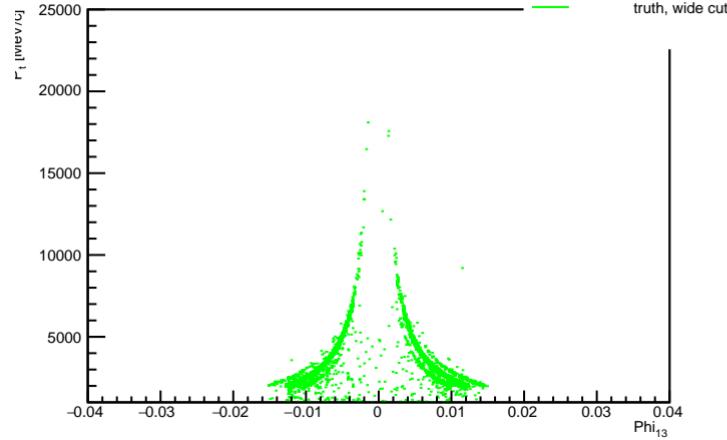
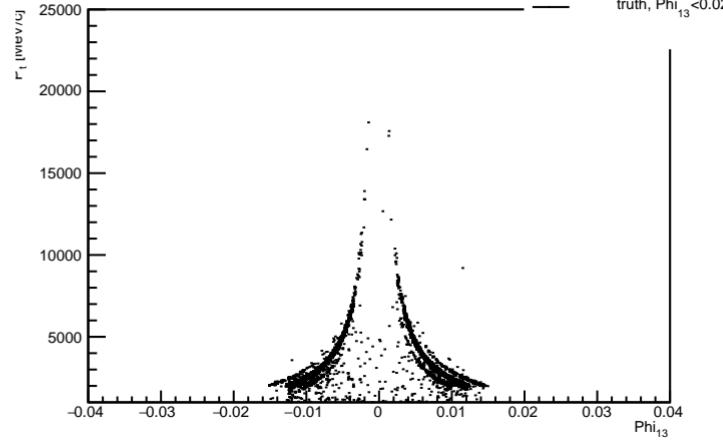


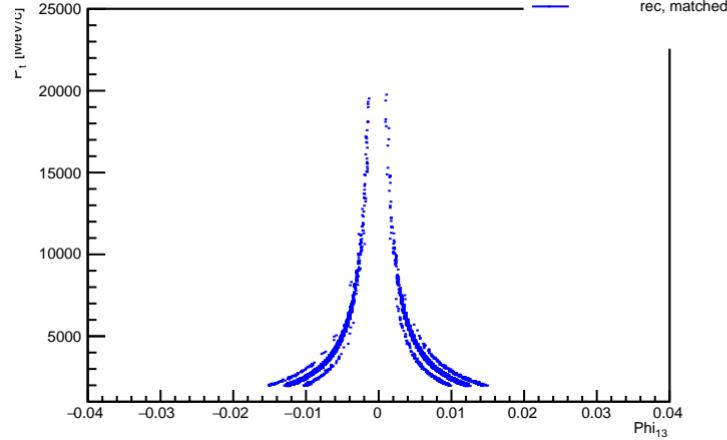
P_t Vs Φ_{13}



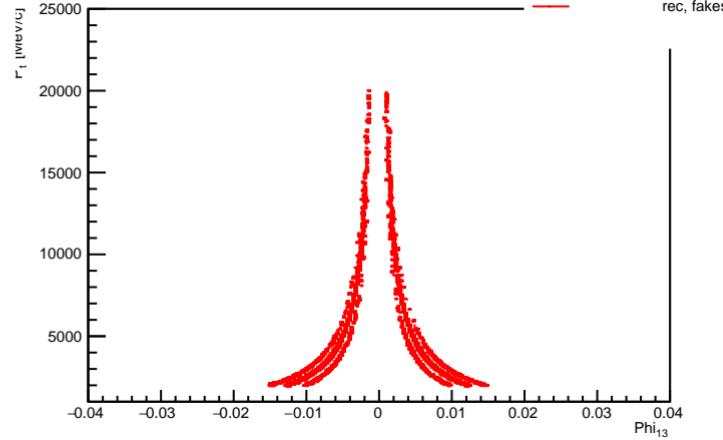
P_t Vs Φ_{13}



P_t Vs Φ_{13}



P_t Vs Φ_{13}

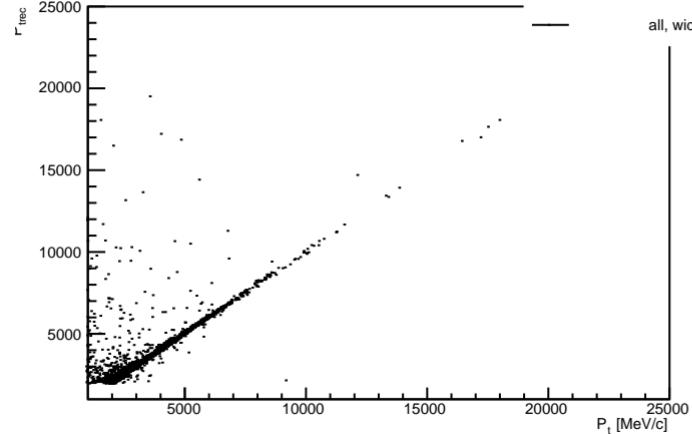


truth, $\Phi_{13} < 0.02$

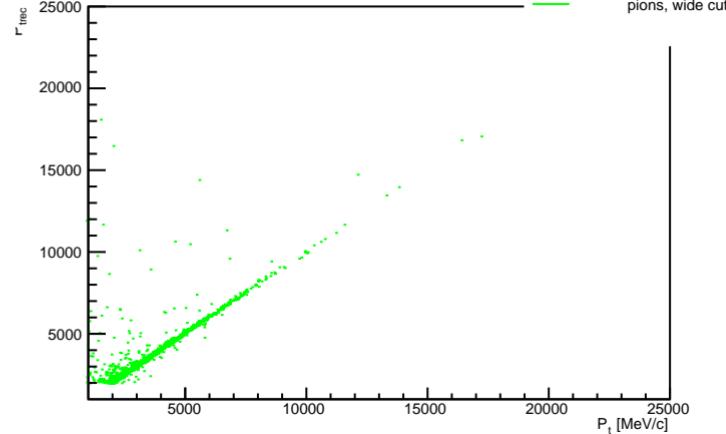
rec, matched

rec, fakes

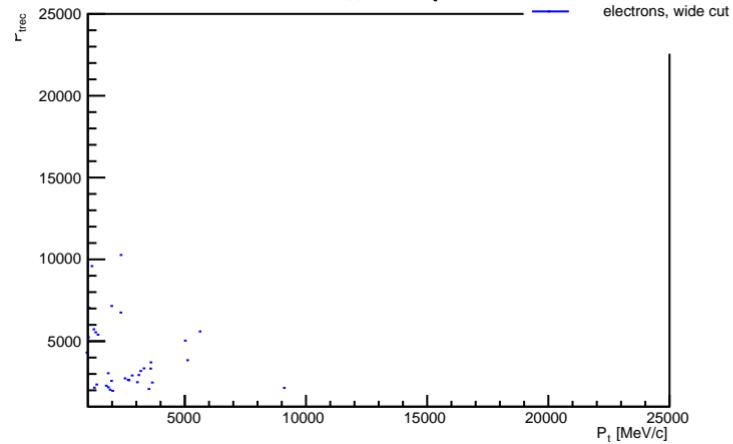
$P_{t\text{rec}}$ Vs P_t



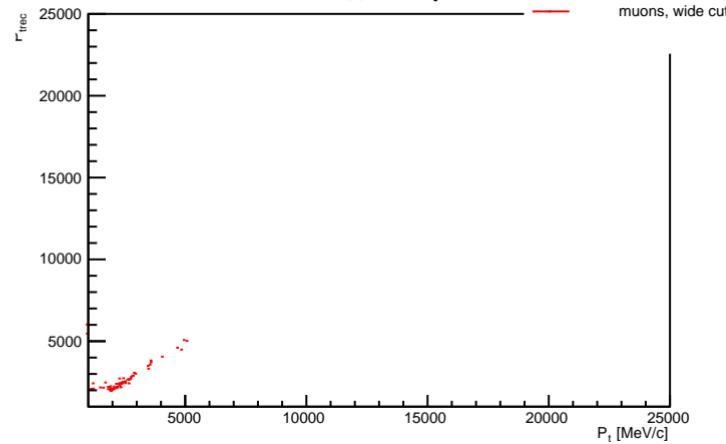
$P_{t\text{rec}}$ Vs P_t



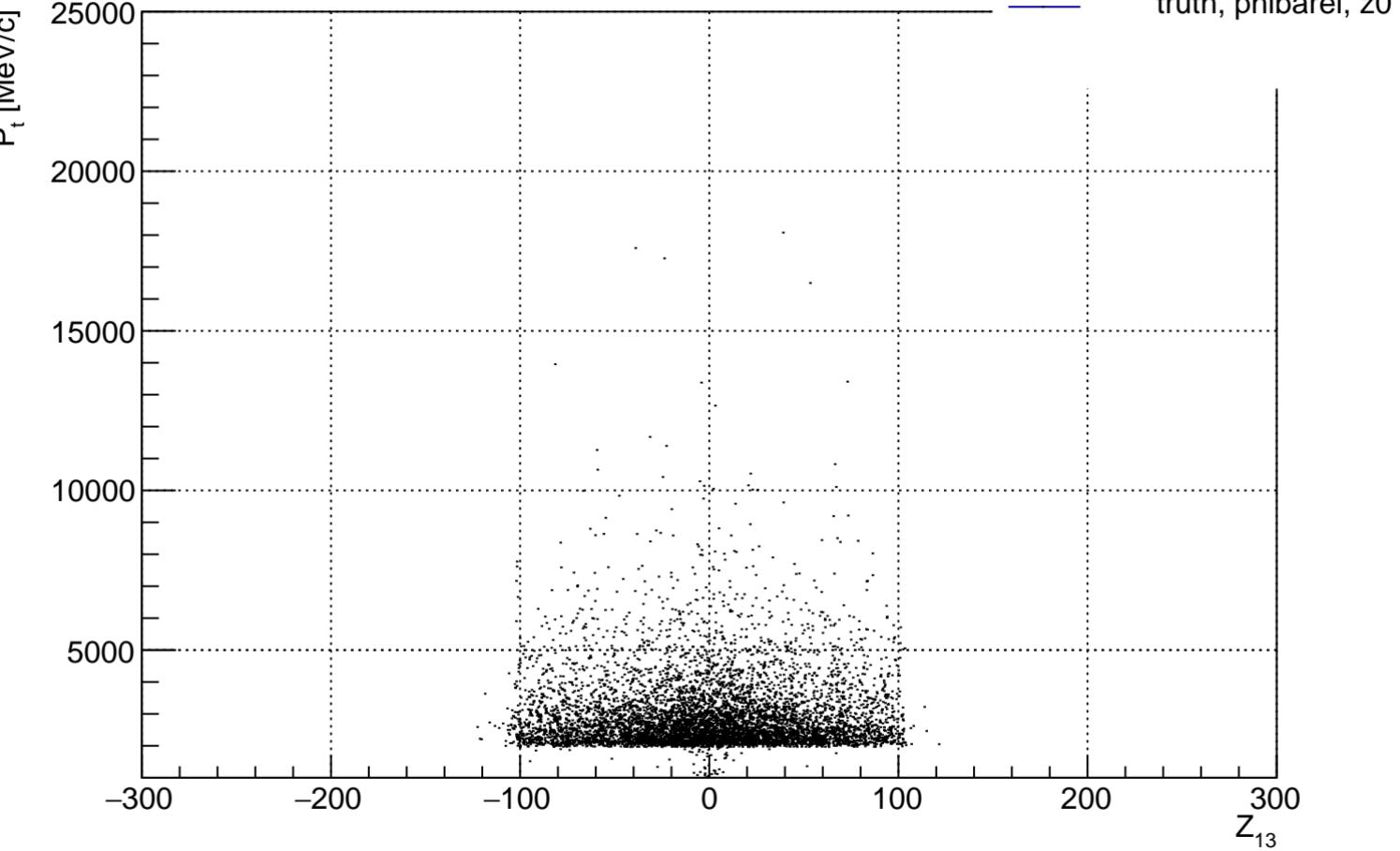
$P_{t\text{rec}}$ Vs P_t

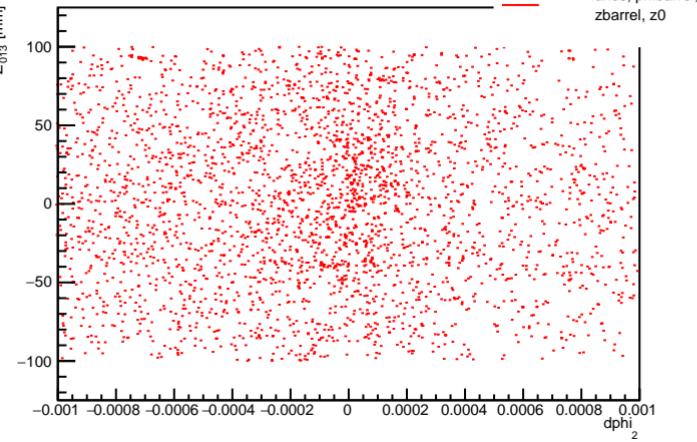
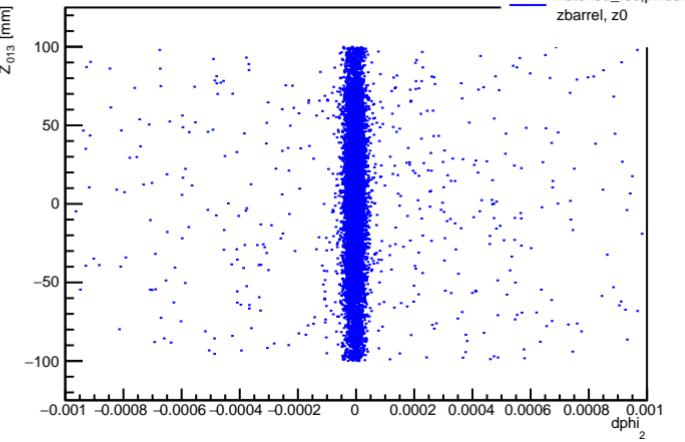
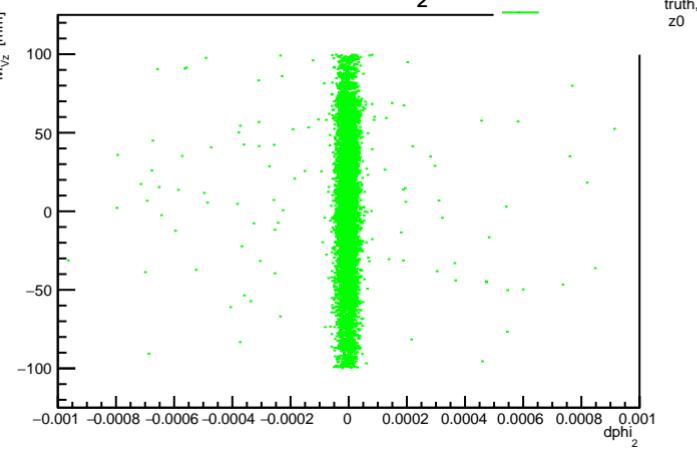
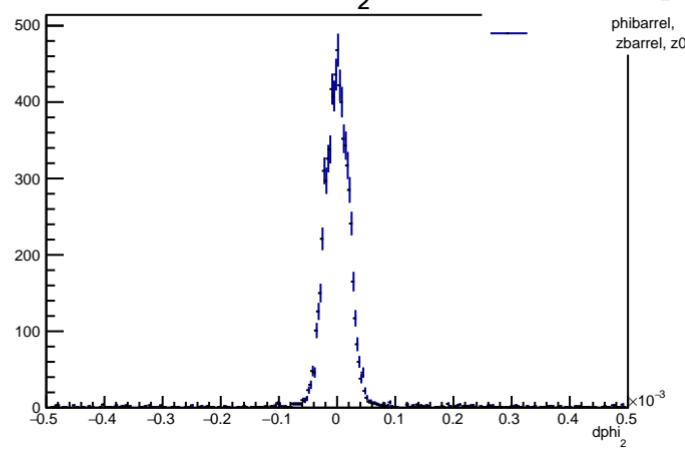


