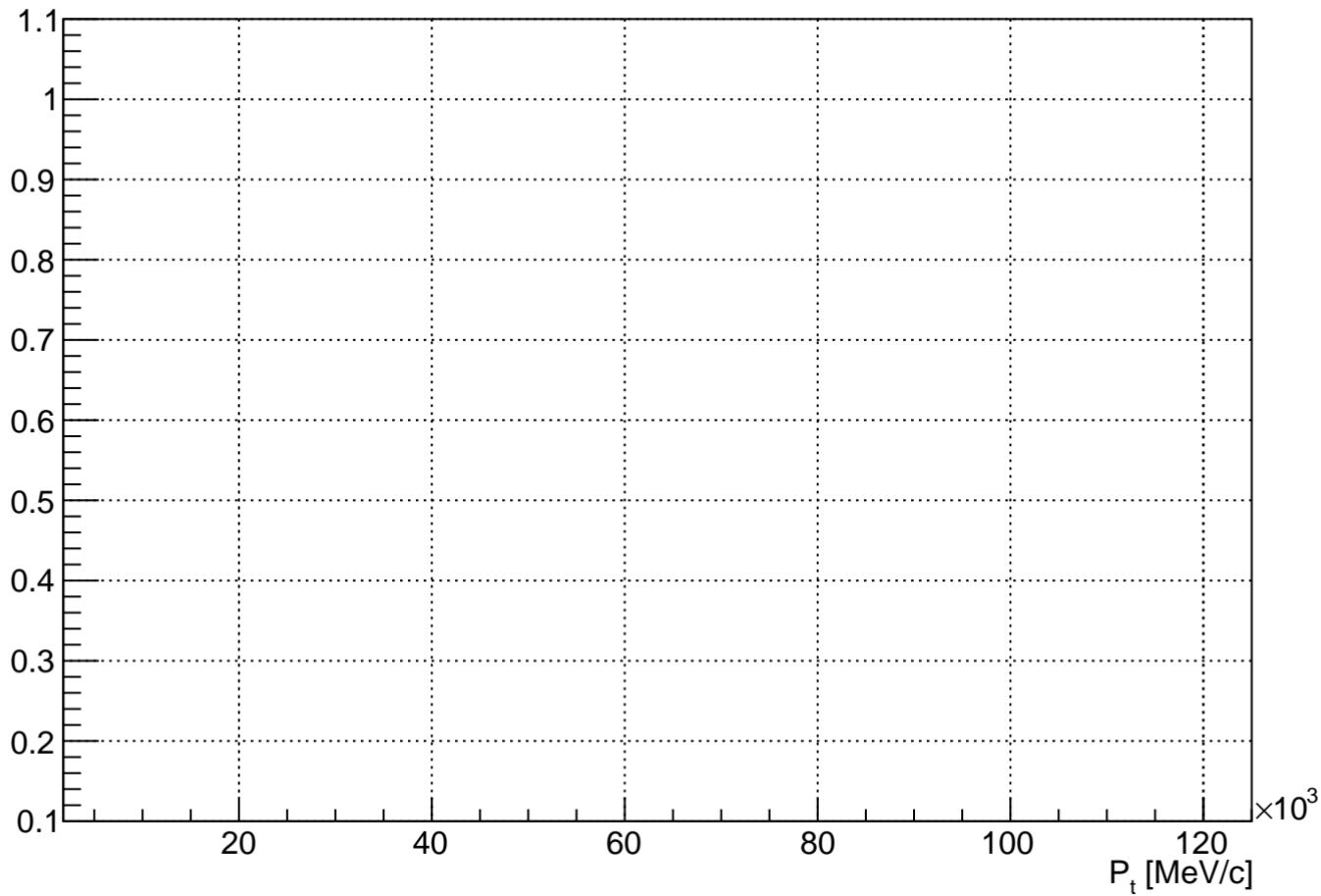


Purity vs η

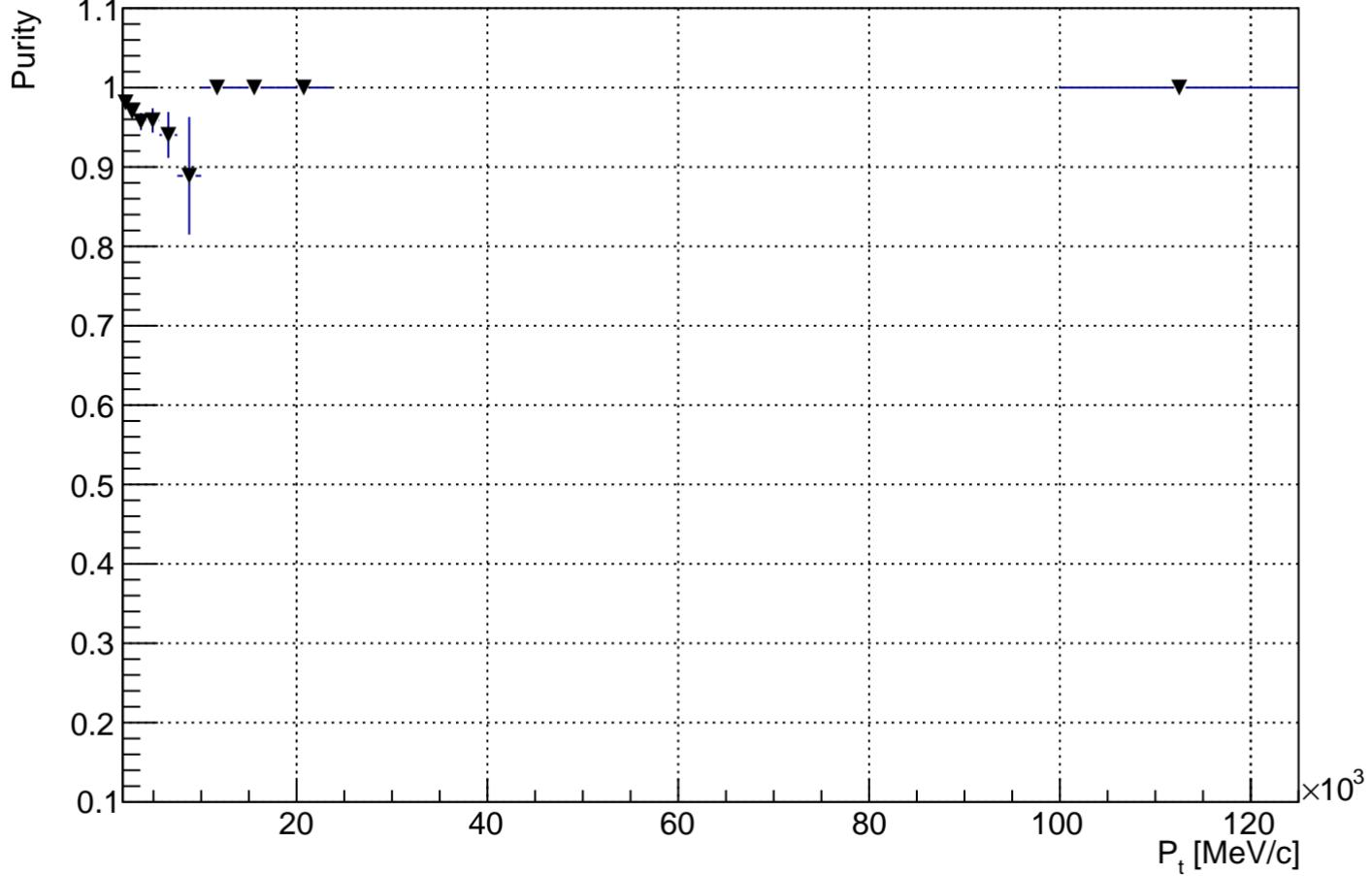


Purity vs P_t

Purity

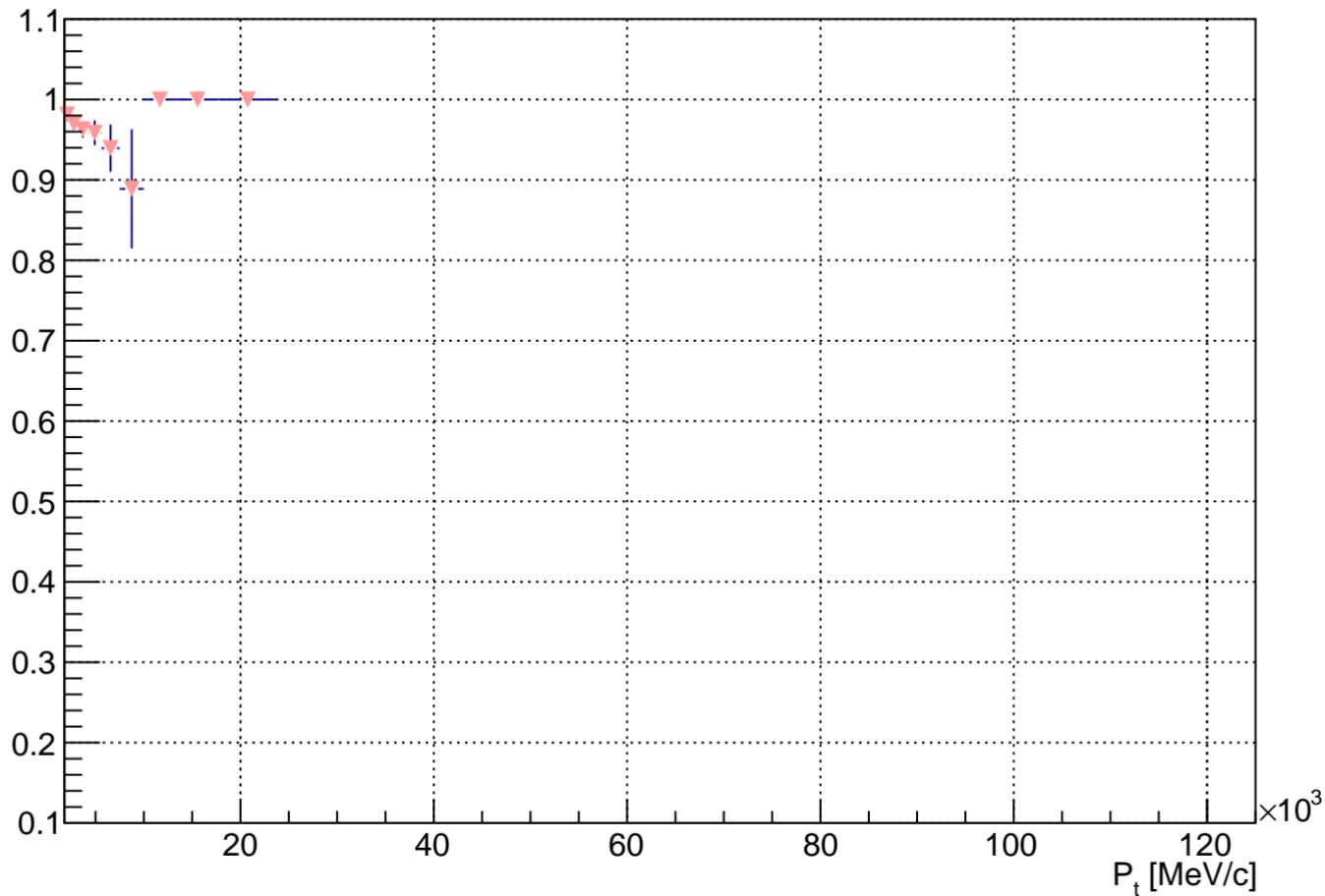


Purity vs P_t

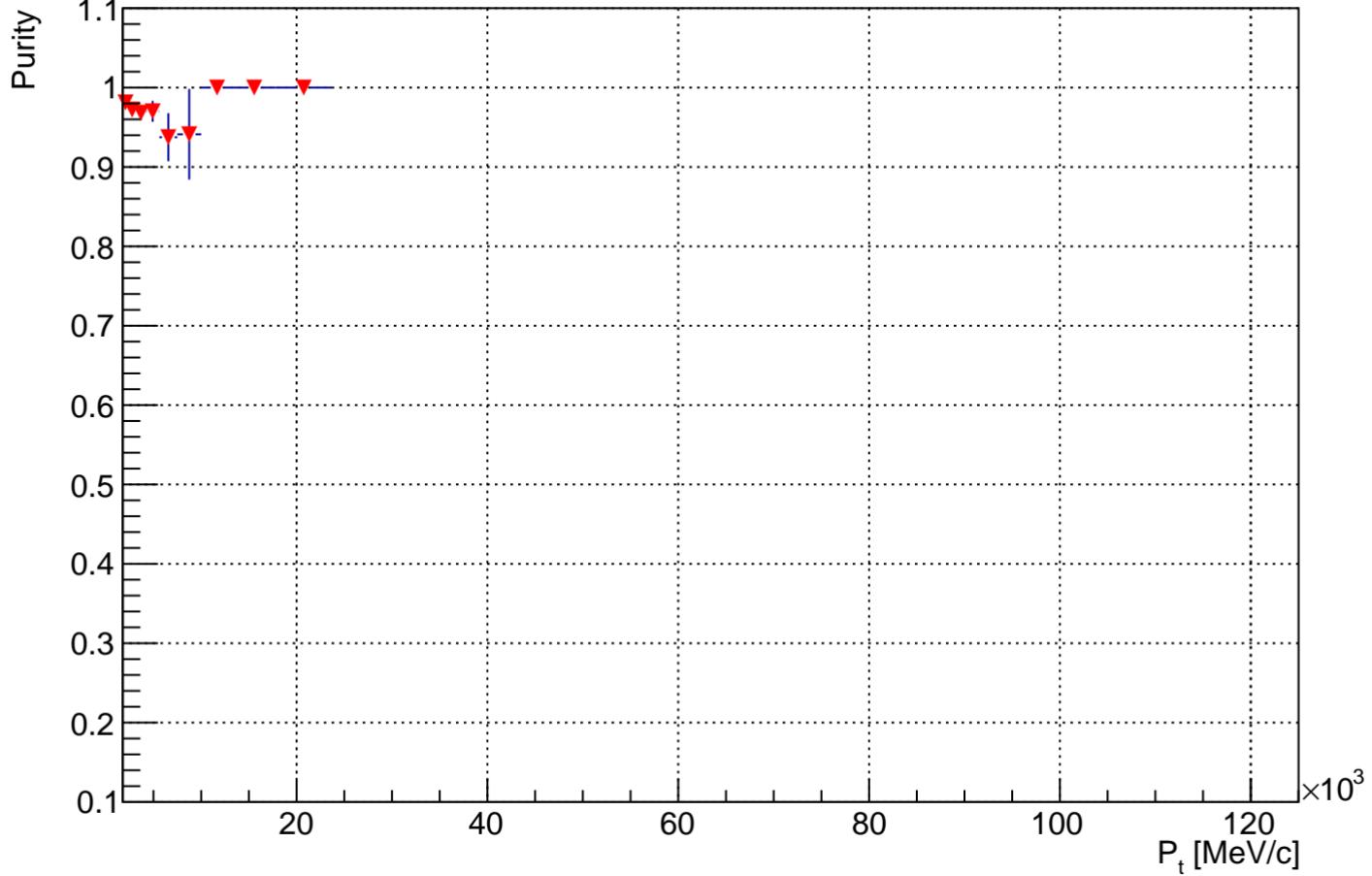


Purity vs P_t

Purity

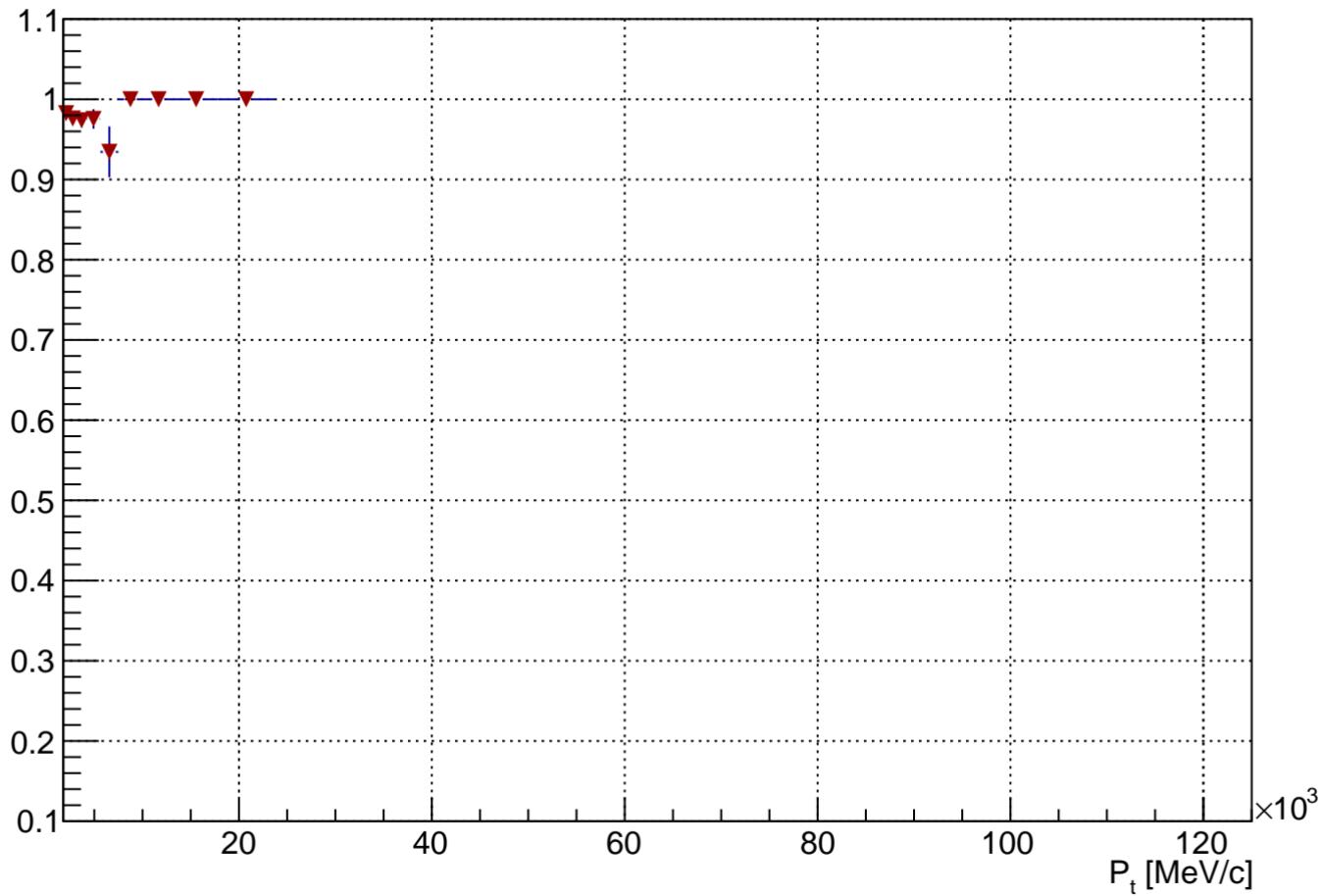


Purity vs P_t



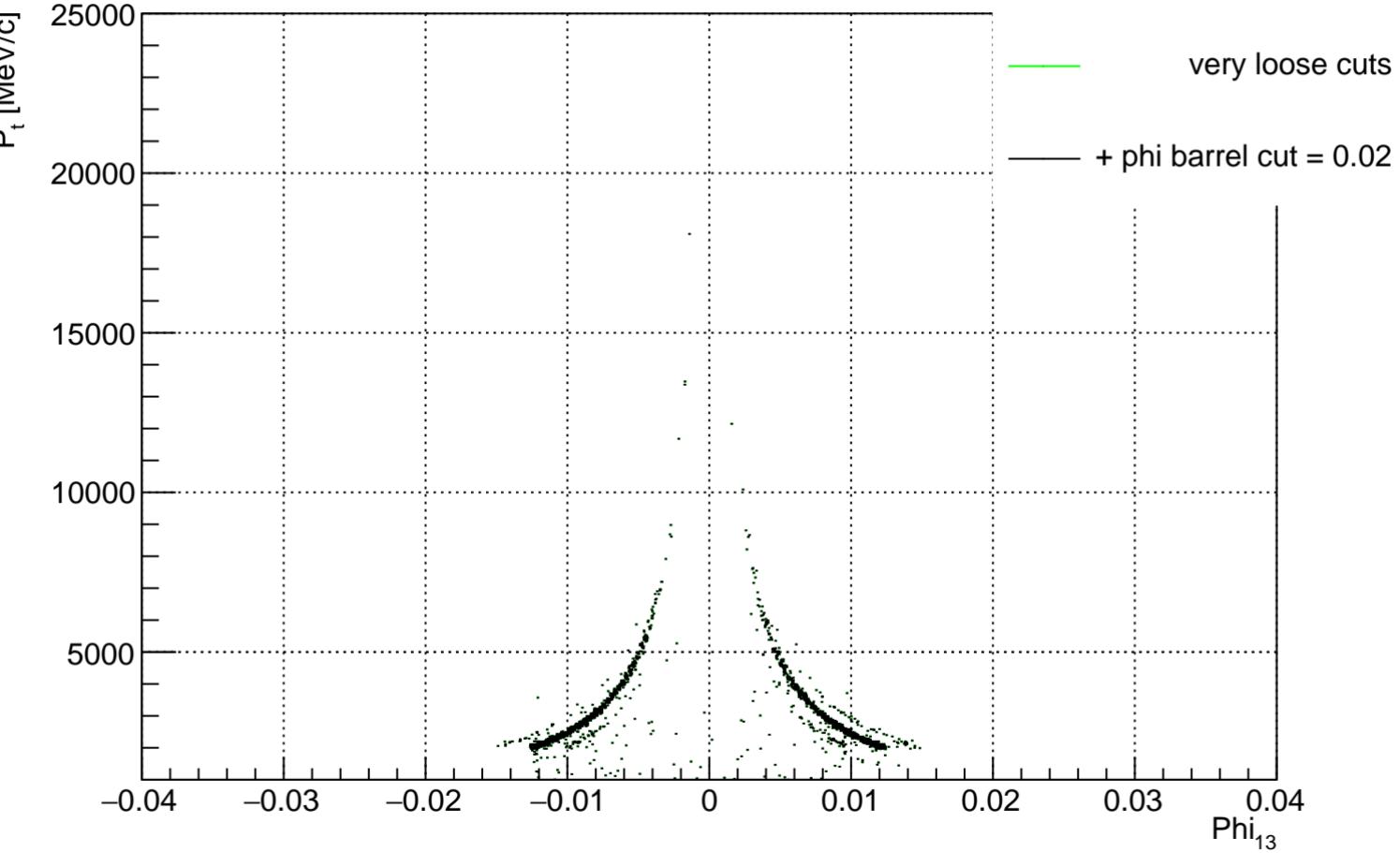
Purity vs P_t

Purity

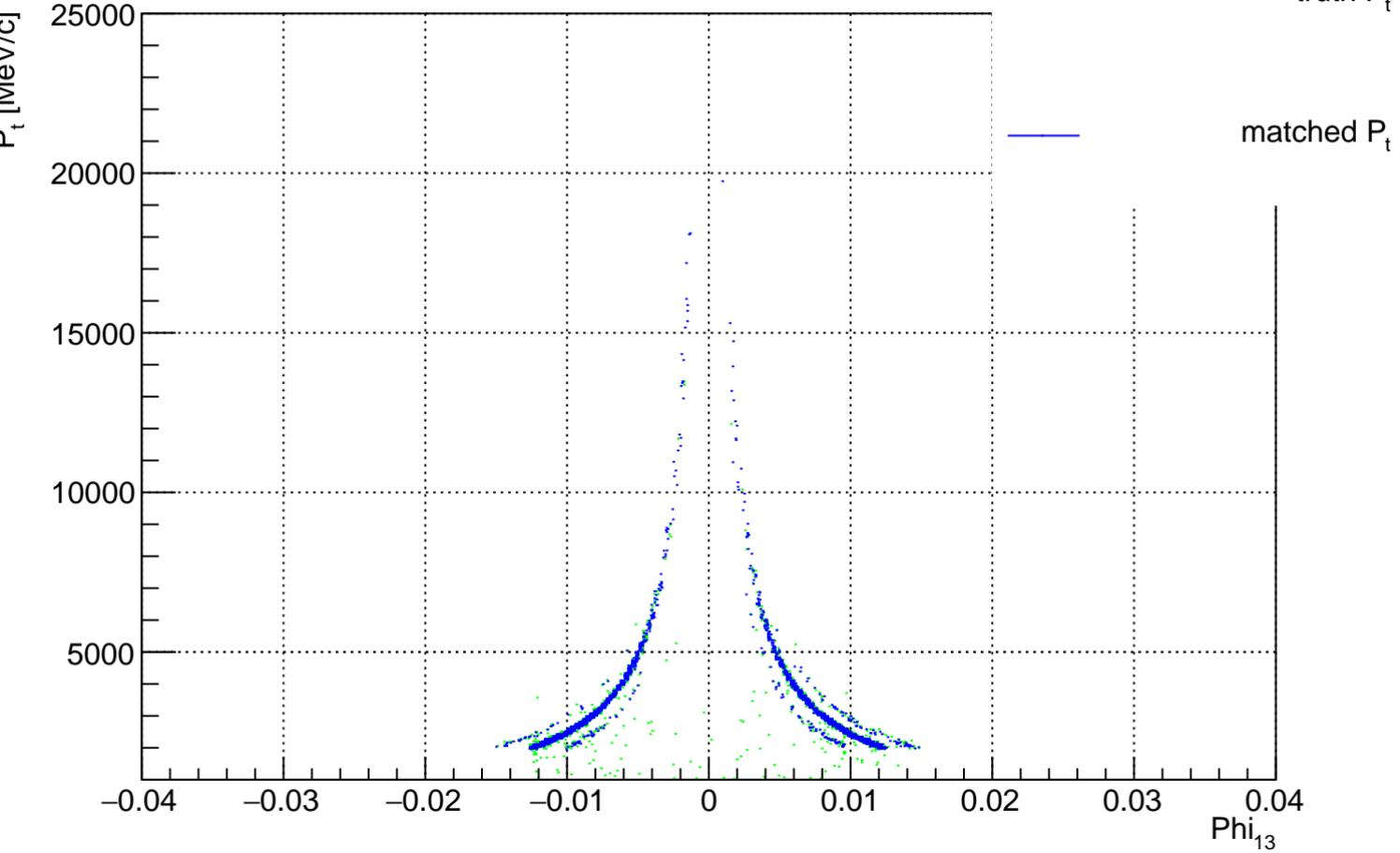


P_t Vs Φ_{13}

truth P_t

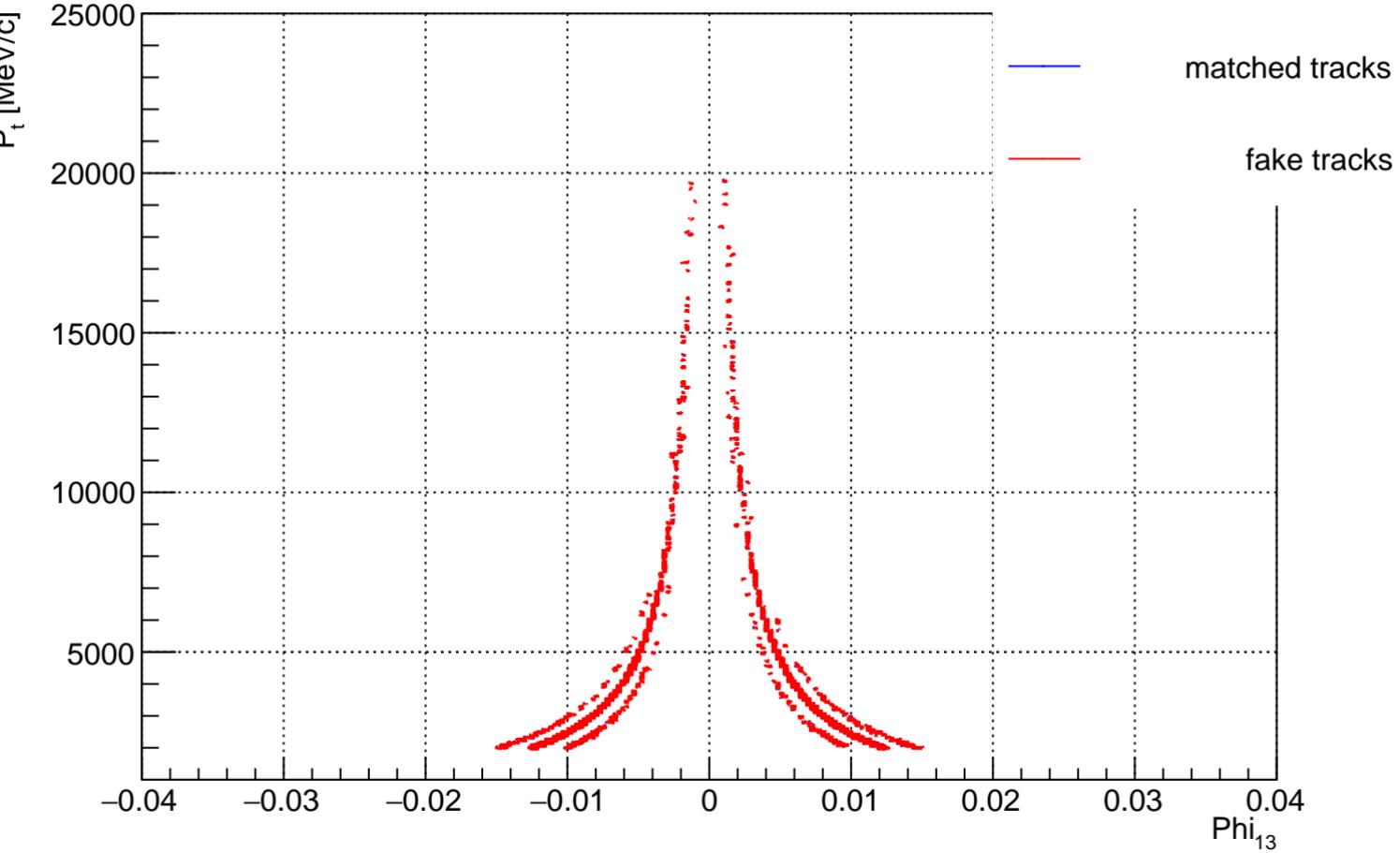


P_t Vs Φ_{13}