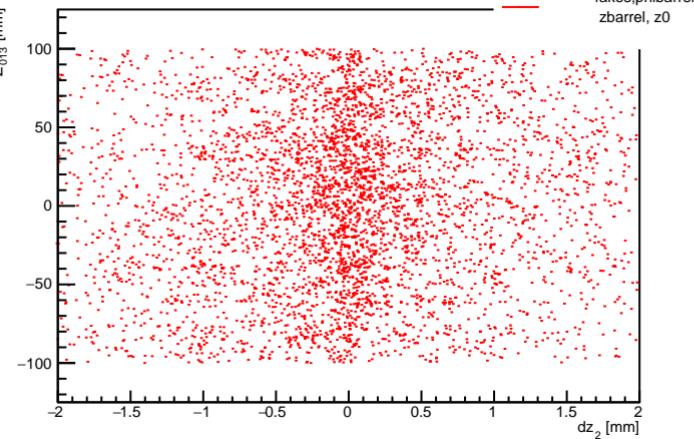
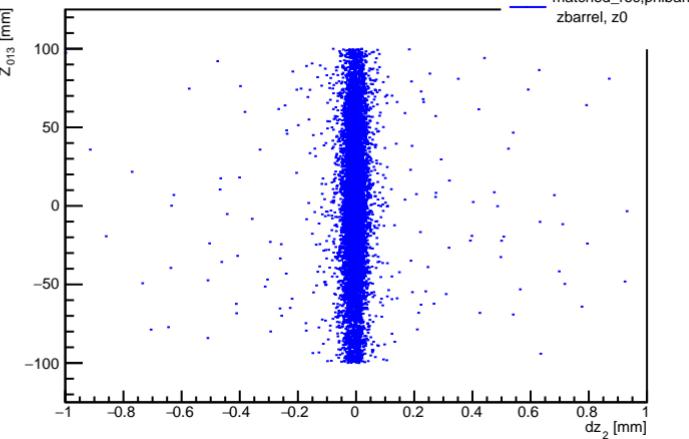
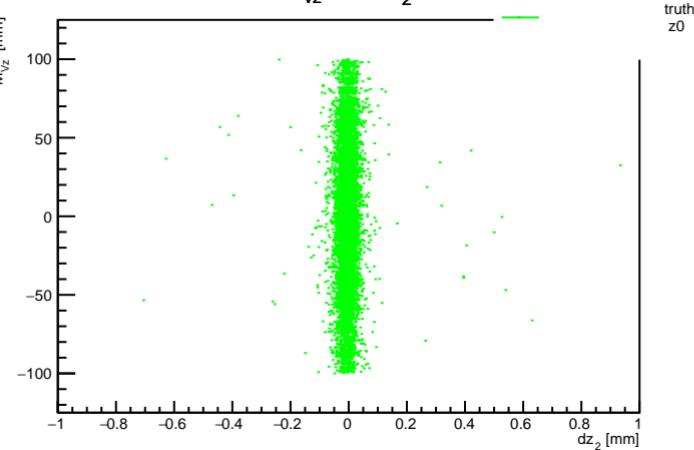
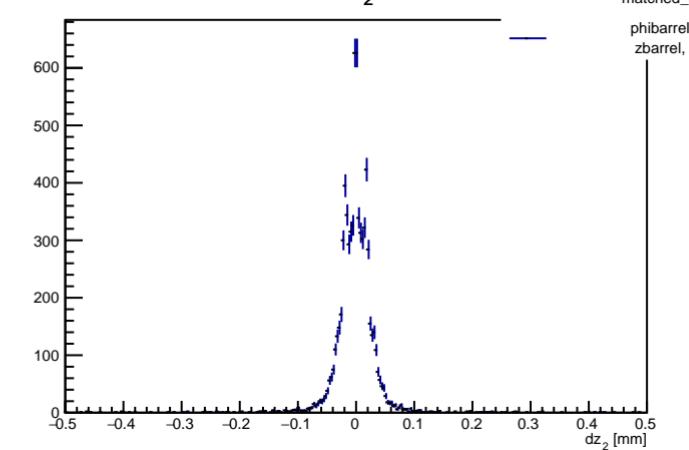
$P_{t\text{rec}}$ Vs P_t



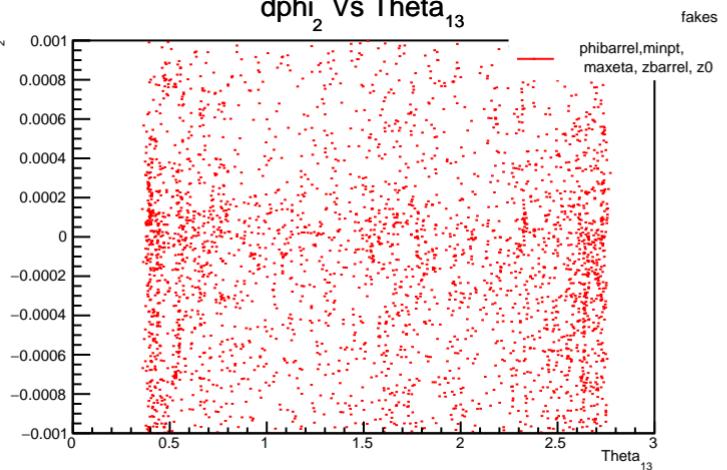
P_t Vs Z_{13}



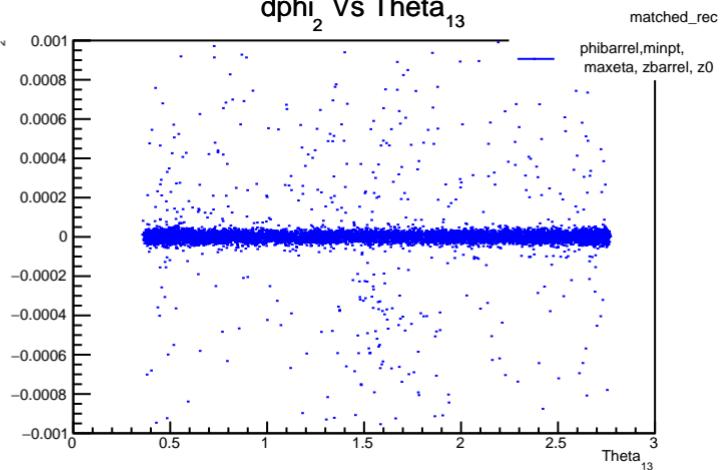
Z_{013} Vs $d\phi_2$  Z_{013} Vs $d\phi_2$  M_{vz} Vs $d\phi_2$  $d\phi_2$ 

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

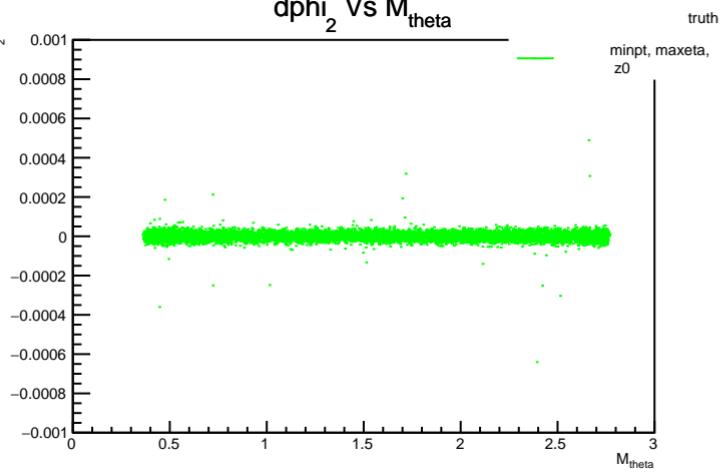
dphi₂ Vs Theta₁₃



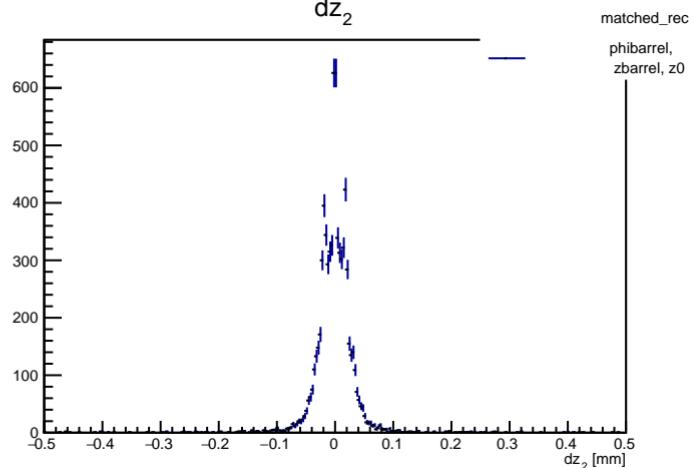
dphi₂ Vs Theta₁₃



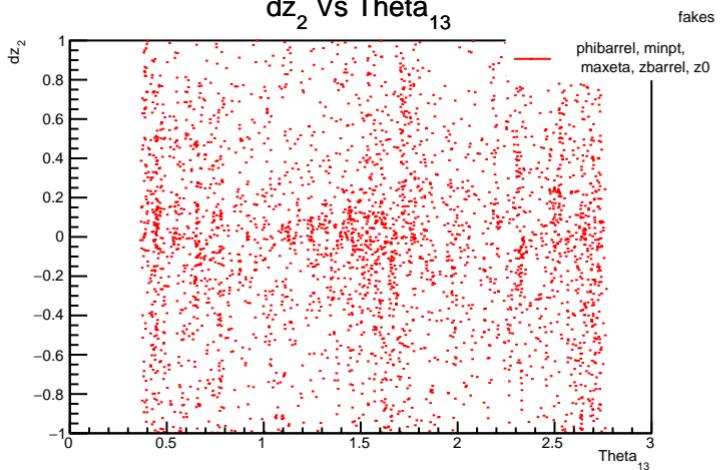
dphi₂ Vs M_{theta}



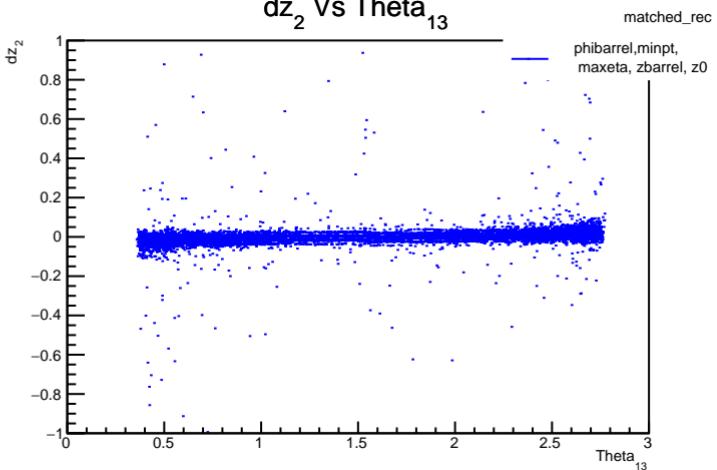
dz₂



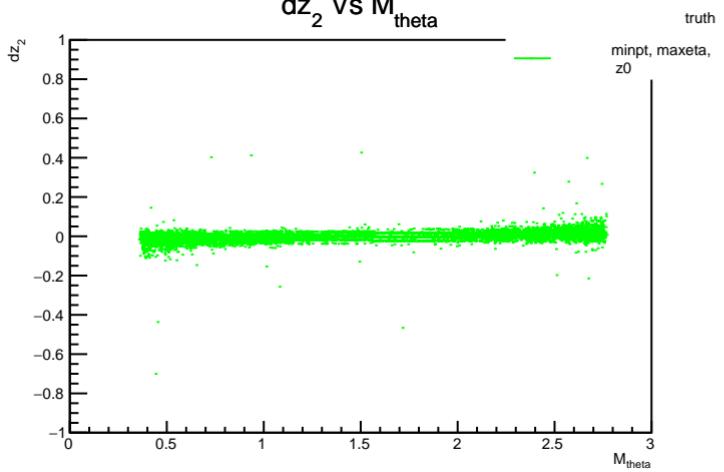
dz_2 Vs Θ_{13}



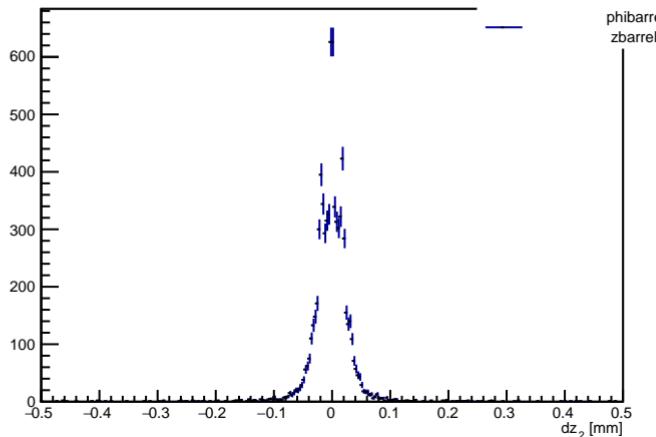
dz_2 Vs Θ_{13}



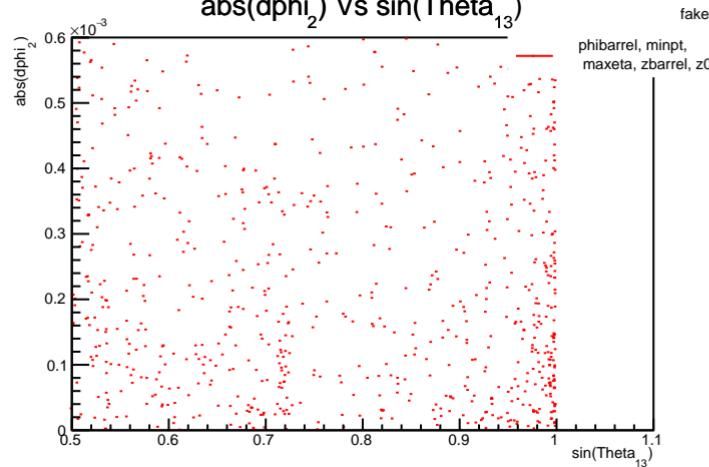
dz_2 Vs M_{θ}



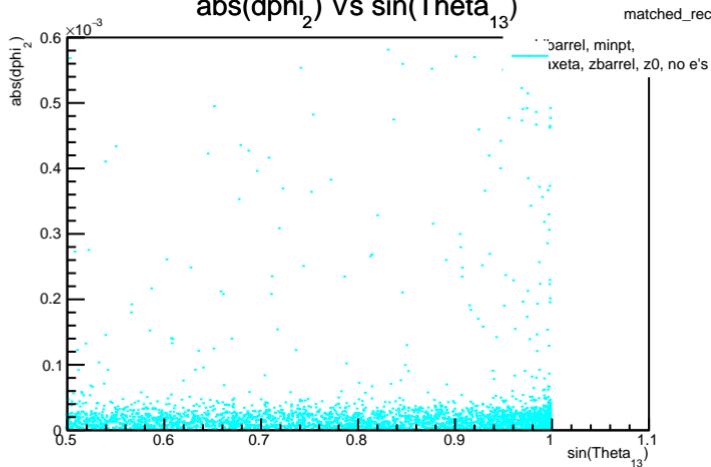
dz_2



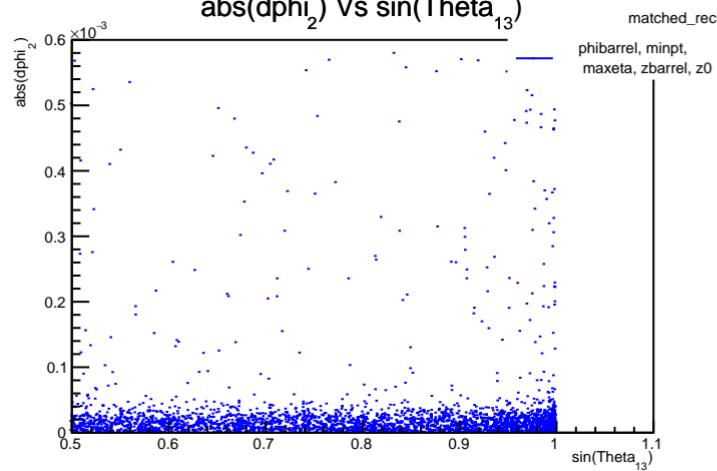
$\text{abs}(\text{dphi}_2)$ Vs $\sin(\Theta_{13})$



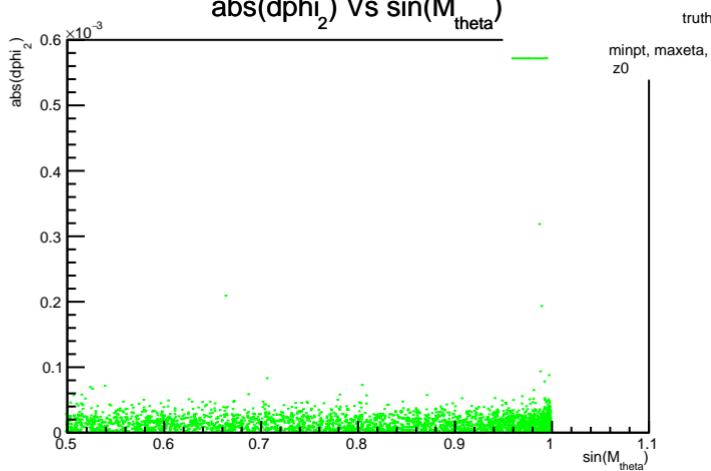
$\text{abs}(\text{dphi}_2)$ Vs $\sin(\Theta_{13})$



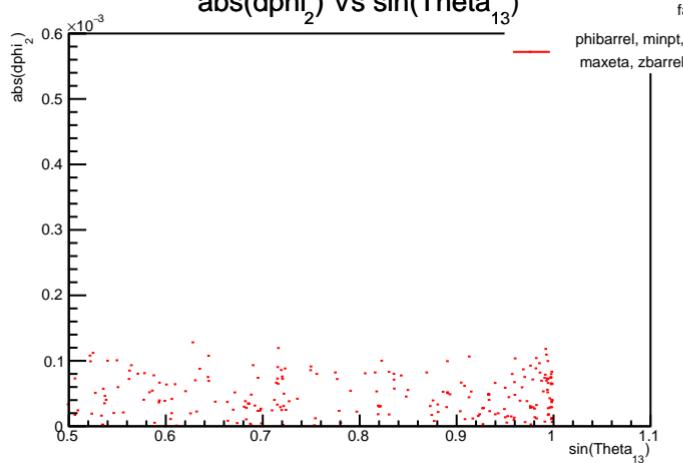
$\text{abs}(\text{dphi}_2)$ Vs $\sin(\Theta_{13})$



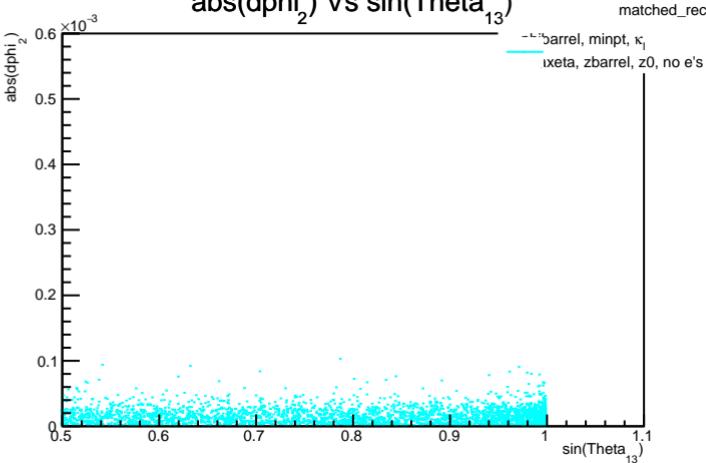
$\text{abs}(\text{dphi}_2)$ Vs $\sin(M_{\theta})$



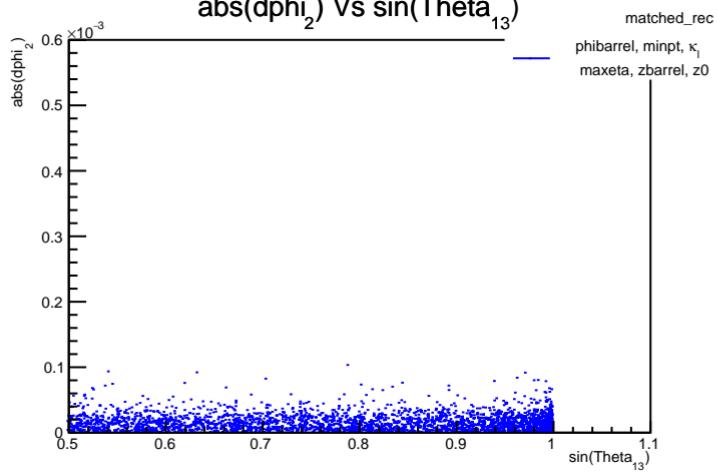
$\text{abs}(\text{dphi}_2)$ Vs $\sin(\Theta_{13})$



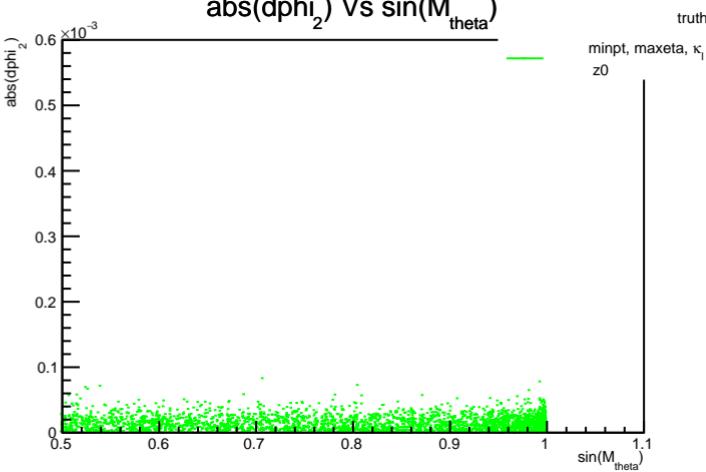
$\text{abs}(\text{dphi}_2)$ Vs $\sin(\Theta_{13})$



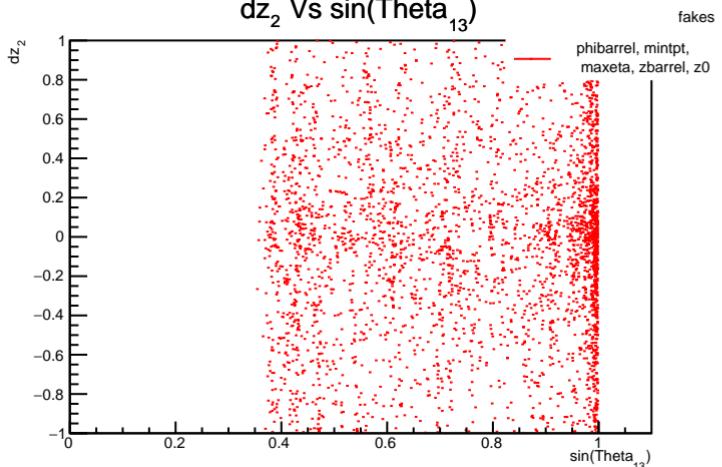
$\text{abs}(\text{dphi}_2)$ Vs $\sin(\Theta_{13})$



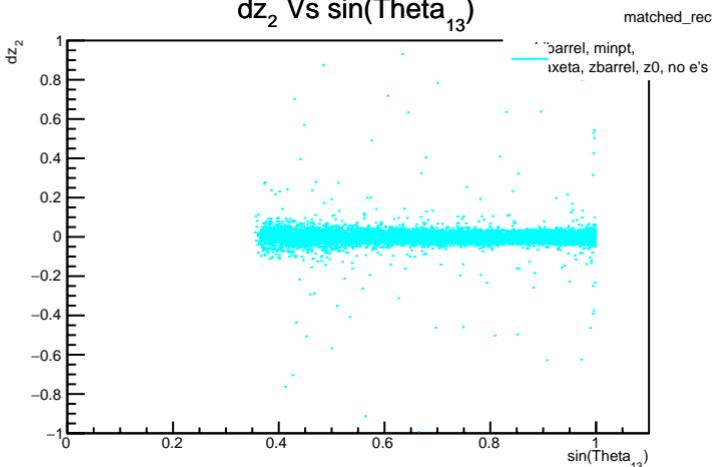
$\text{abs}(\text{dphi}_2)$ Vs $\sin(M_{\theta})$



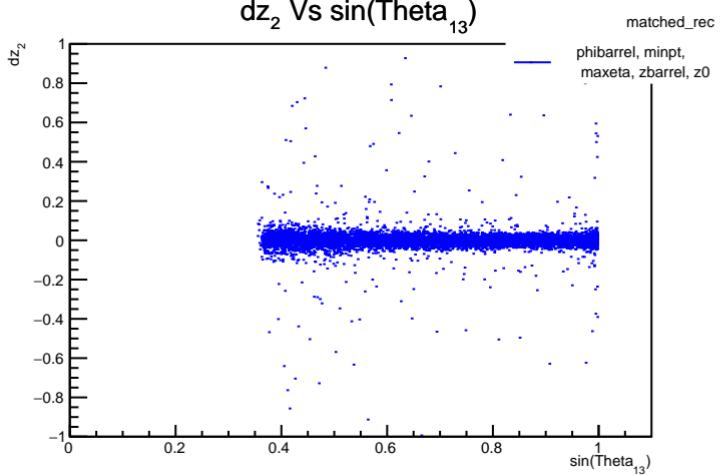
dz_2 Vs $\sin(\Theta_{13})$



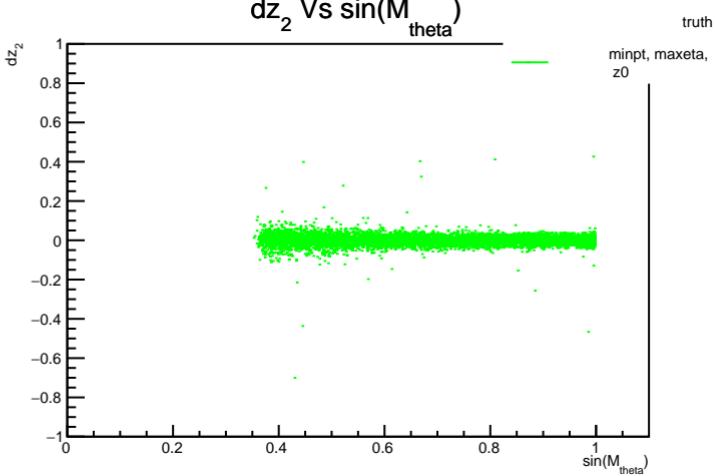
dz_2 Vs $\sin(\Theta_{13})$

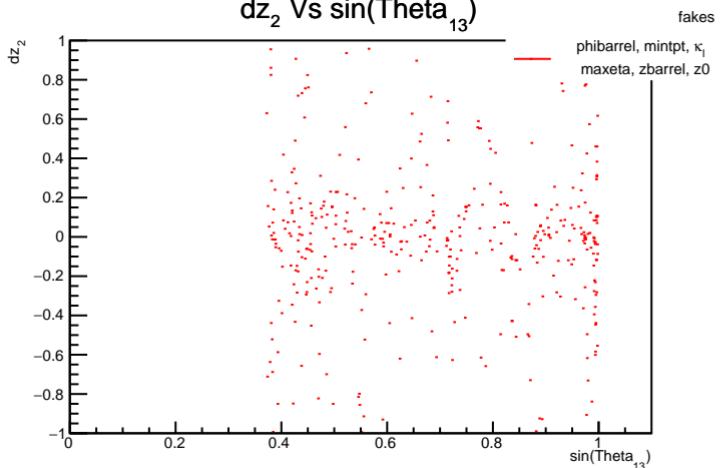
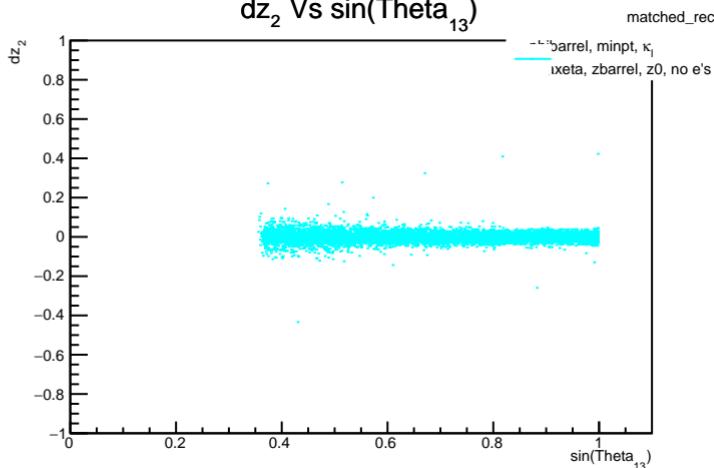
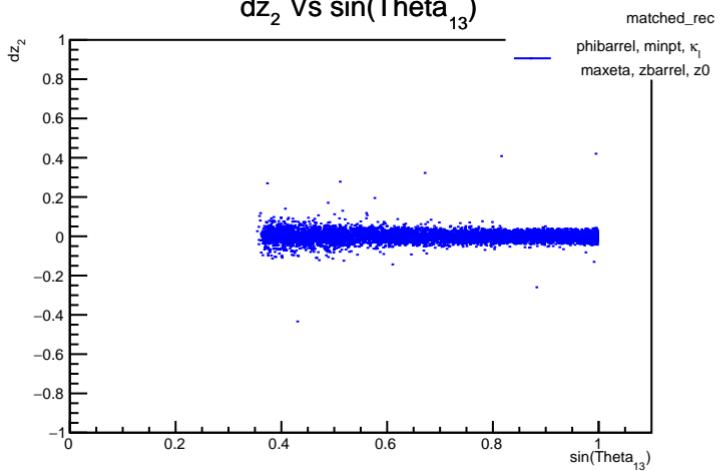
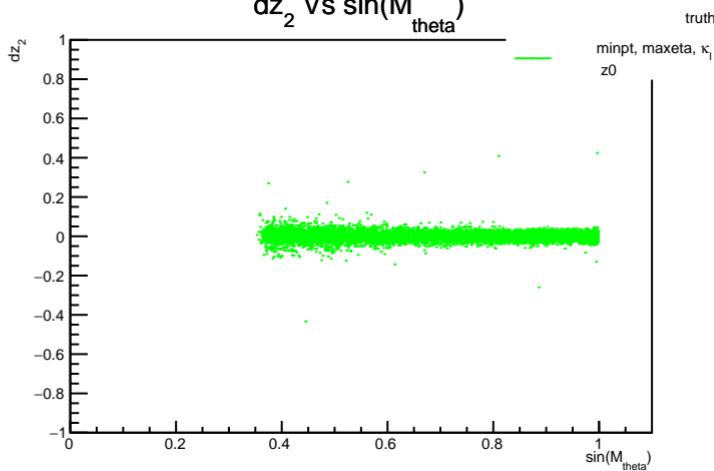


dz_2 Vs $\sin(\Theta_{13})$

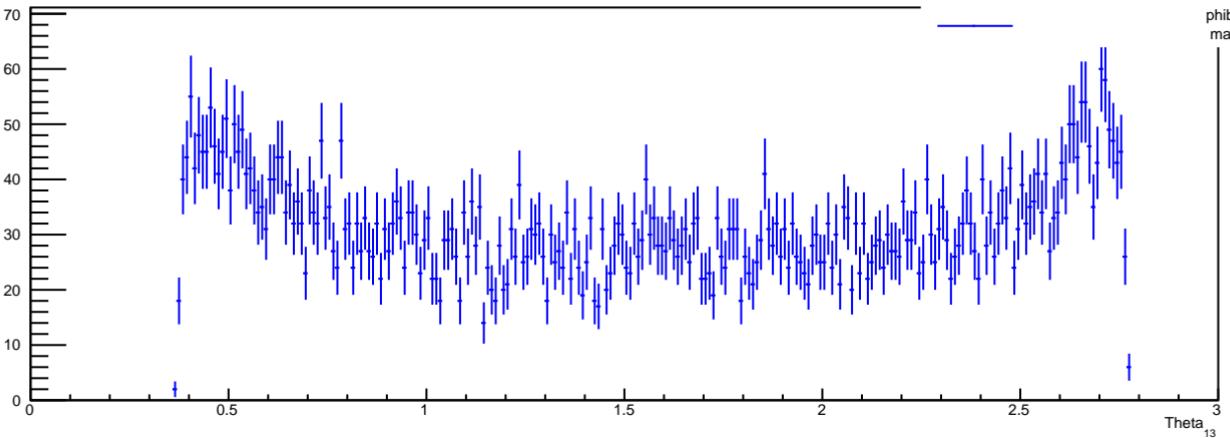


dz_2 Vs $\sin(M_{\theta})$



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

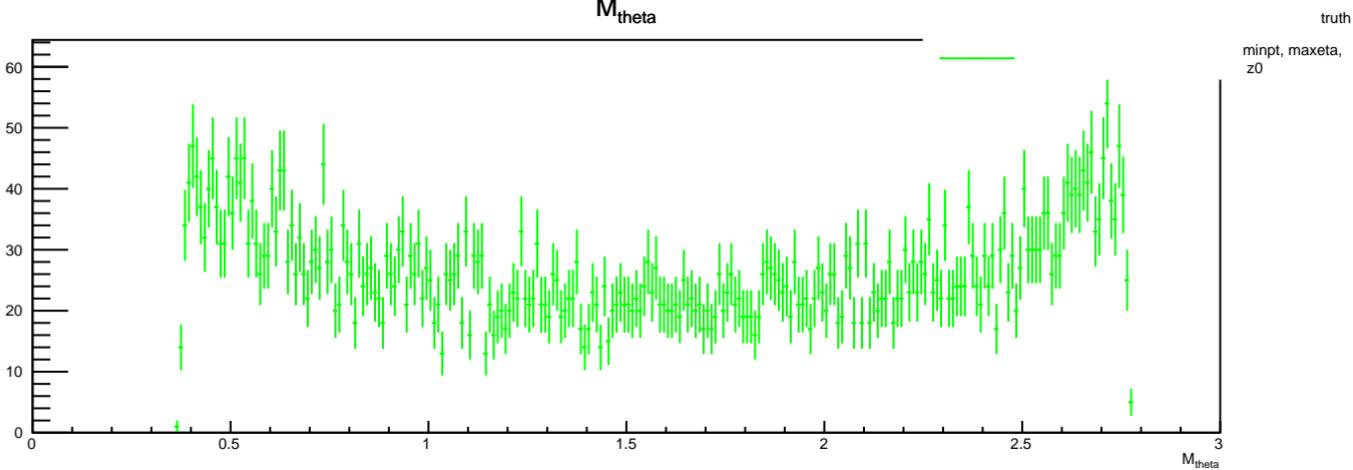
Θ_{13}



matched_rec

phibarrel,minpt,
maxeta, zbarrel, z0

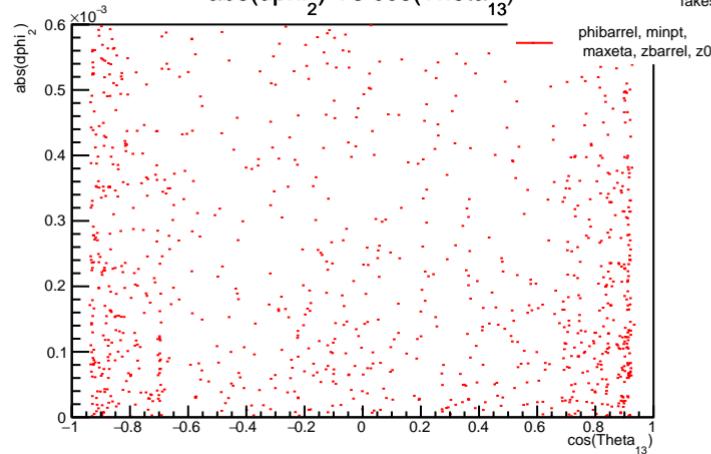
M_{θ}



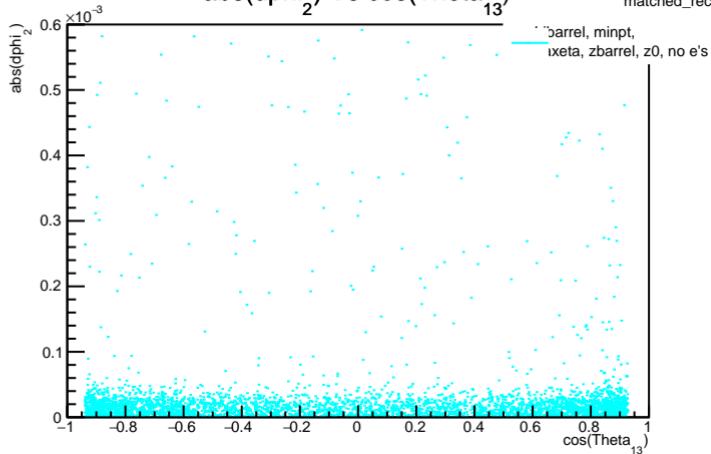
truth

minpt, maxeta,
z0

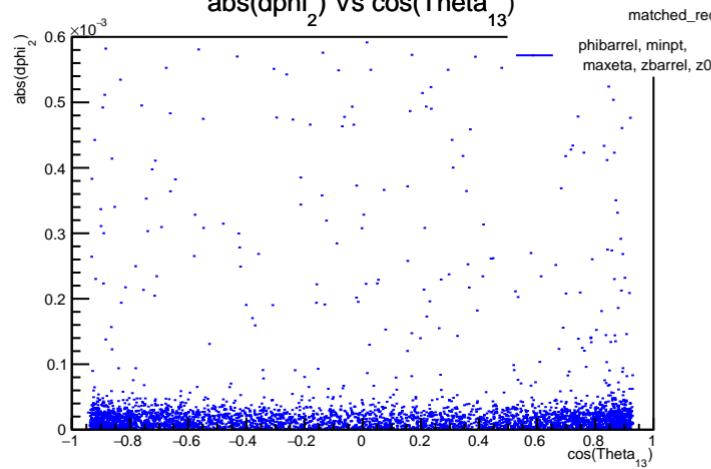
$\text{abs}(\text{dphi}_2)$ Vs $\cos(\Theta_{13})$