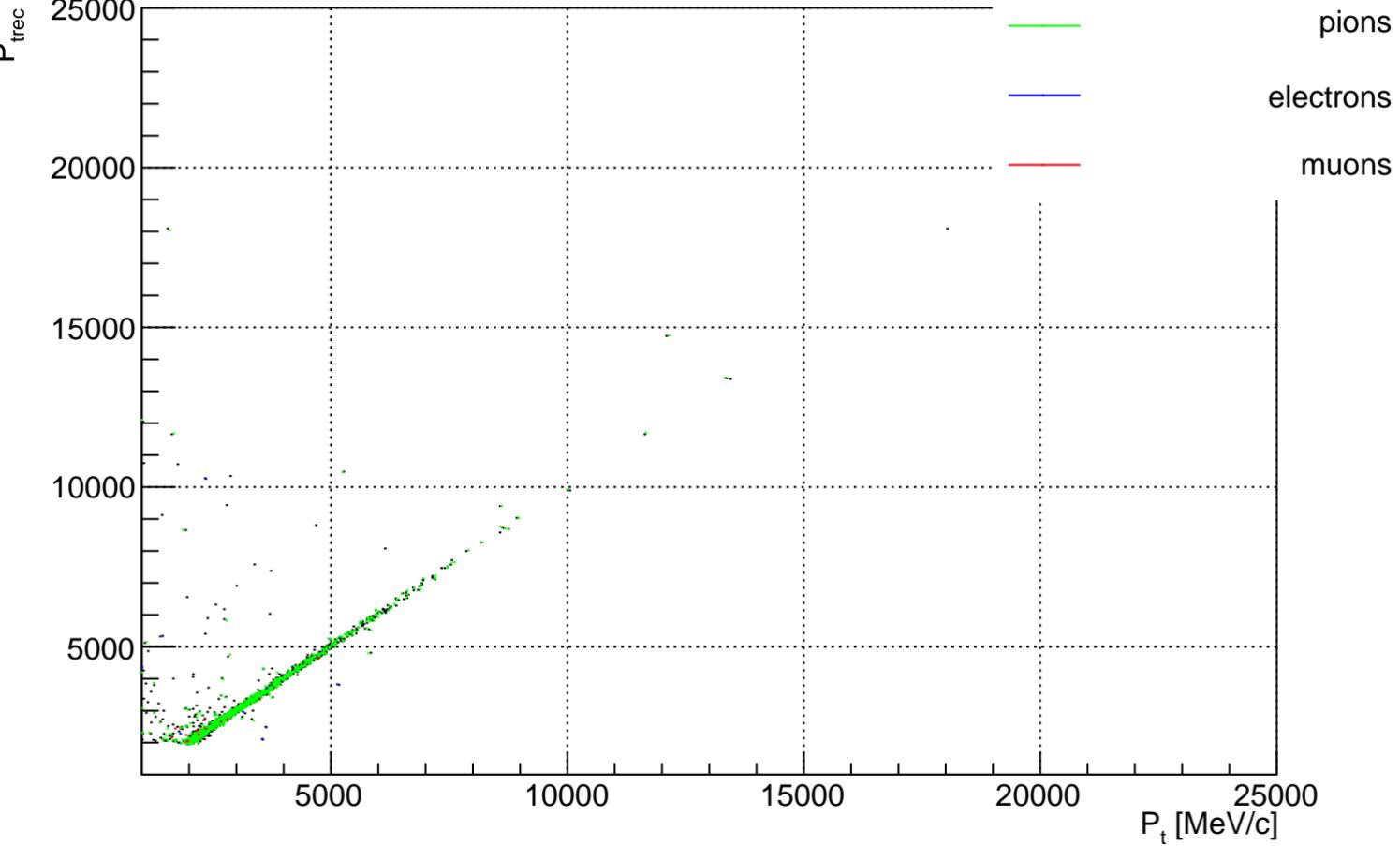


P_t Vs Φ_{13}

rec P_t

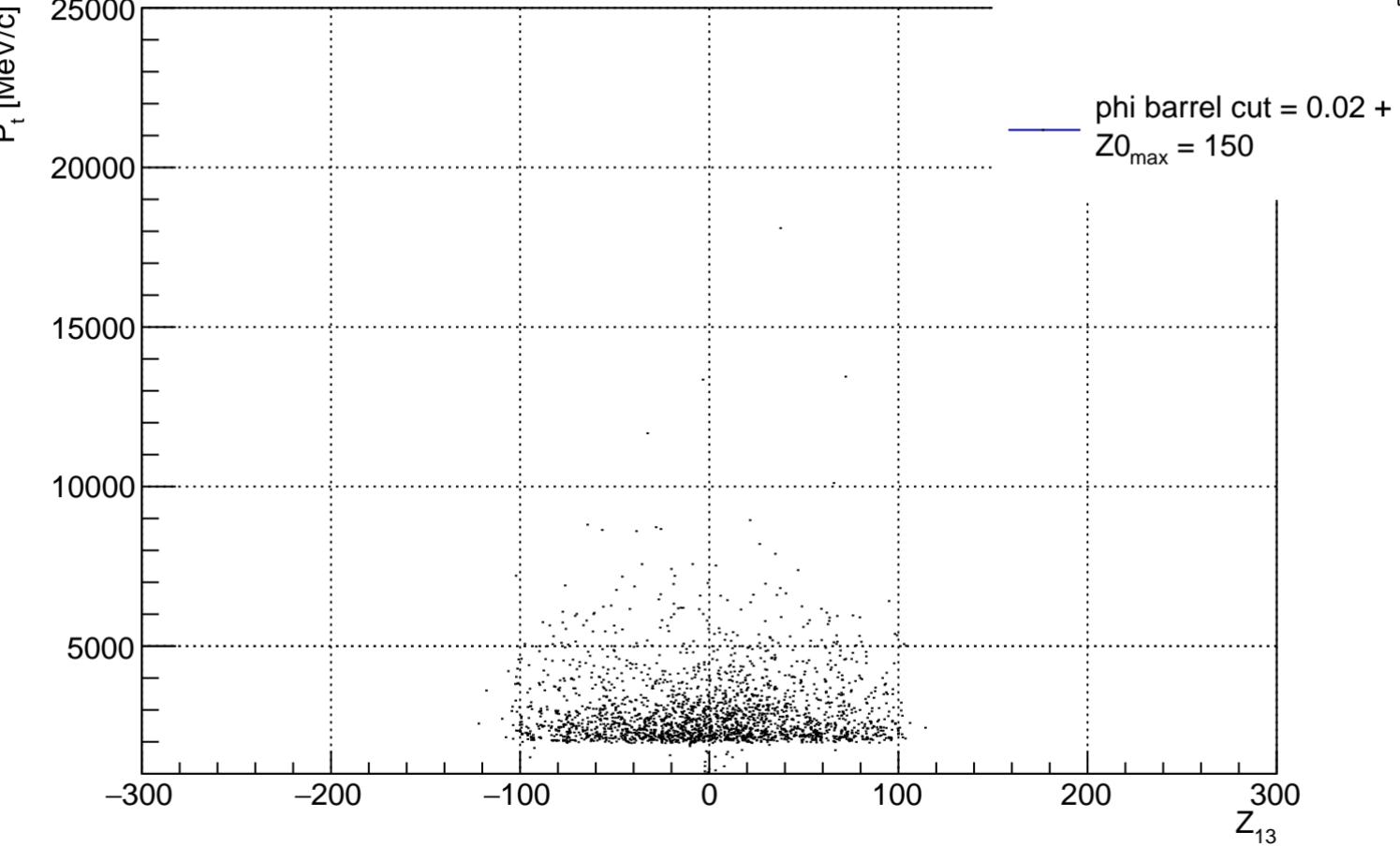


P_{trec} Vs P_t



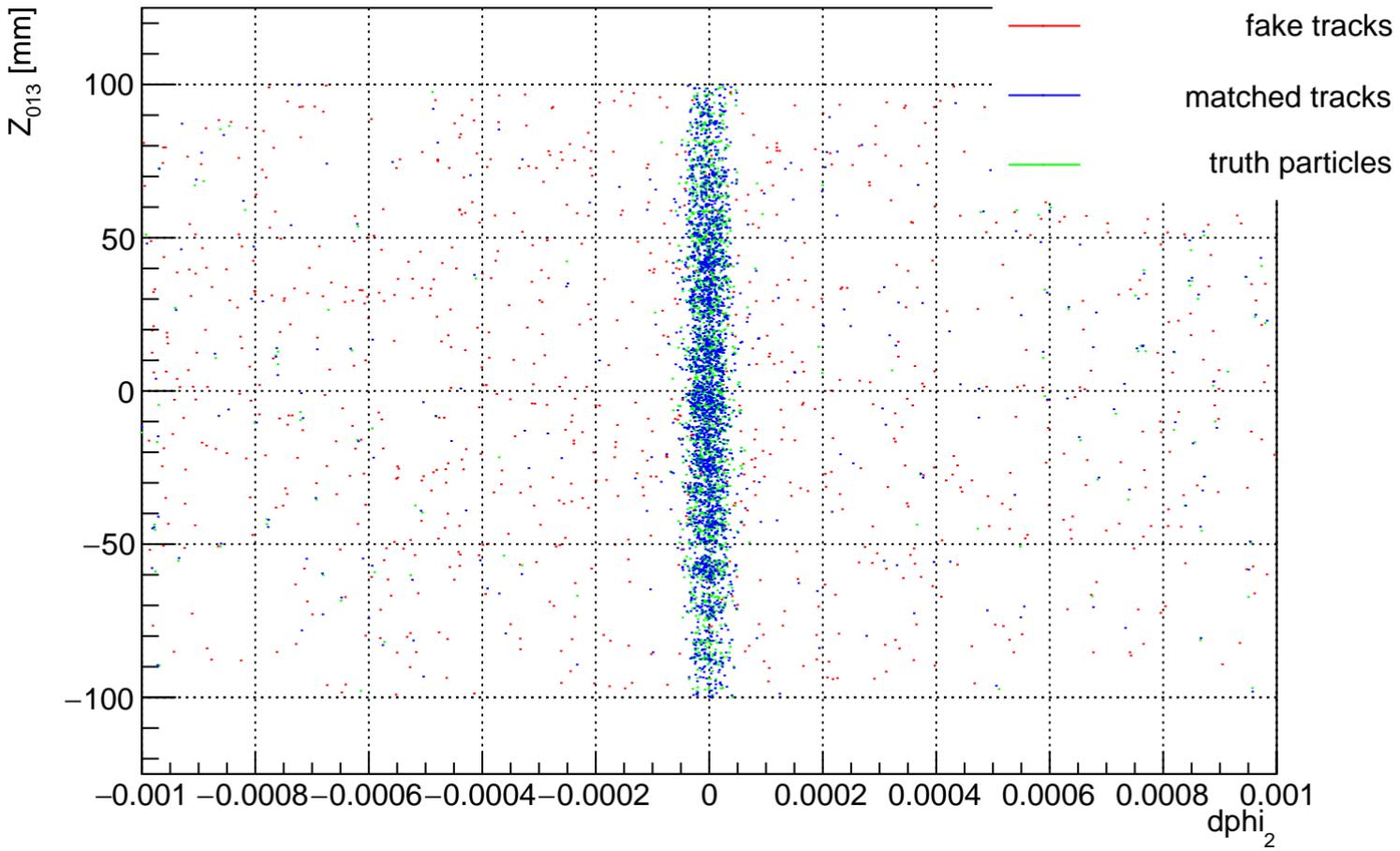
P_t Vs Z_{13}

truth P_t



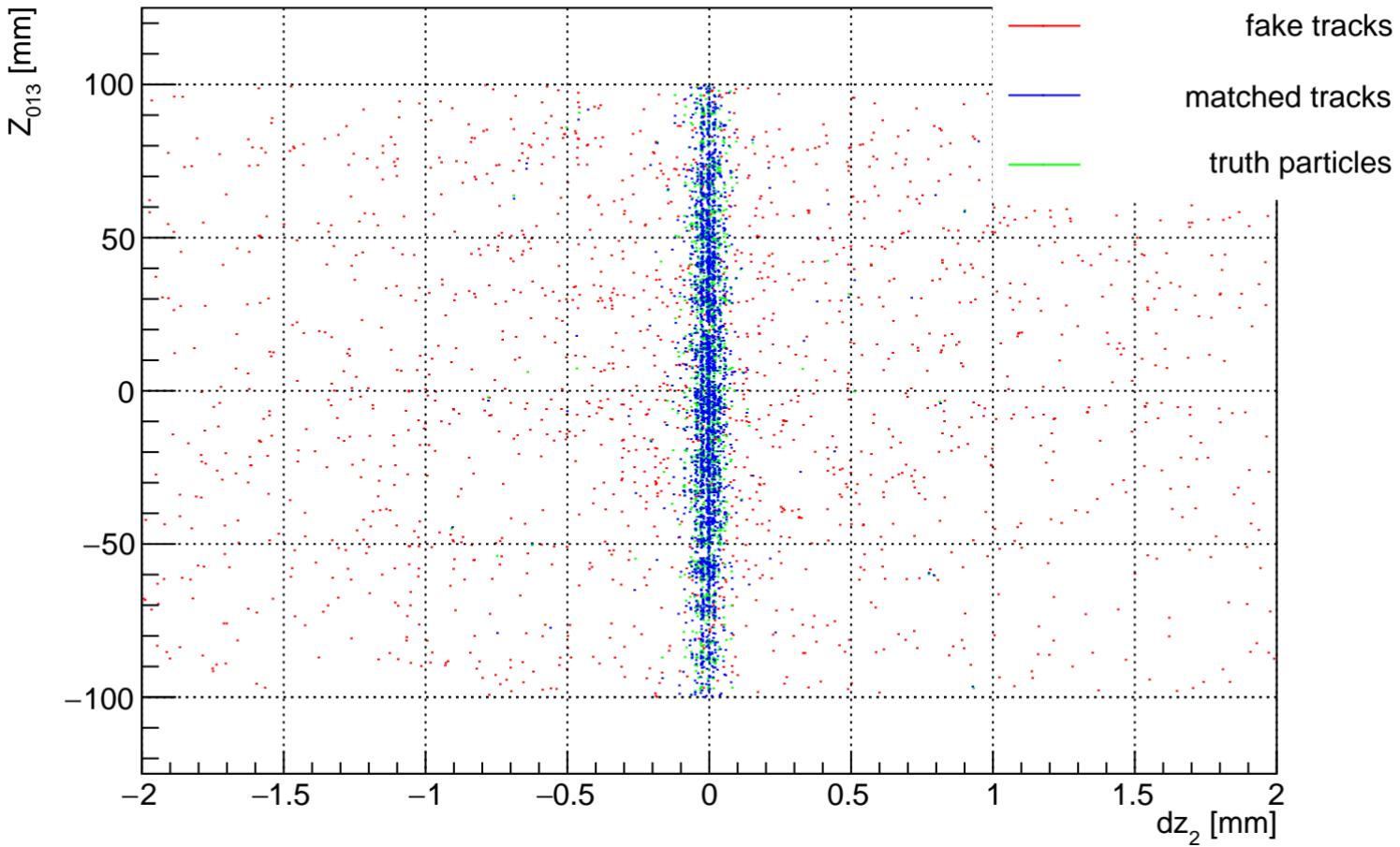