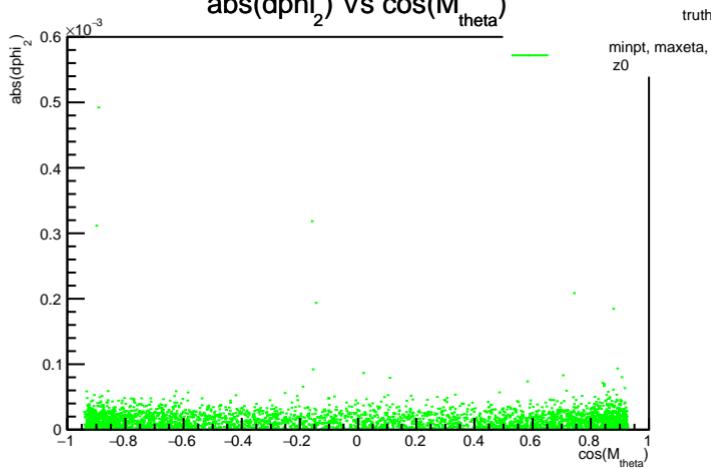
$\text{abs}(\text{dphi}_2)$ Vs $\cos(\Theta_{13})$



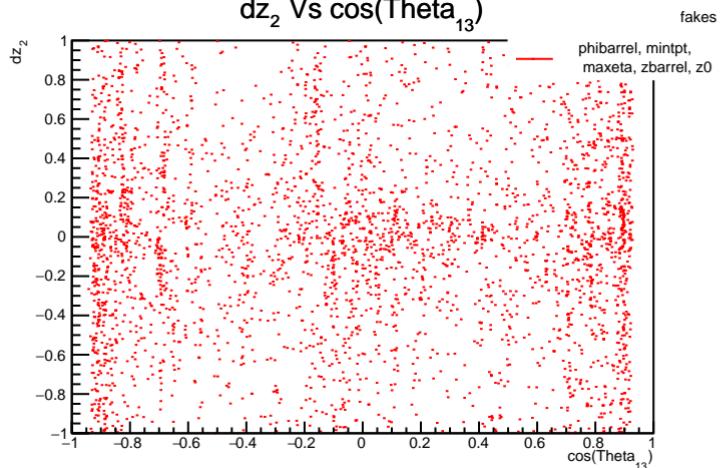
$\text{abs}(\text{dphi}_2)$ Vs $\cos(\Theta_{13})$



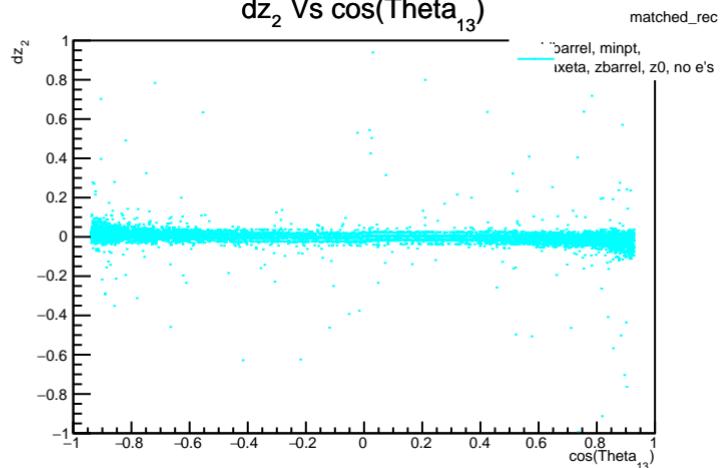
$\text{abs}(\text{dphi}_2)$ Vs $\cos(M_{\theta})$



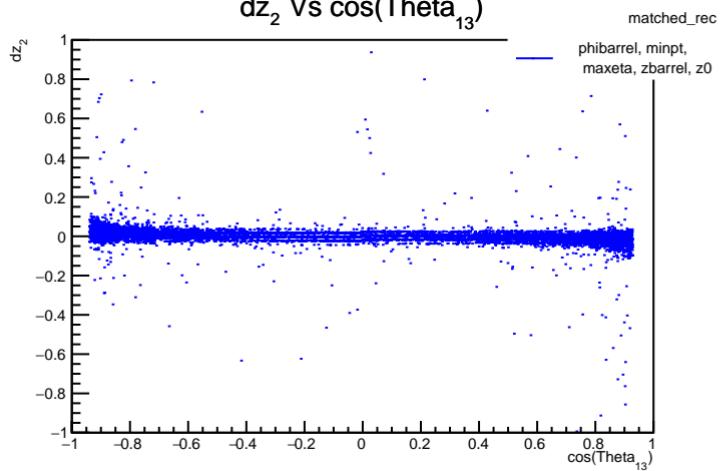
dz_2 Vs $\cos(\Theta_{13})$



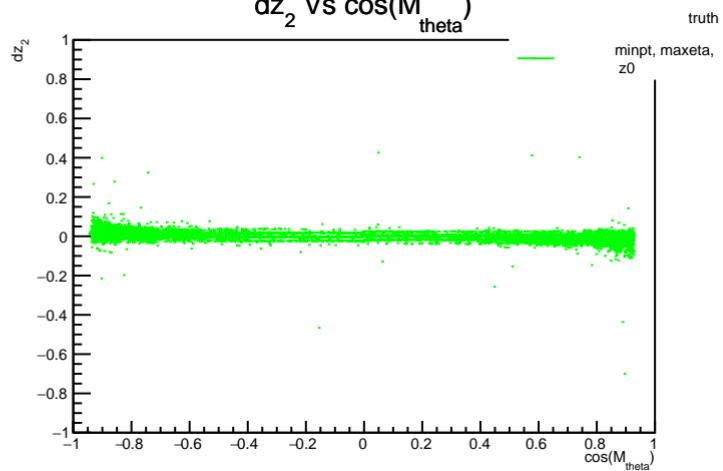
dz_2 Vs $\cos(\Theta_{13})$

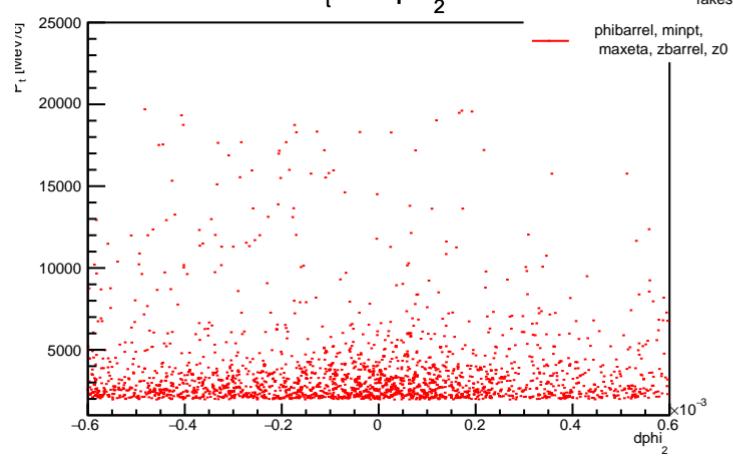
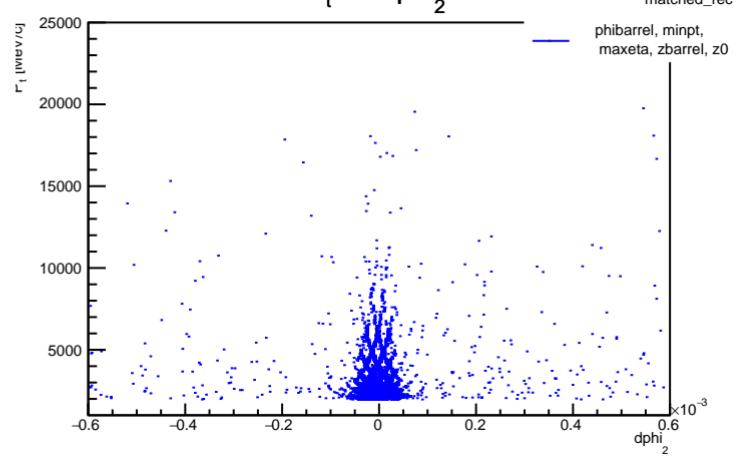
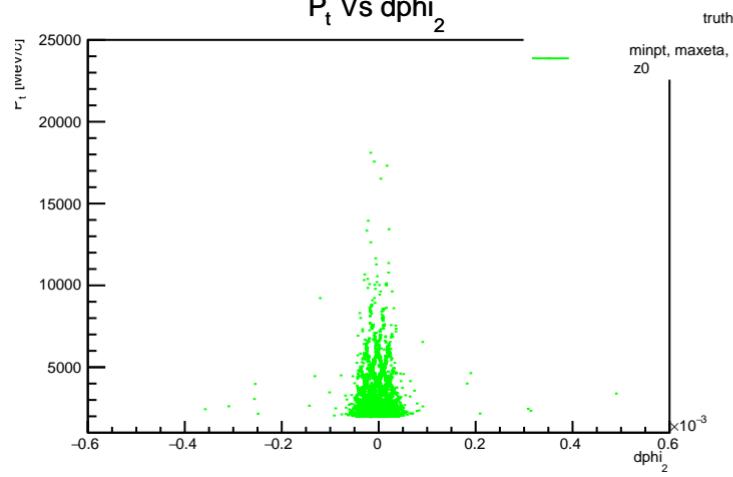
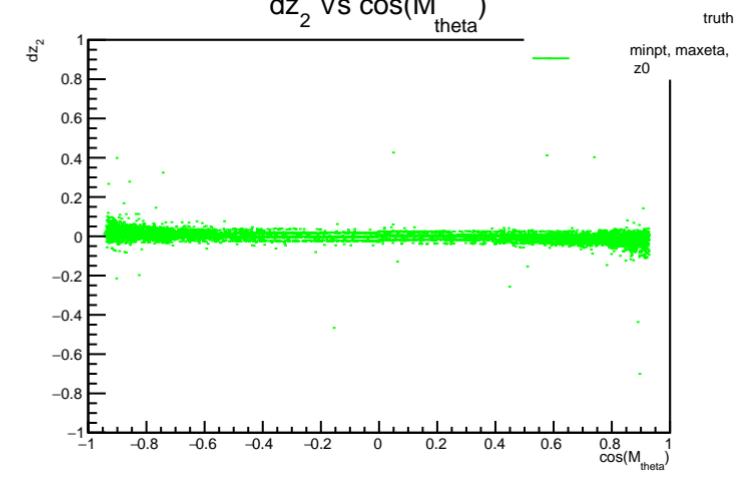


dz_2 Vs $\cos(\Theta_{13})$



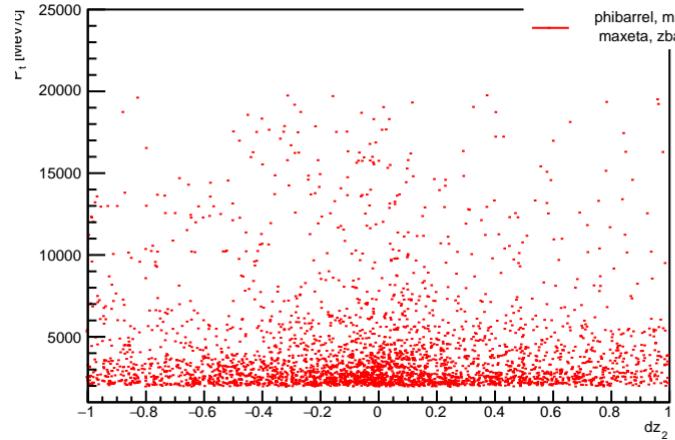
dz_2 Vs $\cos(M_{\theta})$



P_t Vs $d\phi_{2}$  P_t Vs $d\phi_{2}$  P_t Vs $d\phi_{2}$  dz_2 Vs $\cos(M_{\theta})$ 