Z_{013} Vs $d\phi_{_2}$

ϕ Barrel = 0.02 +
 $Z_{\text{barrel}} = 160 + Z_{0\text{max}} = 150$



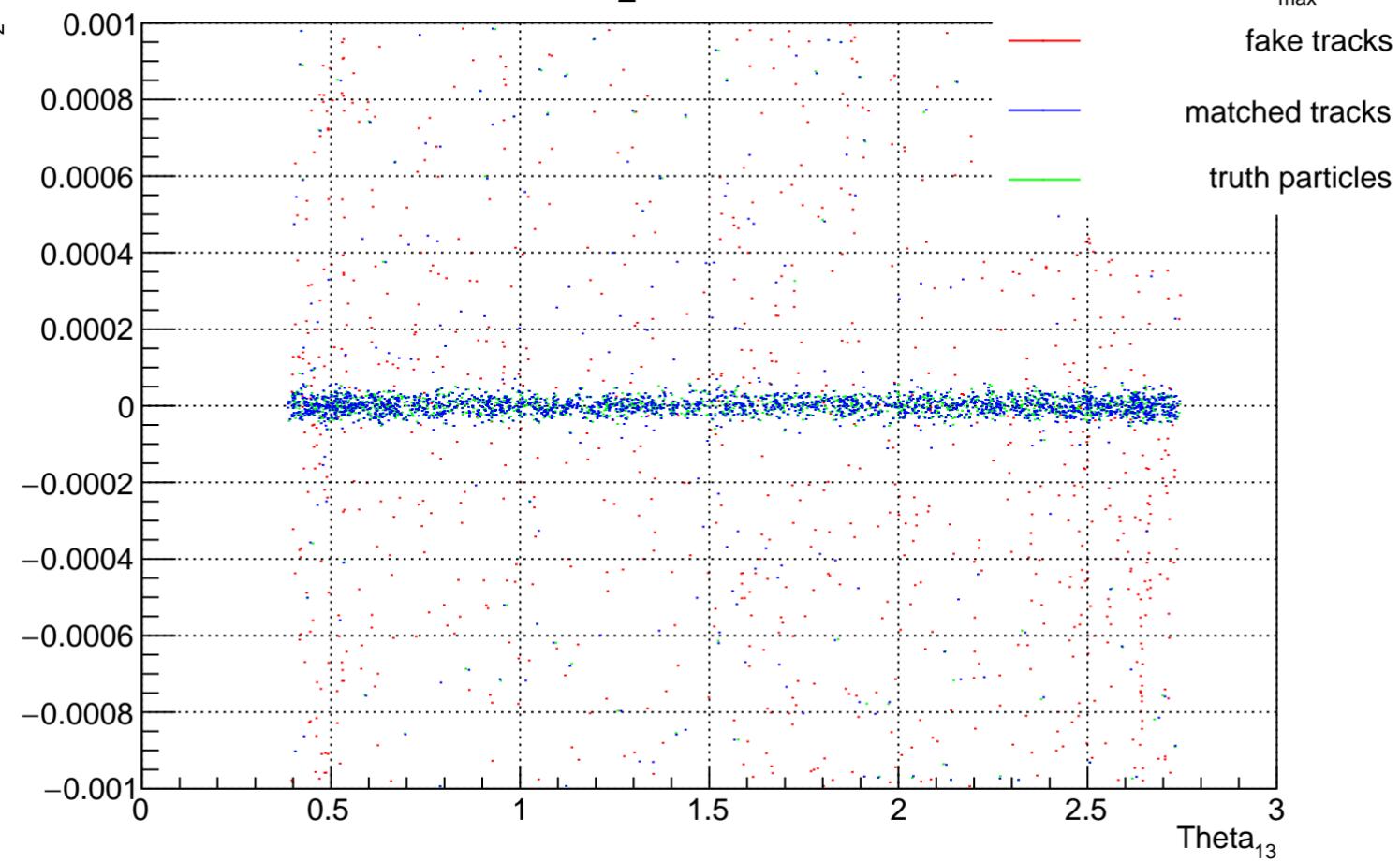
Z_{013} Vs dz_2

phi Barrel = 0.02 +
 $Z_{\text{barrel}} = 160 + Z_{0,\text{max}} = 150$