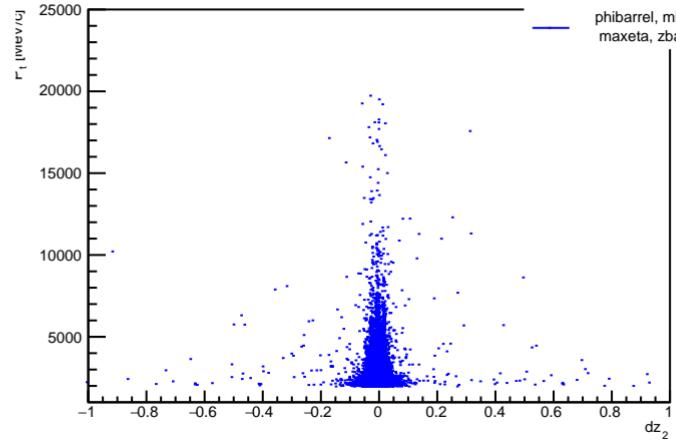
P_t Vs dz_2

fakes



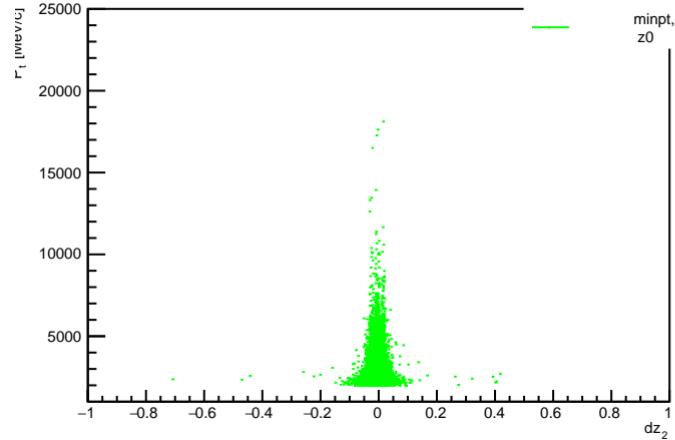
P_t Vs dz_2

matched_rec



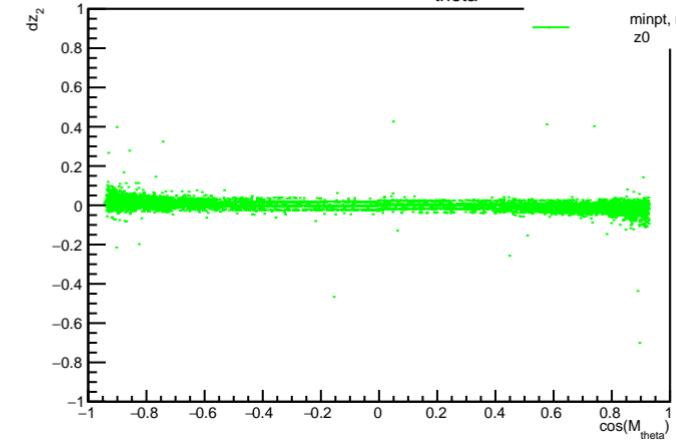
P_t Vs dz_2

truth

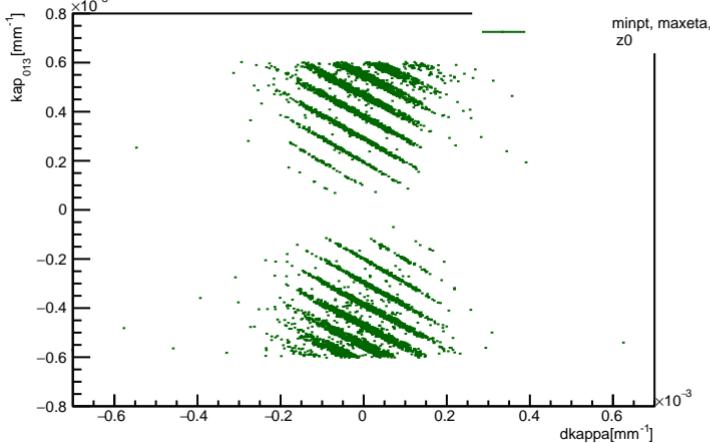


dz_2 Vs $\cos(M_{\theta})$

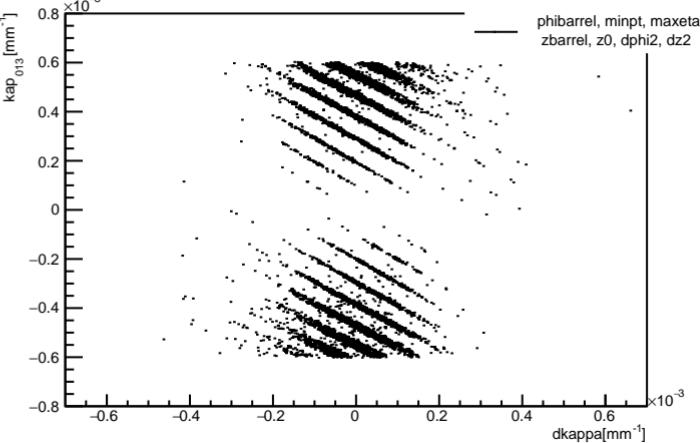
truth



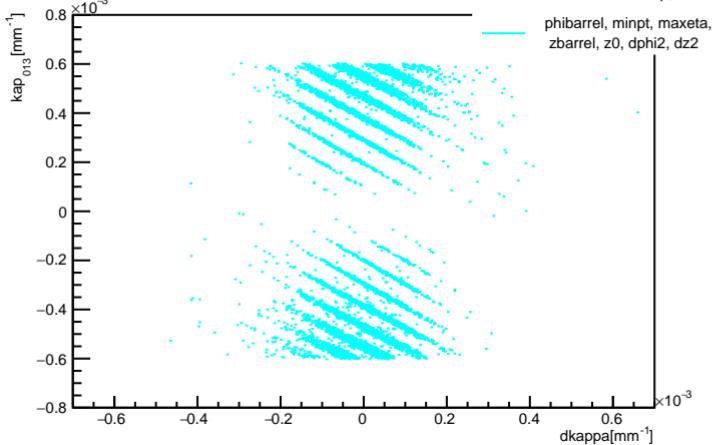
kappa013 Vs dkappa



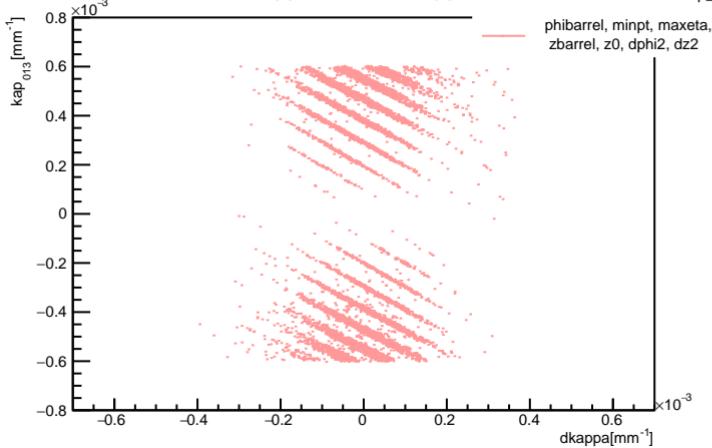
kappa013 Vs dkappa



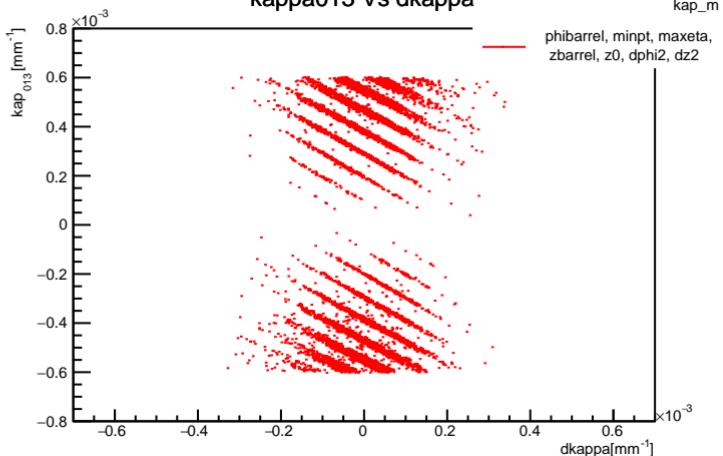
kappa013 Vs dkappa



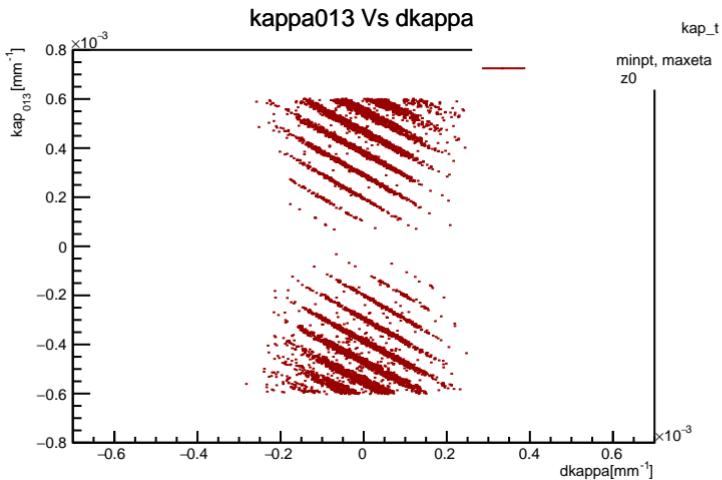
kappa013 Vs dkappa



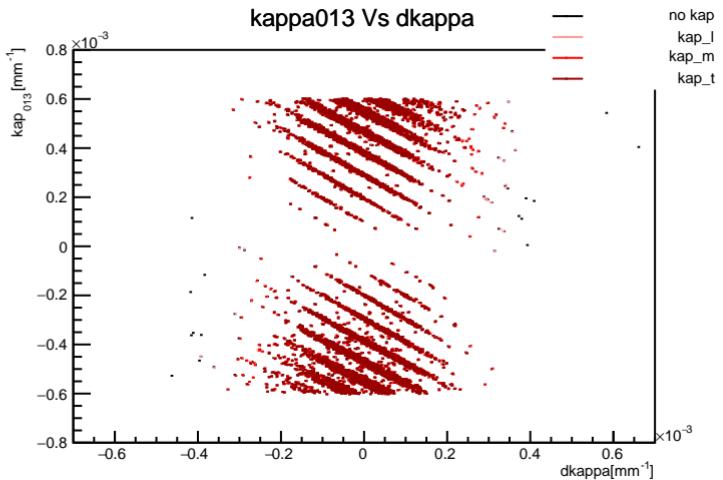
kappa013 Vs dkappa



kappa013 Vs dkappa

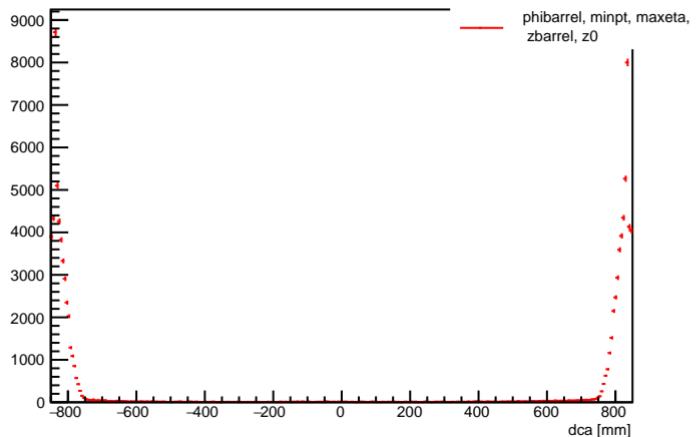


kappa013 Vs dkappa



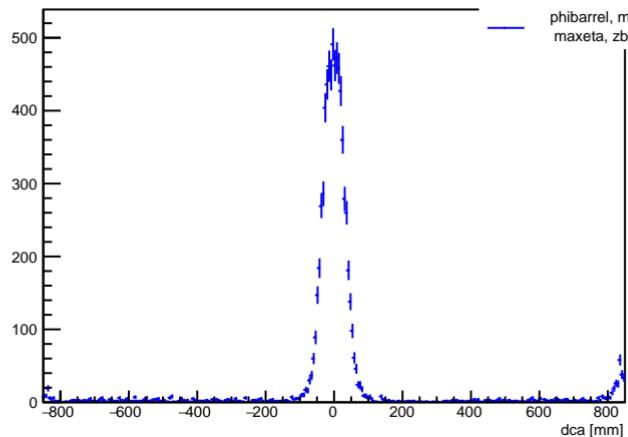
dca

fakes



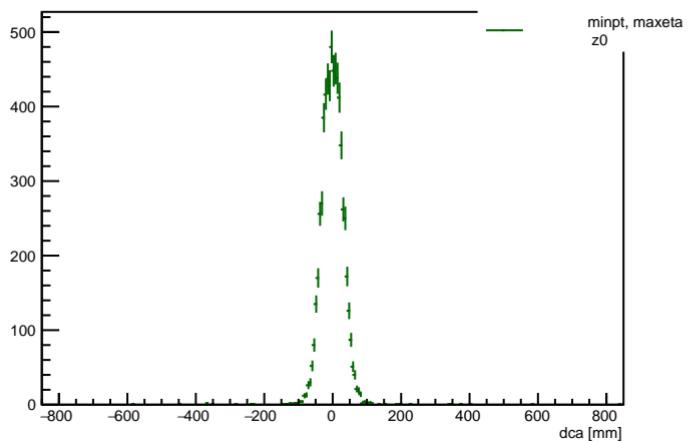
dca

matched_rec



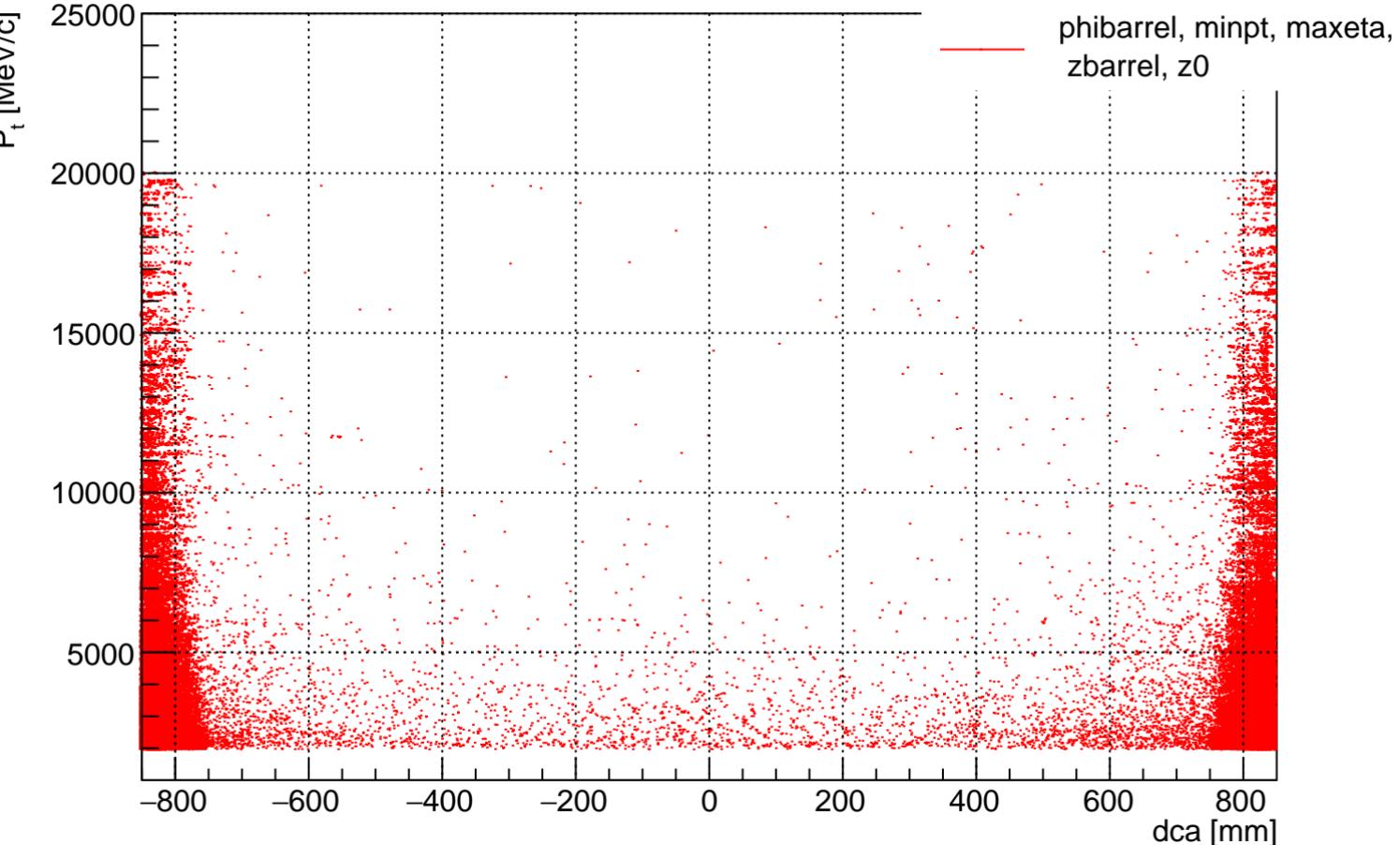
dca

truth



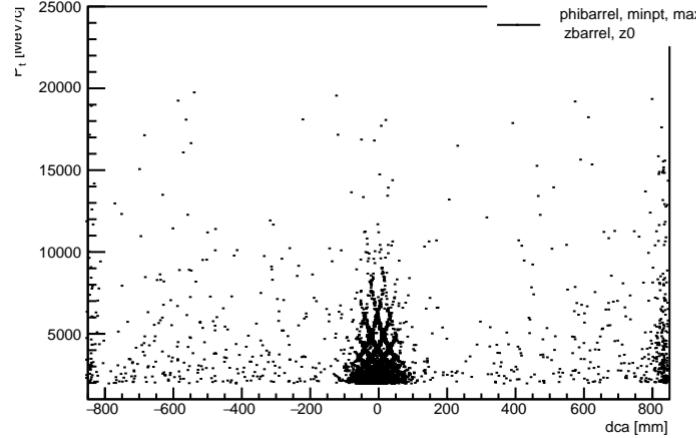
P_t Vs dca

fakes



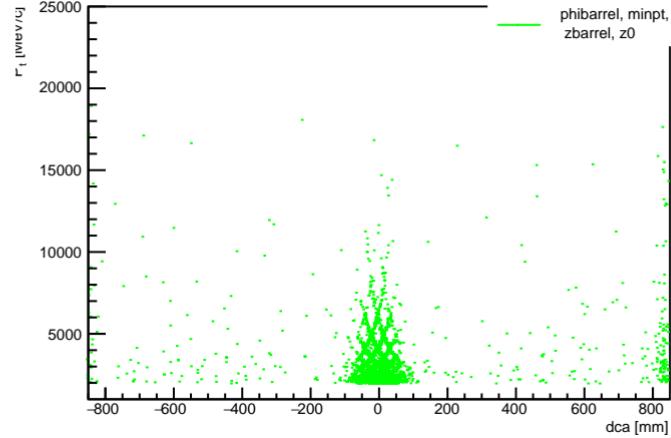
P_t Vs dca

all matched_rec



P_t Vs dca

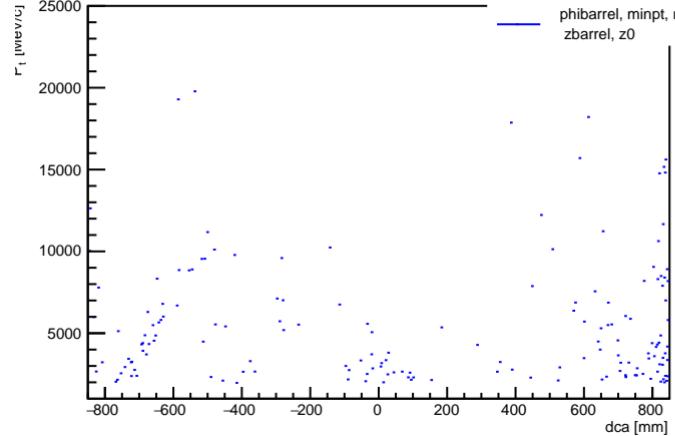
pion matched_rec



P_t Vs dca

electron matched_rec

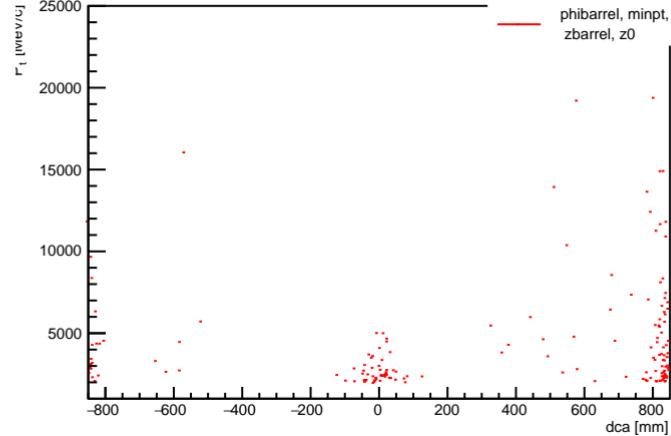
phibarrel, minpt, maxeta,
zbarrel, z0



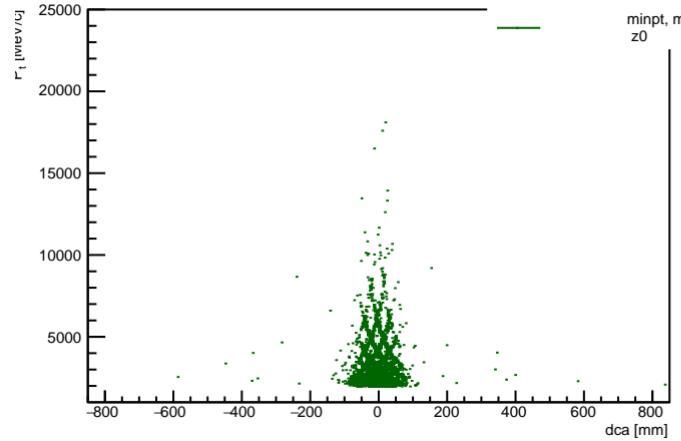
P_t Vs dca

muon's matched_rec

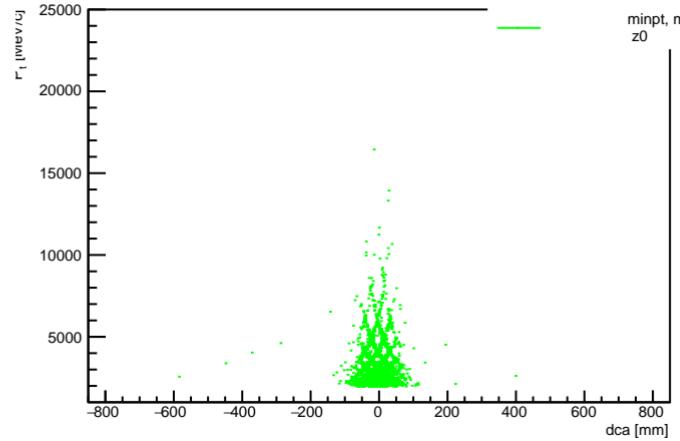
phibarrel, minpt, maxeta,
zbarrel, z0



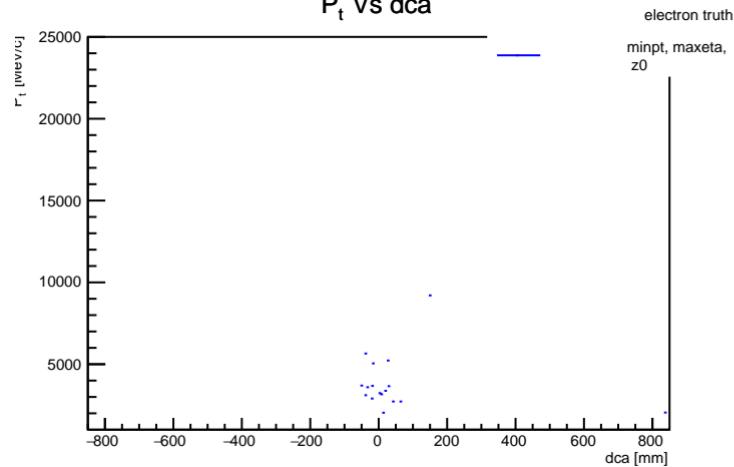
P_t Vs dca



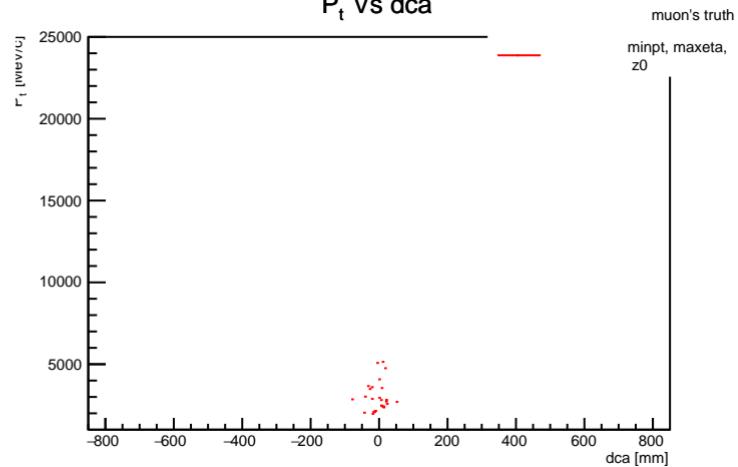
P_t Vs dca



P_t Vs dca

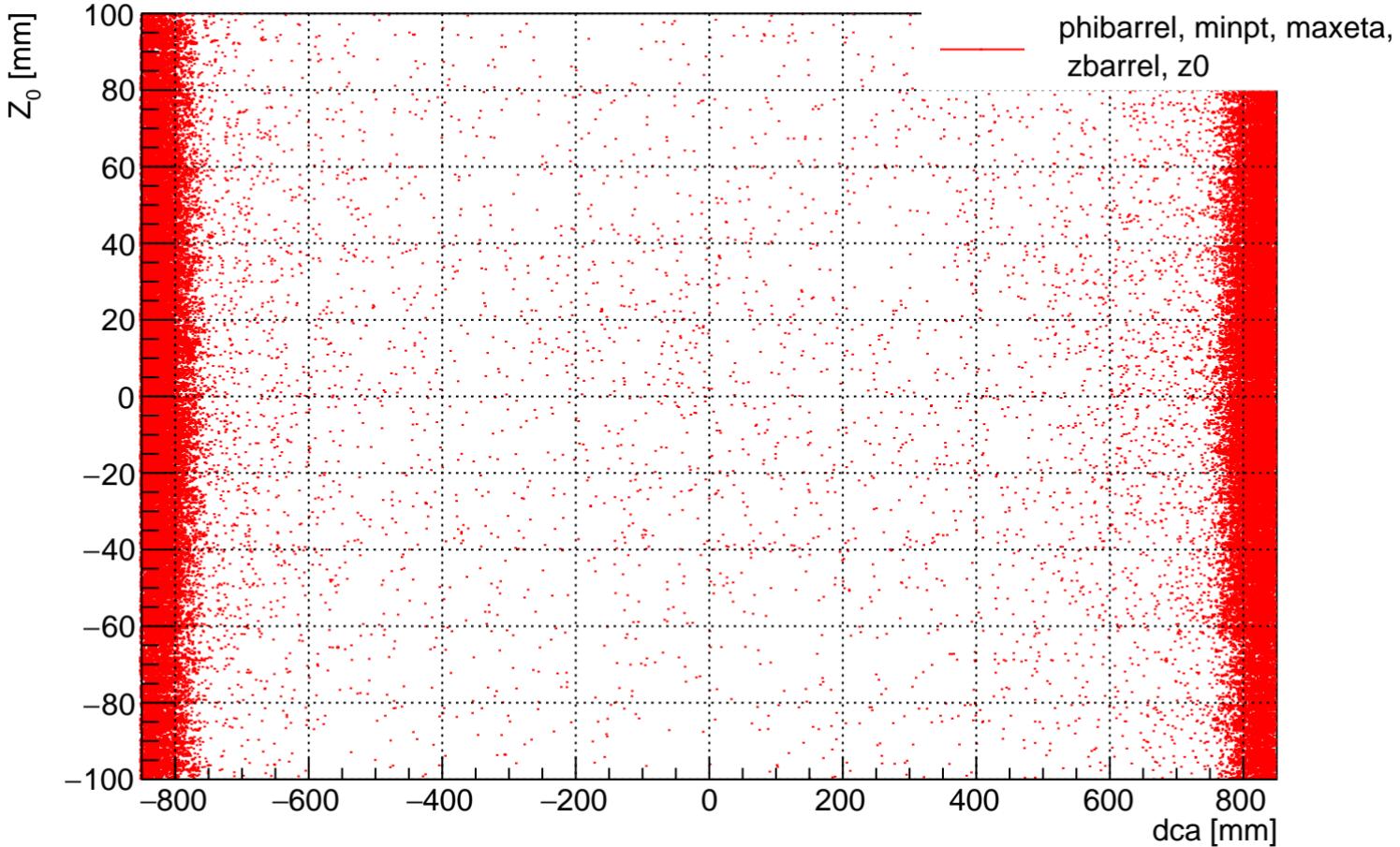


P_t Vs dca

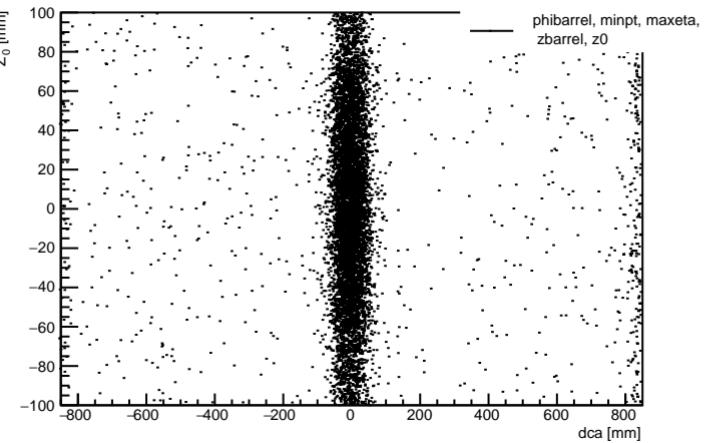


Z_0 Vs dca

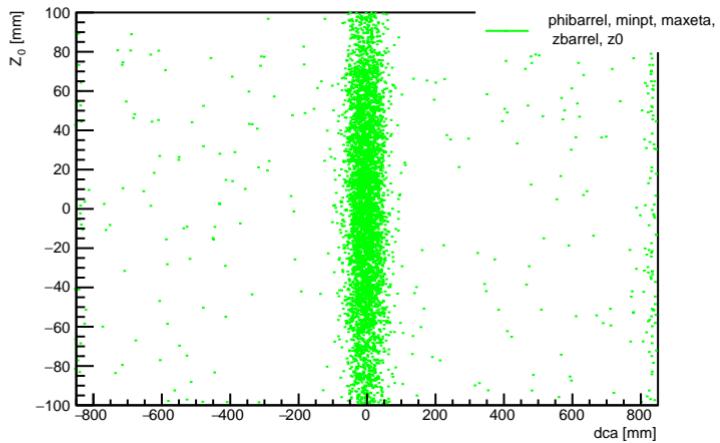
fakes



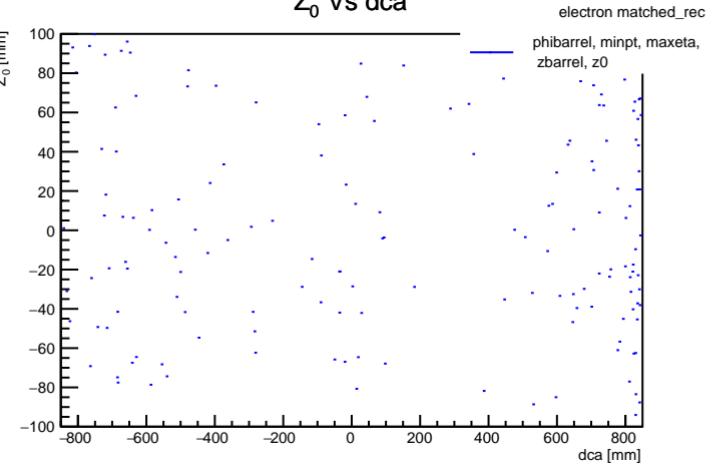
Z_0 Vs dca



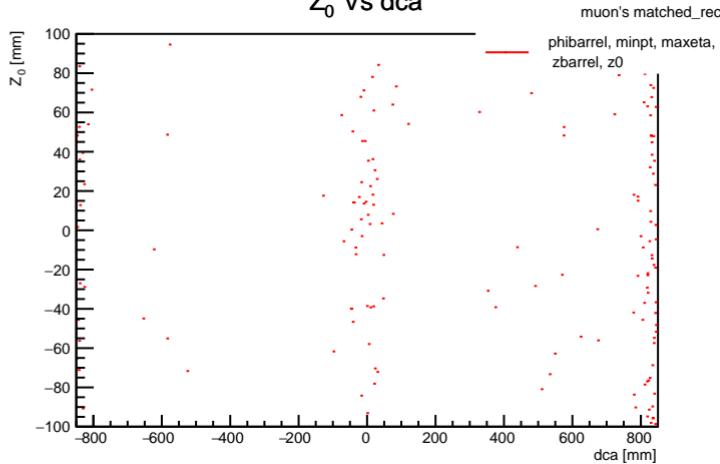
Z_0 Vs dca



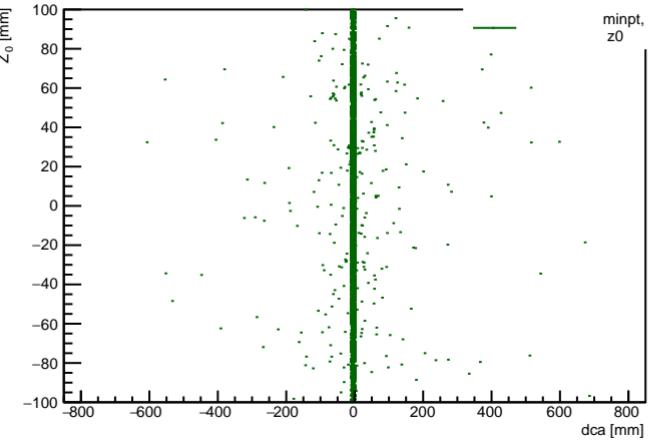
Z_0 Vs dca



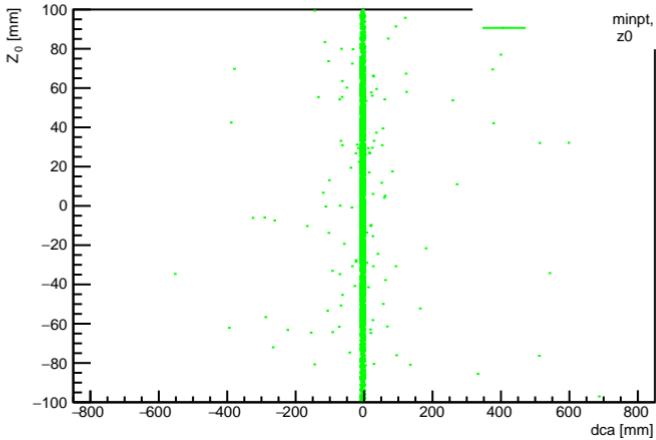
Z_0 Vs dca



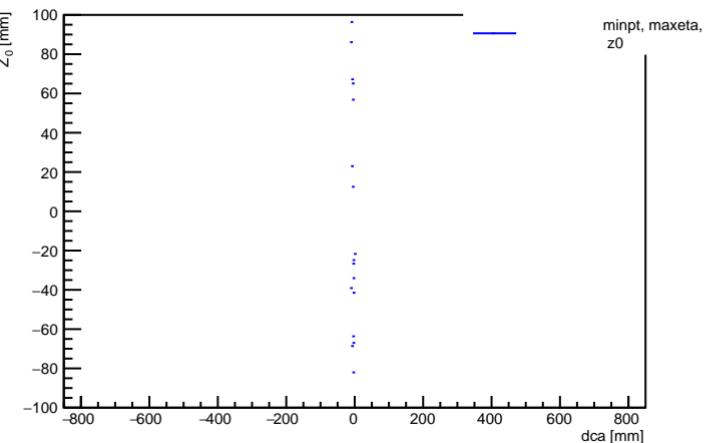
Z_0 Vs dca



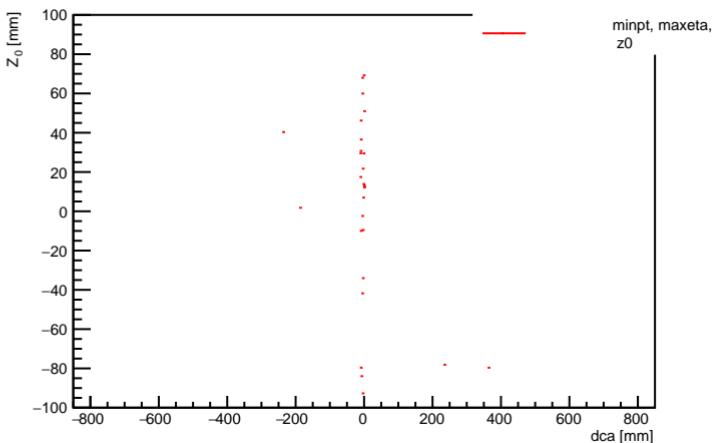
Z_0 Vs dca



Z_0 Vs dca

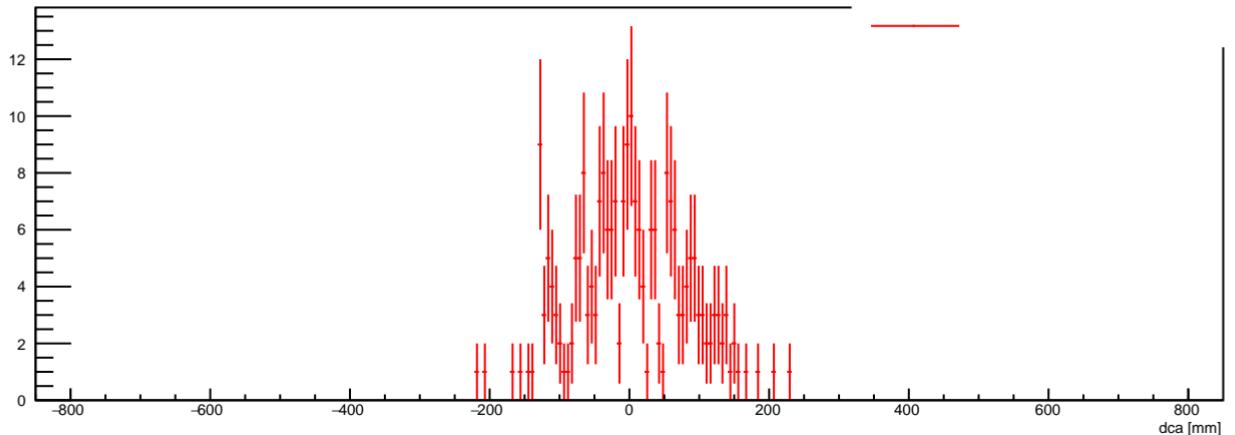


Z_0 Vs dca



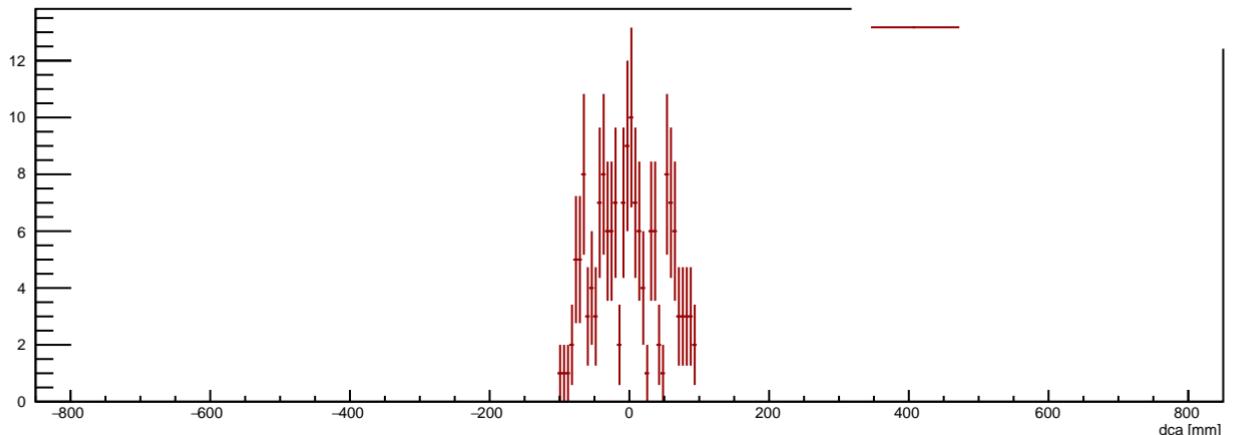
dca

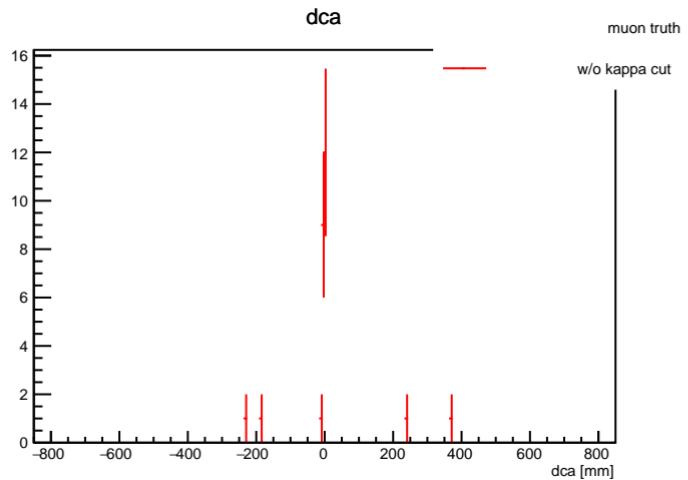
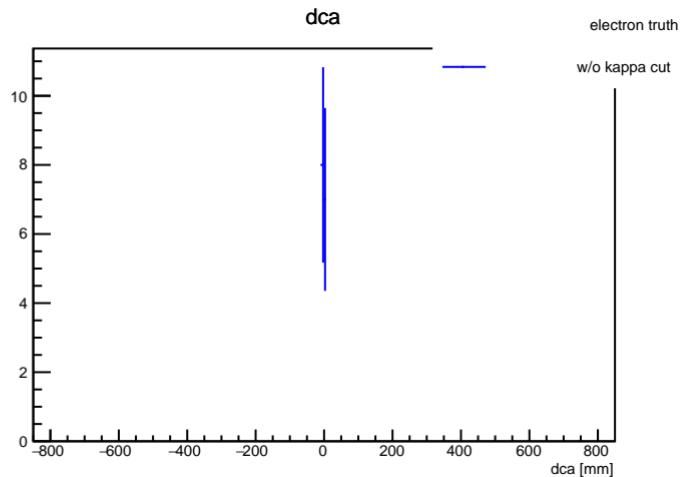
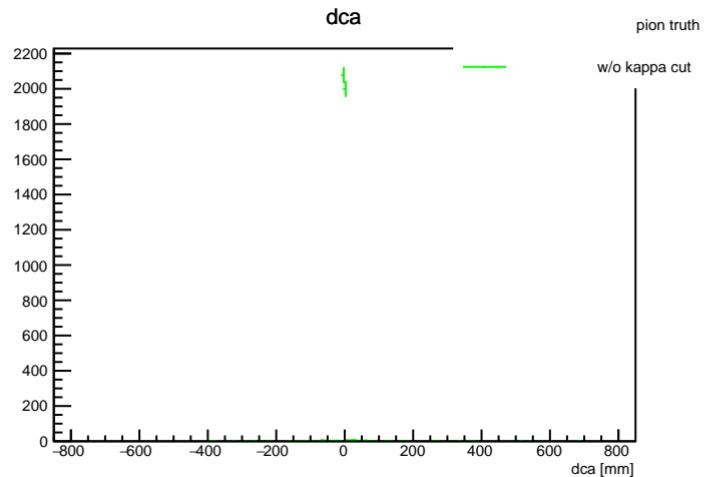
fakes