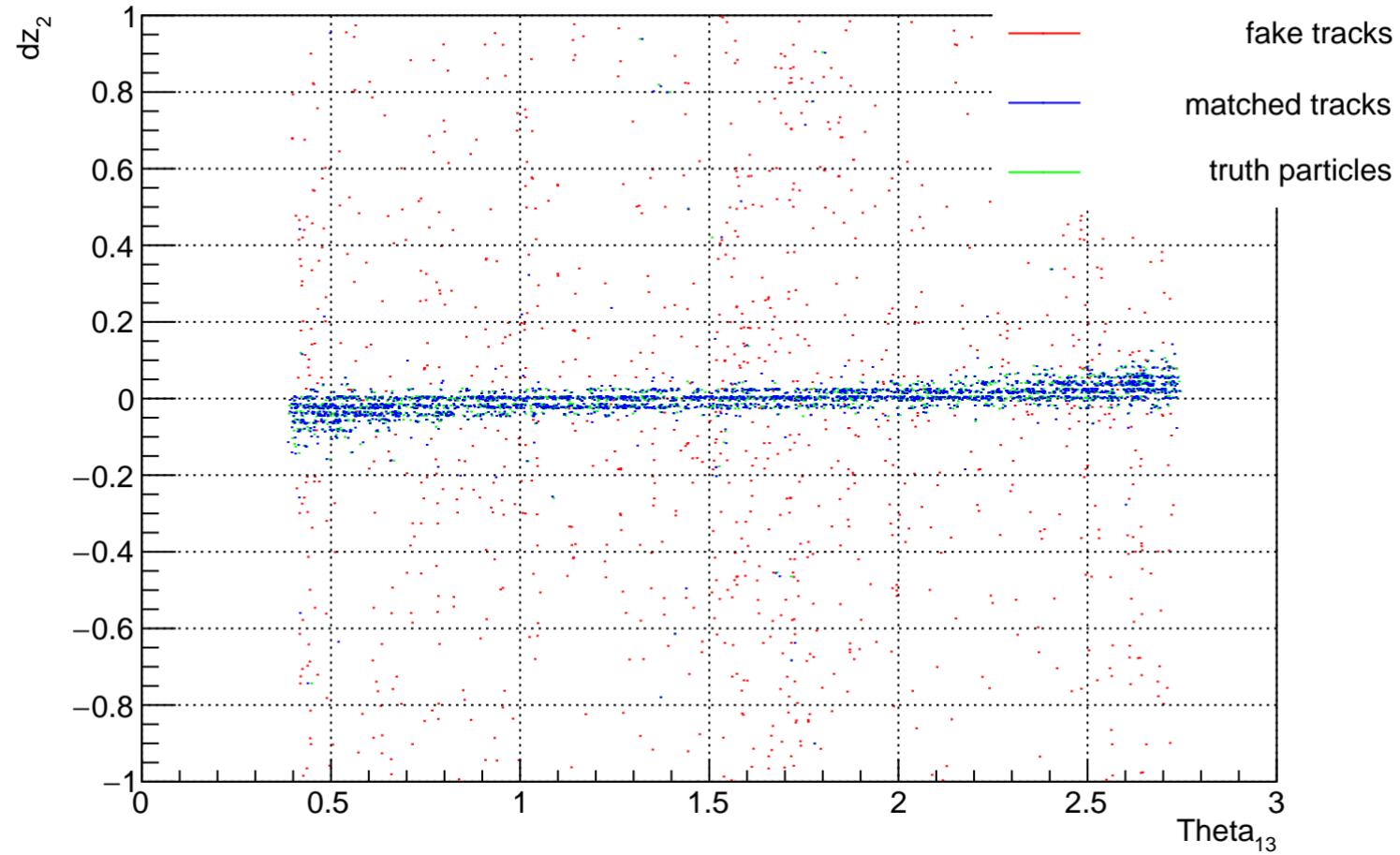
$d\phi_{2}$ Vs Θ_{13}

ϕ Barrel = 0.02 +
 $Z_{\text{barrel}} = 160 + Z_{0_{\text{max}}} = 150$



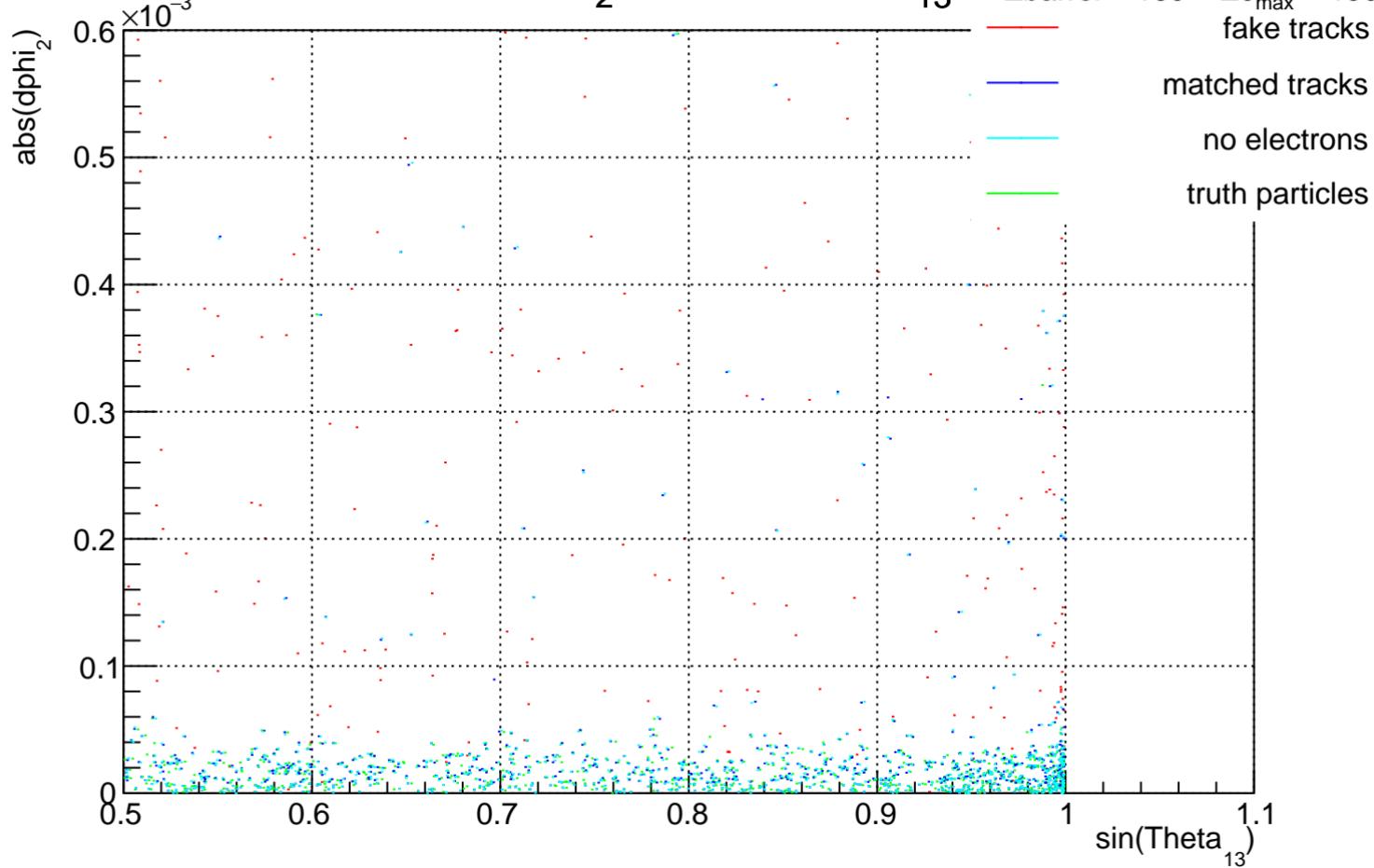
dz_2 Vs Θ_{13}

ϕ Barrel = 0.02 +
 $Z_{\text{barrel}} = 160 + Z_{0_{\max}} = 150$