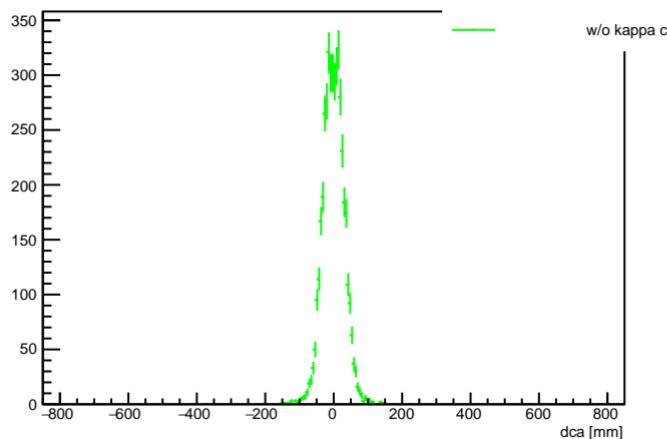
dca

fakes





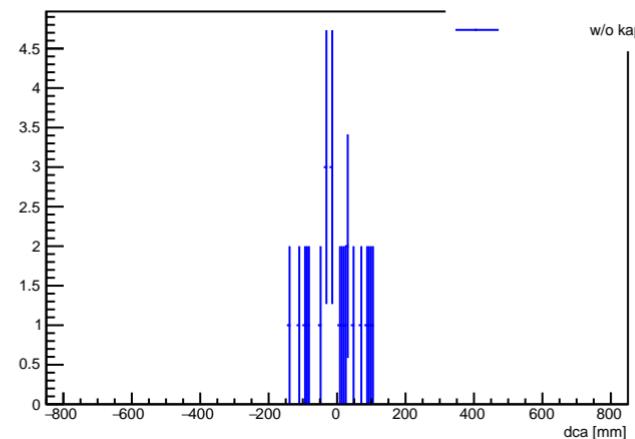
dca



pion matched_rec

w/o kappa cut

dca



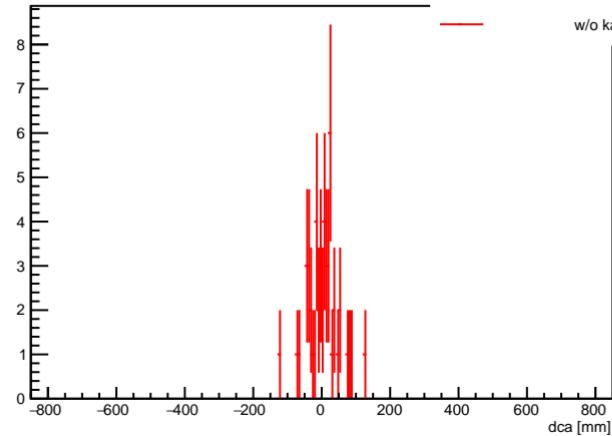
electron matched_rec

w/o kappa cut

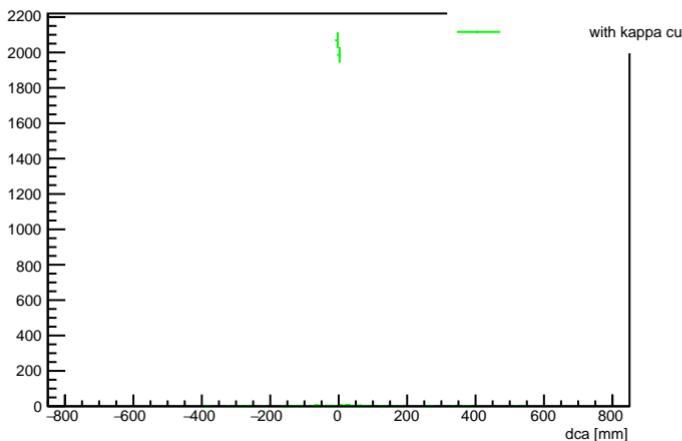
dca

muon matched_rec

w/o kappa cut



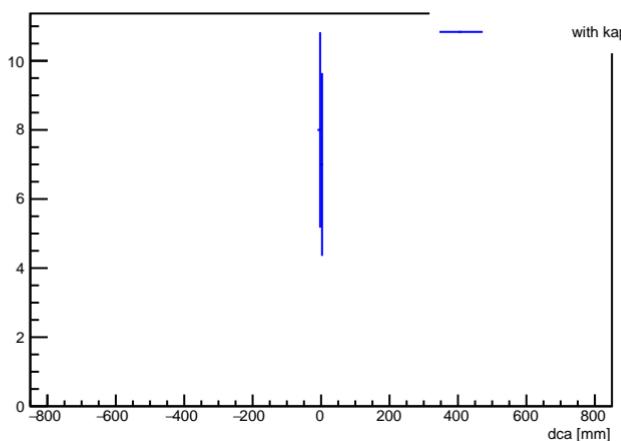
dca



pion truth

with kappa cut

dca



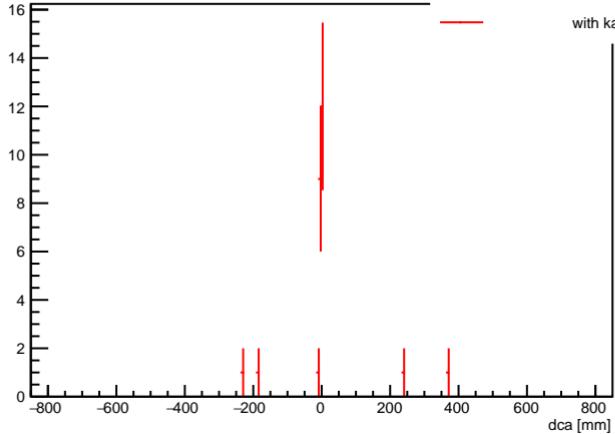
electron truth

with kappa cut

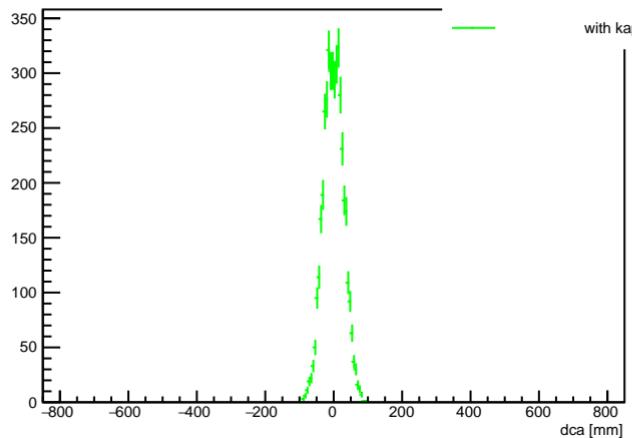
dca

muon truth

with kappa cut



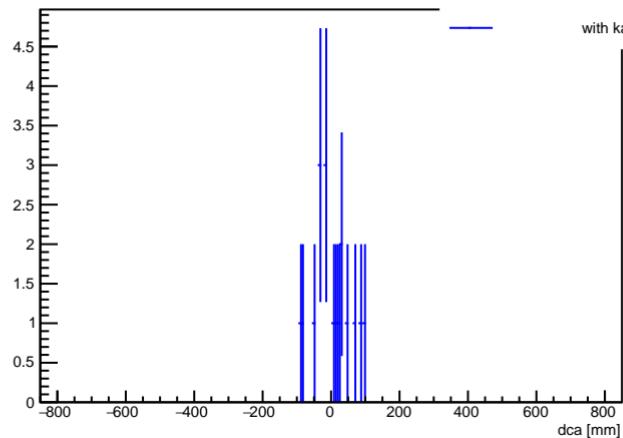
dca



pion matched_rec

with kappa cut

dca



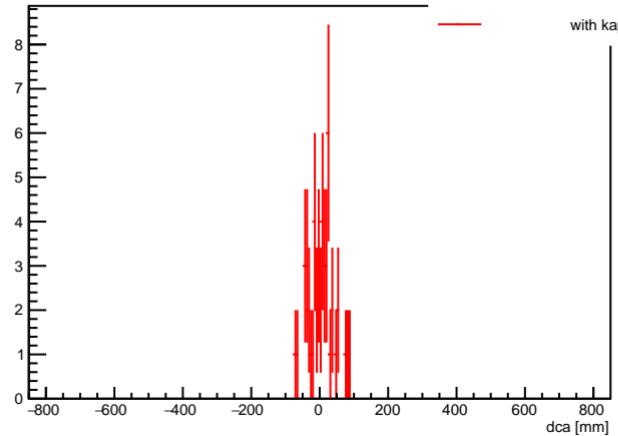
electron matched_rec

with kappa cut

dca

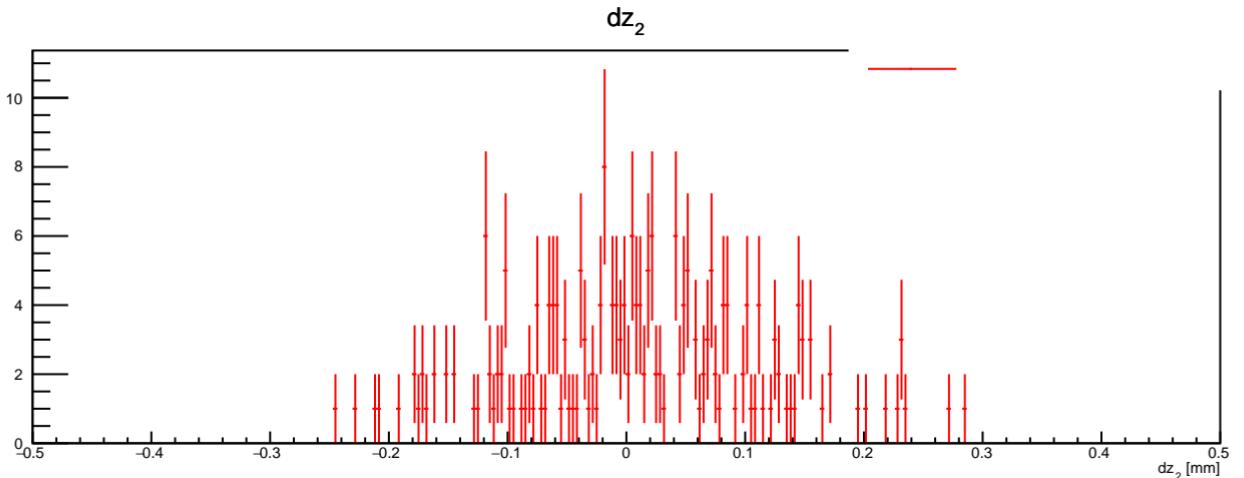
muon matched_rec

with kappa cut



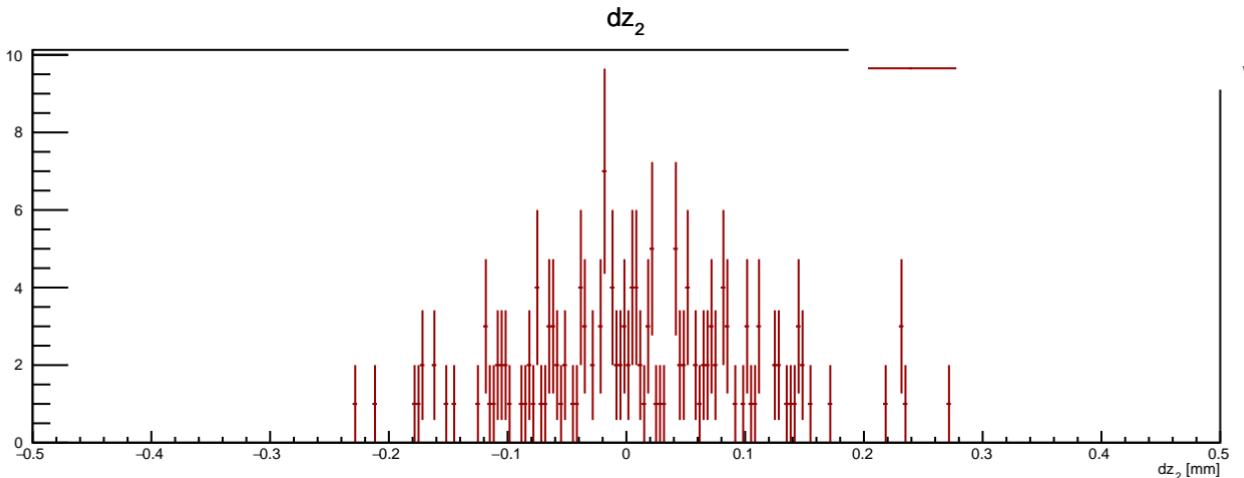
fakes

w/o kappa cut

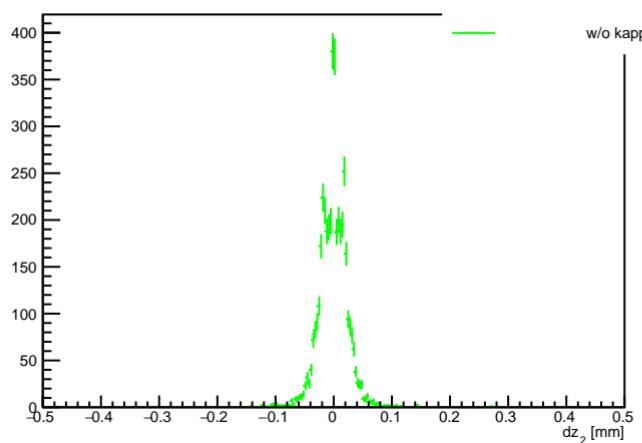


fakes

with kappa cut



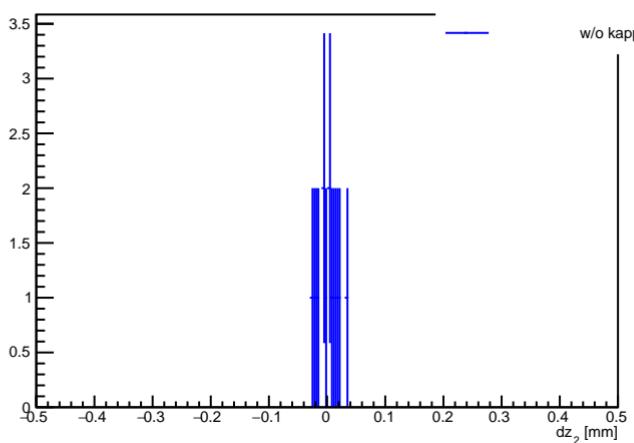
dz_2