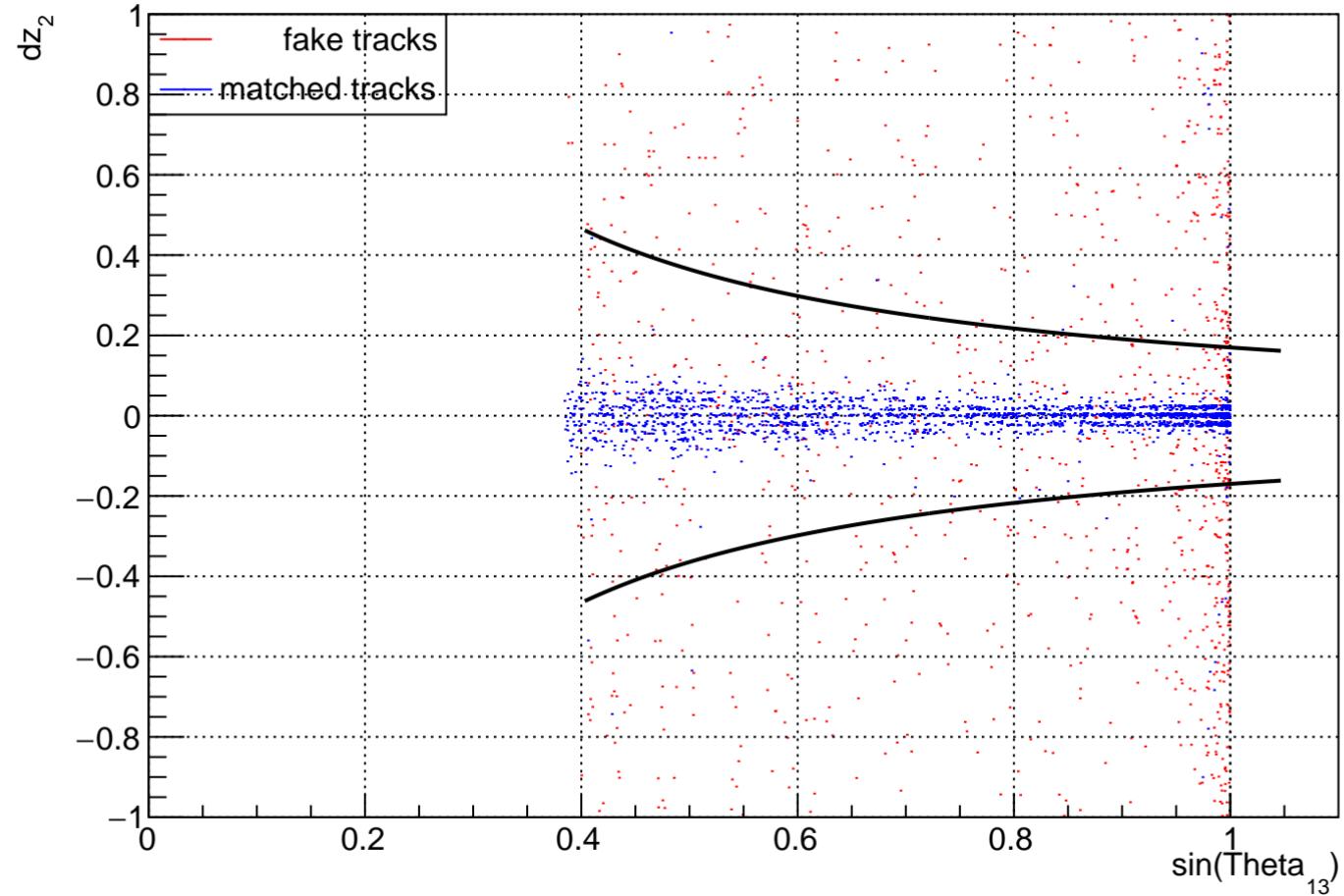


$\text{abs}(\text{dphi}_2)$ Vs $\sin(\text{Theta}_{13})$

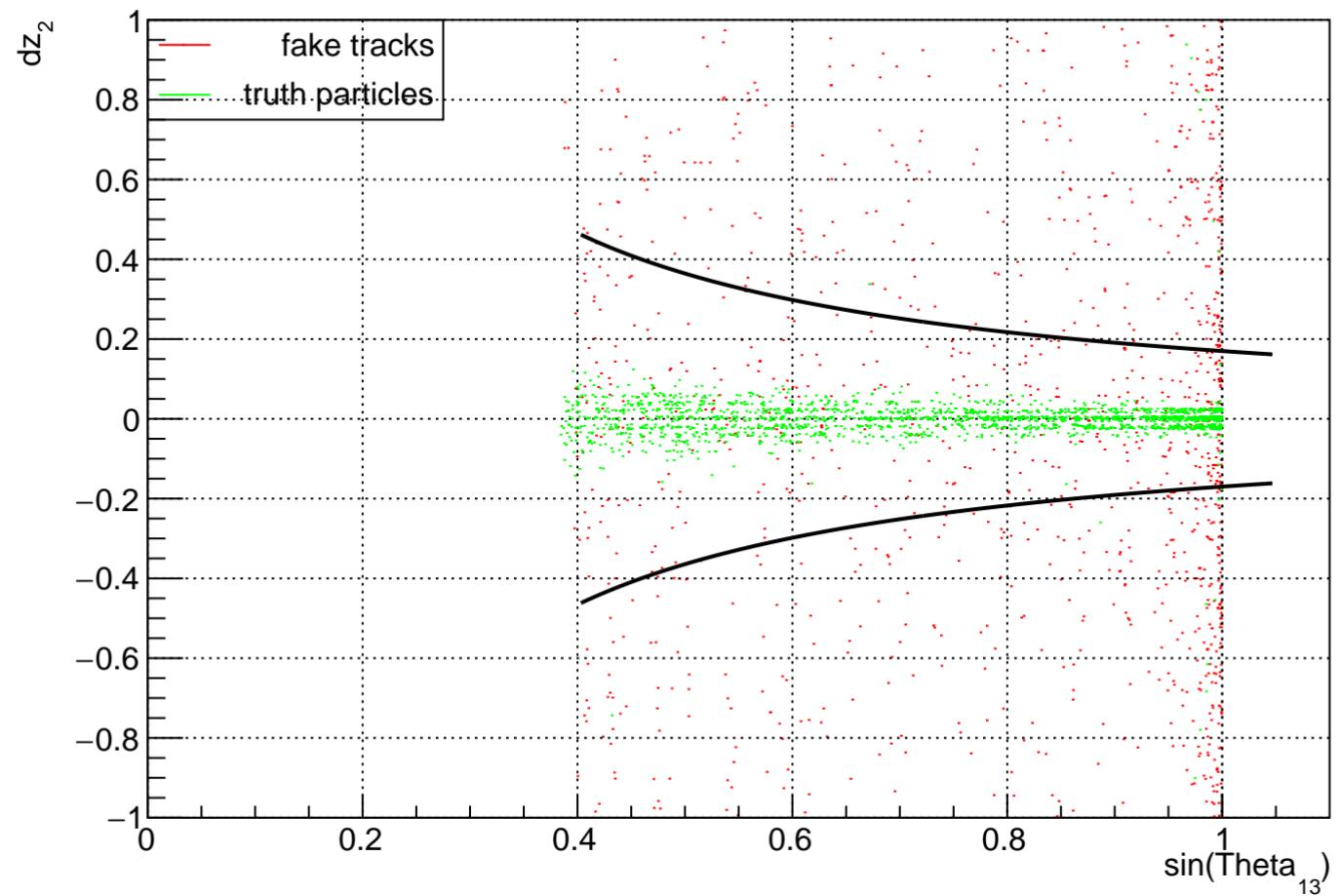
$\phi_{\text{Barrel}} = 0.02 +$
 $Z_{\text{barrel}} = 160 + Z_{0,\text{max}} = 150$
fake tracks



dz_2 Vs $\sin(\Theta_{13})$

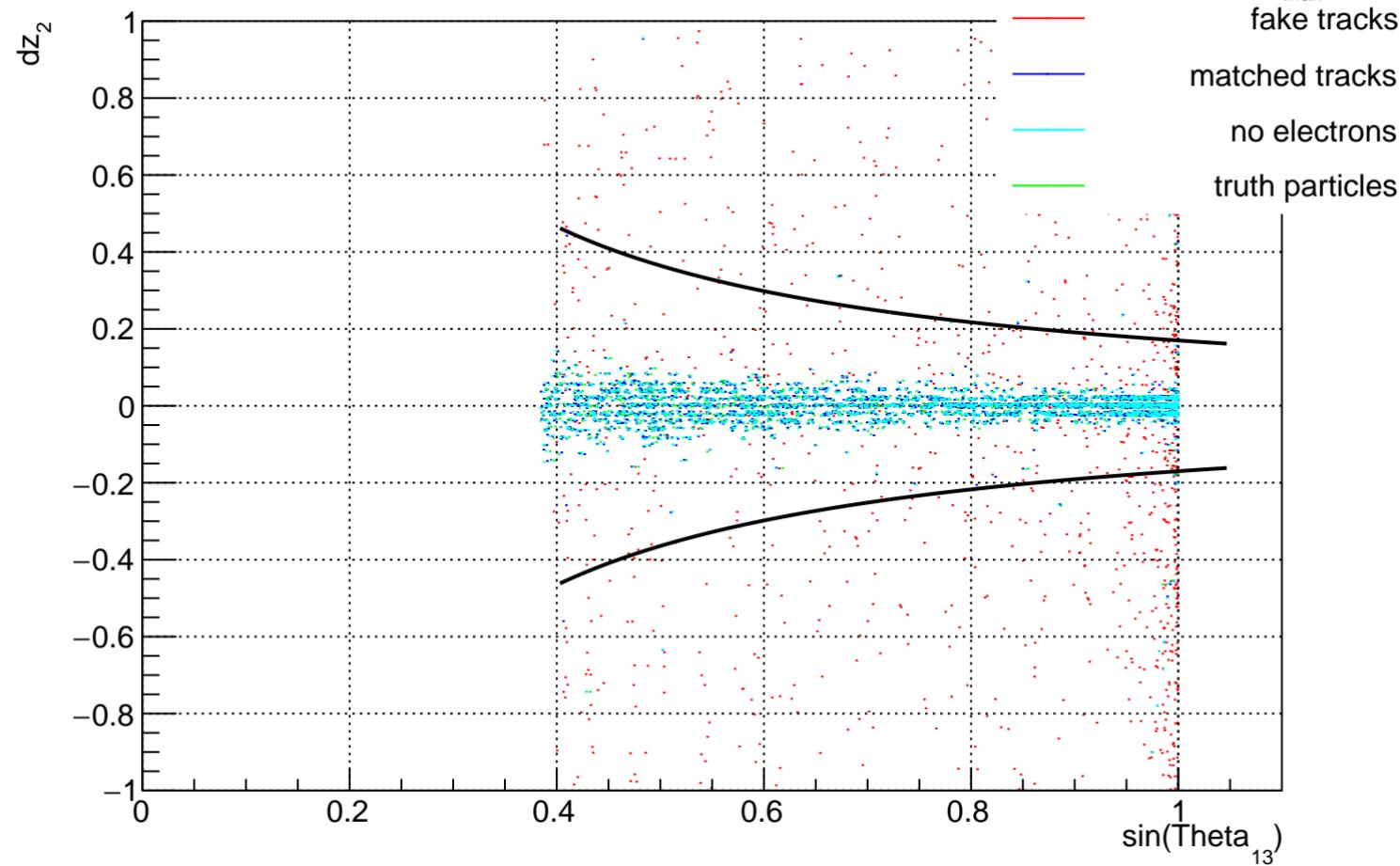


dz_2 Vs $\sin(\Theta_{13})$



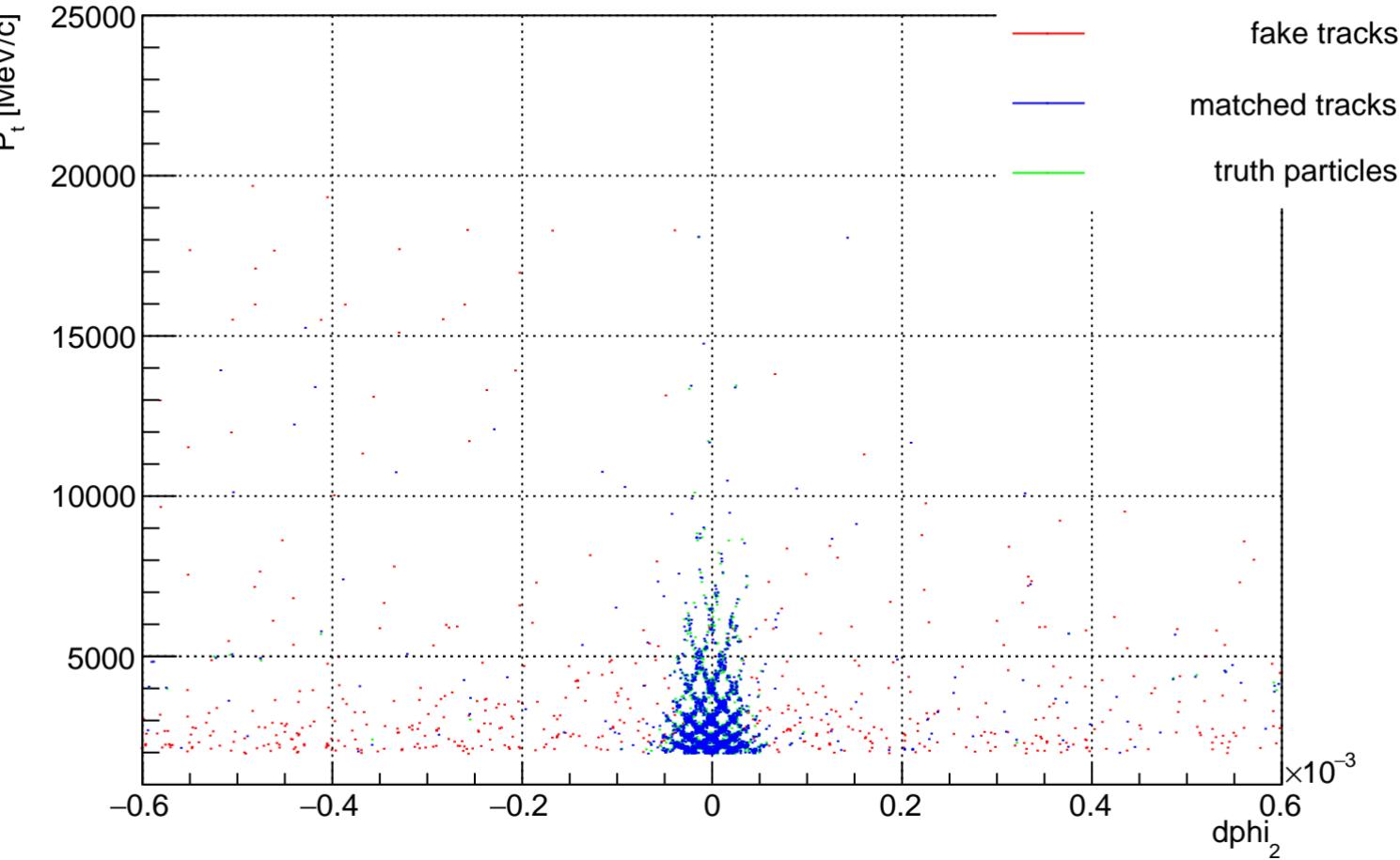
dz_2 Vs $\sin(\Theta_{13})$

phi Barrel = 0.02 +
Zbarrel = 160 + $Z_0^{\max} = 150$
fake tracks
matched tracks
no electrons
truth particles



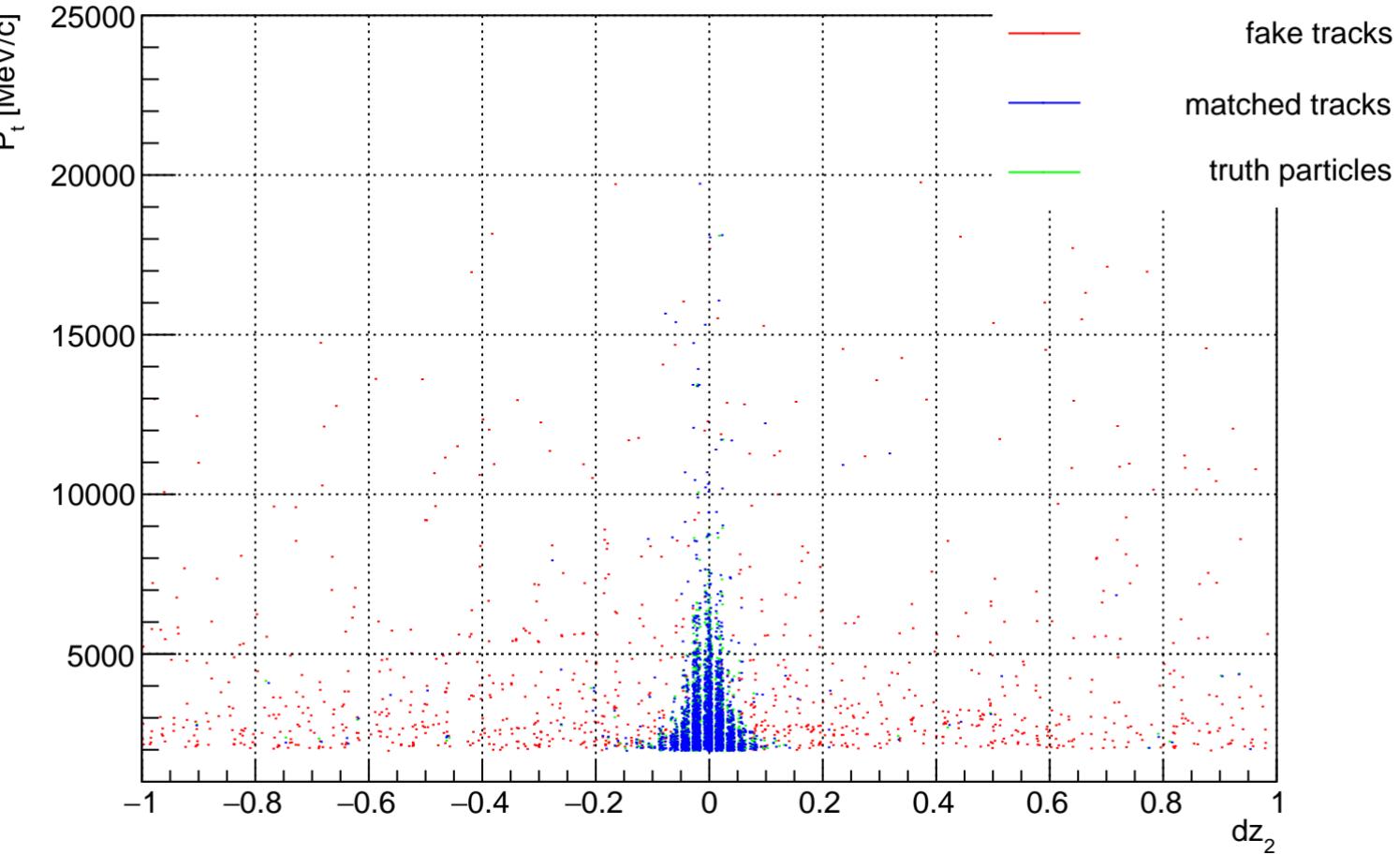
P_t Vs $d\phi_{2}$

phi Barrel = 0.02 +
Zbarrel = 160 + $Z_{max} = 150$



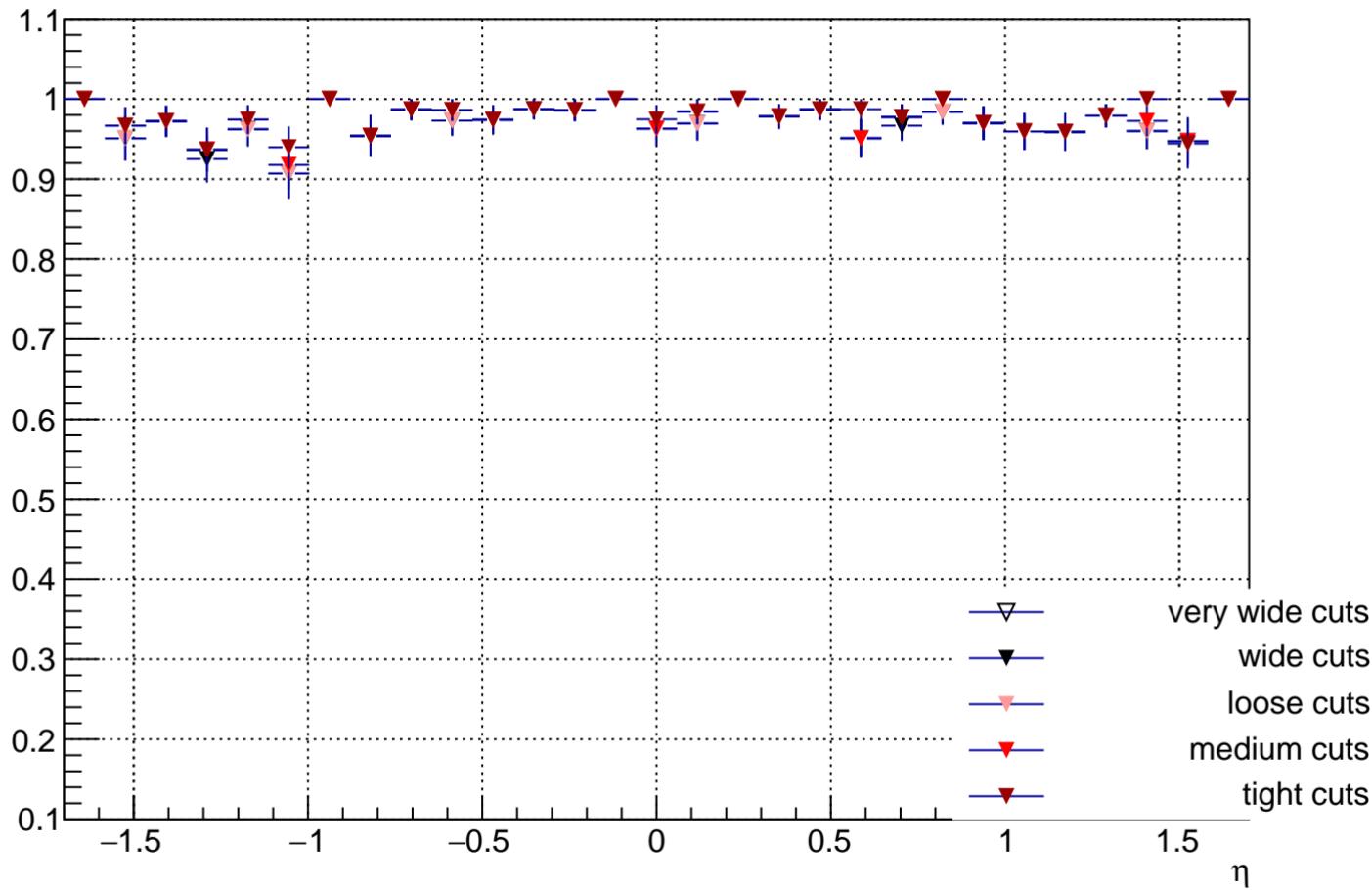
P_t Vs dz_2

phi Barrel = 0.02 +
Zbarrel = 160 + $Z_{0\max} = 150$

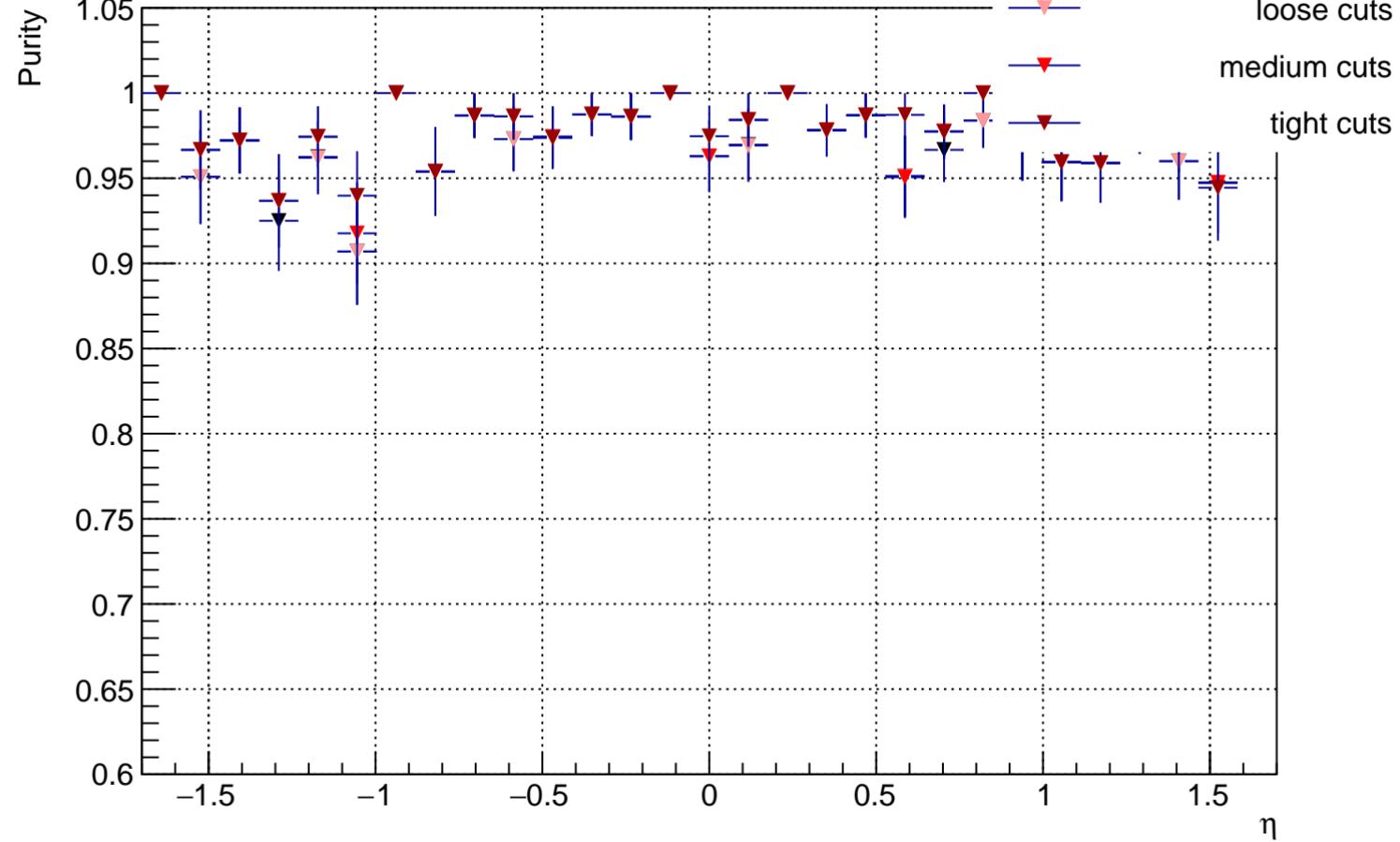


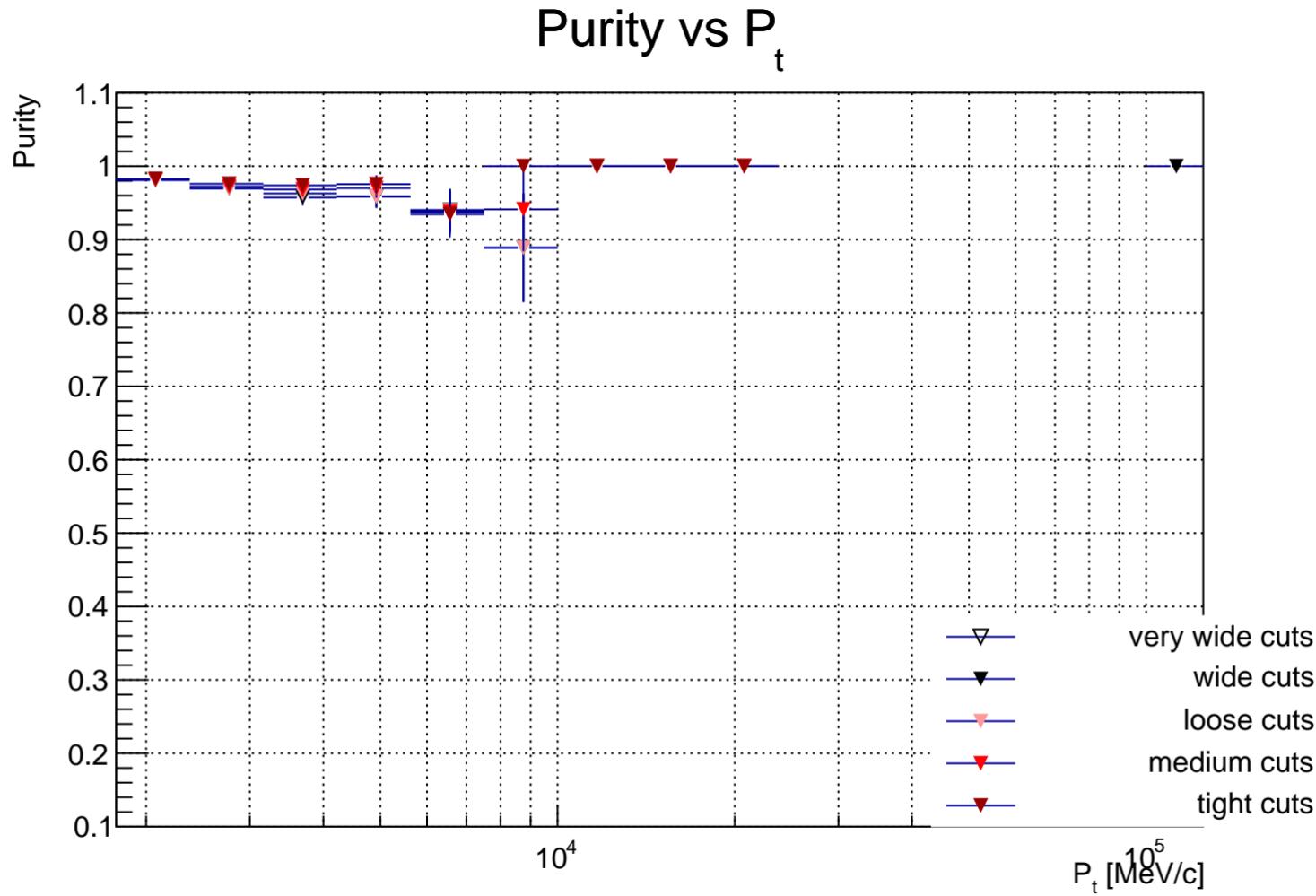
Purity vs η

Purity



Purity vs η





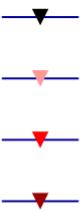
Purity vs P_t

Purity

1
0.9
0.8
0.7
0.6
0.5
0.4
0.3

10^4

10^5
 P_t [MeV/c]



wide cuts
loose cuts
medium cuts
tight cuts