pion truth

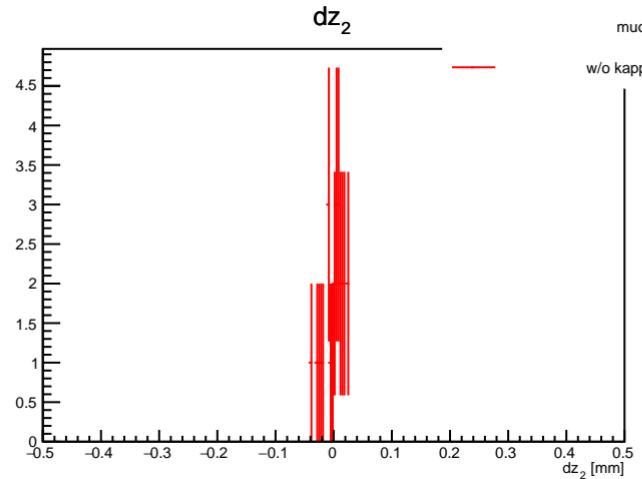
w/o kappa cut

dz_2



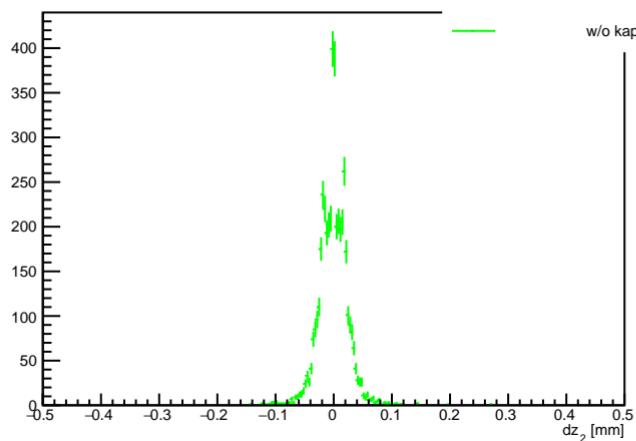
electron truth

muon truth

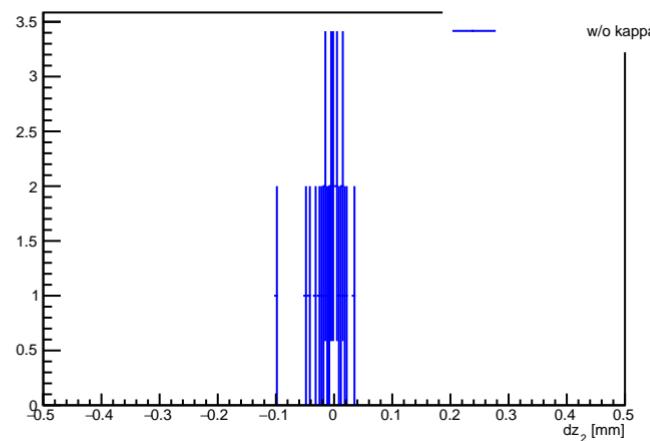


w/o kappa cut

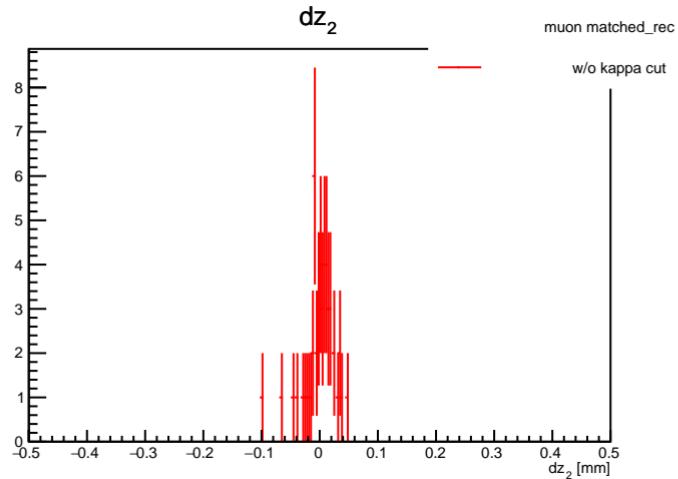
dz_2



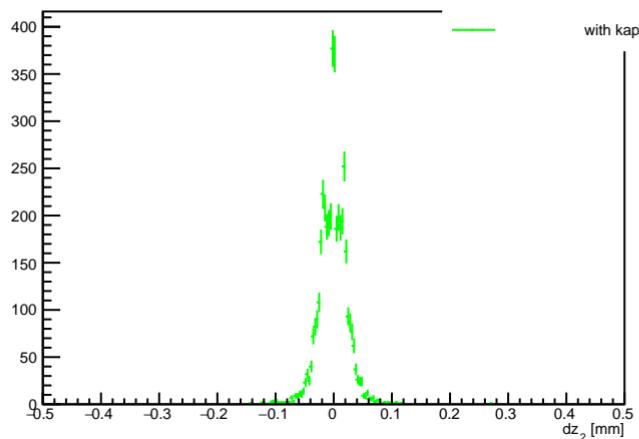
dz_2



dz_2



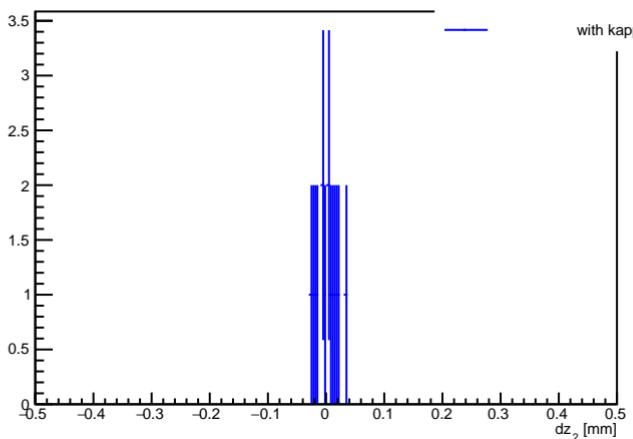
dz_2



pion truth

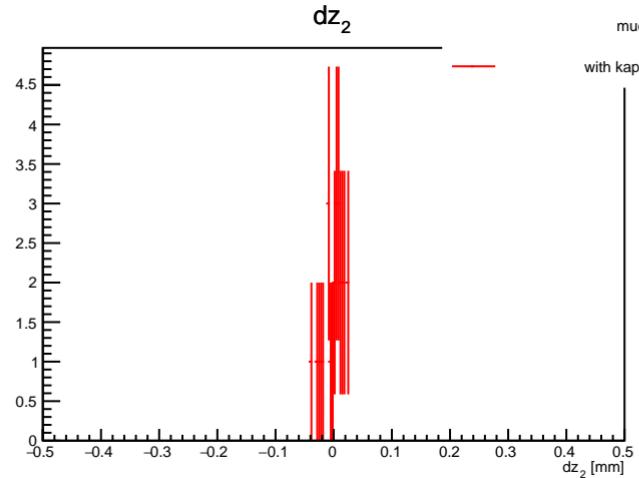
with kappa cut

dz_2



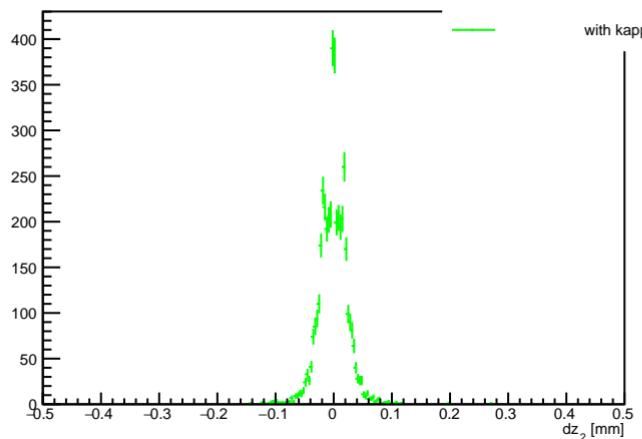
electron truth

muon truth



with kappa cut

dz_2



pion matched_rec

with kappa cut

dz_2

electron matched_rec

with kappa cut

3.5

3

2.5

2

1.5

1

0.5

0

0.5

1

1.5

2

2.5

3

3.5

3

2.5

2

1.5

1

0.5

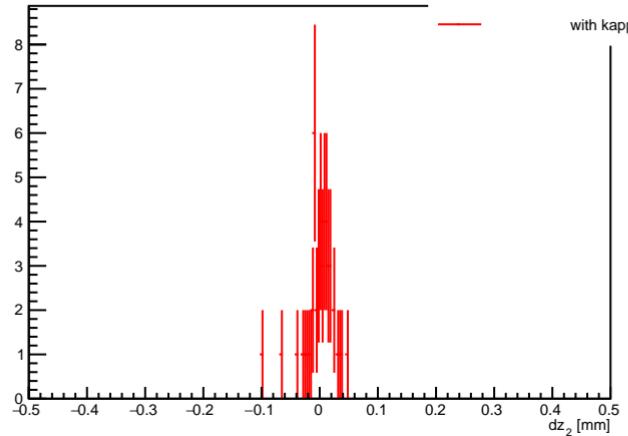
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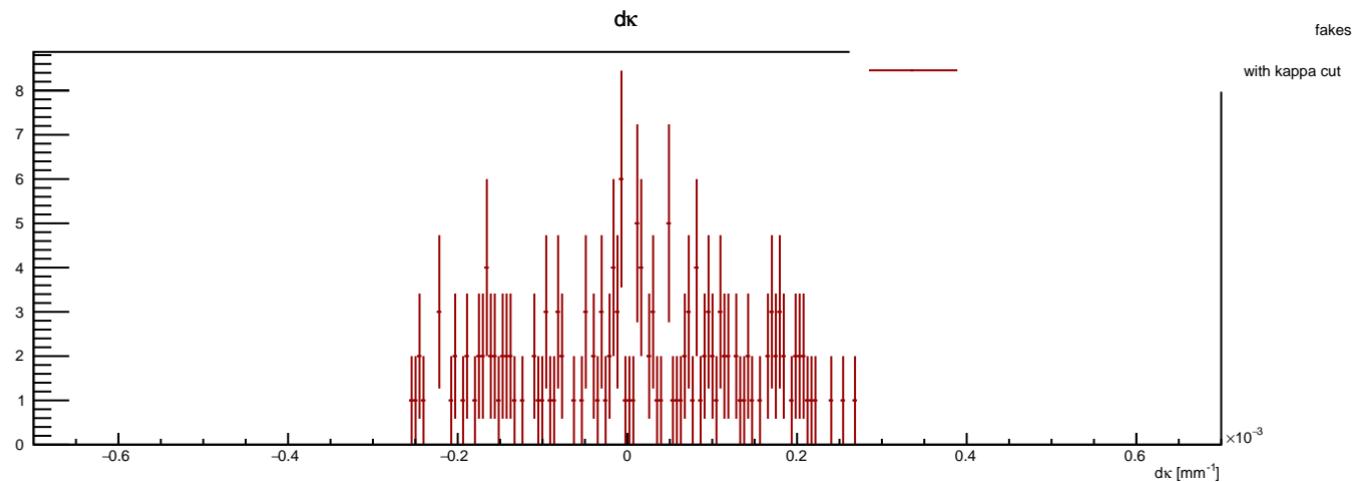
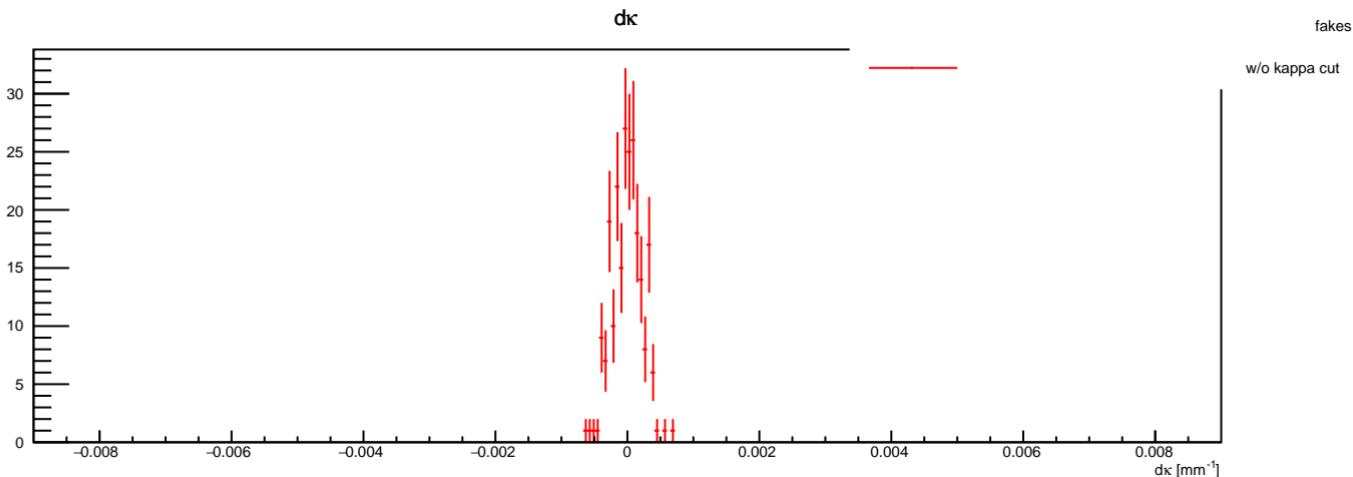
dz_2 [mm]

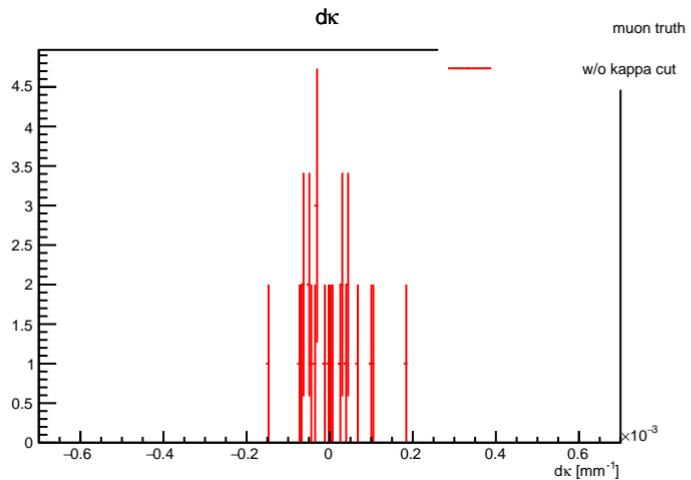
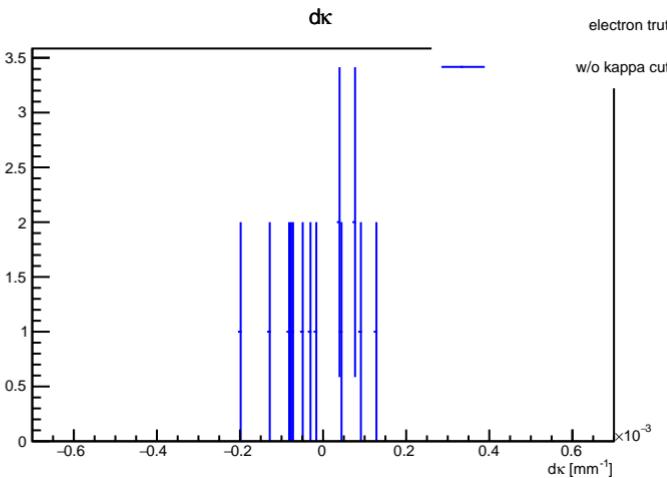
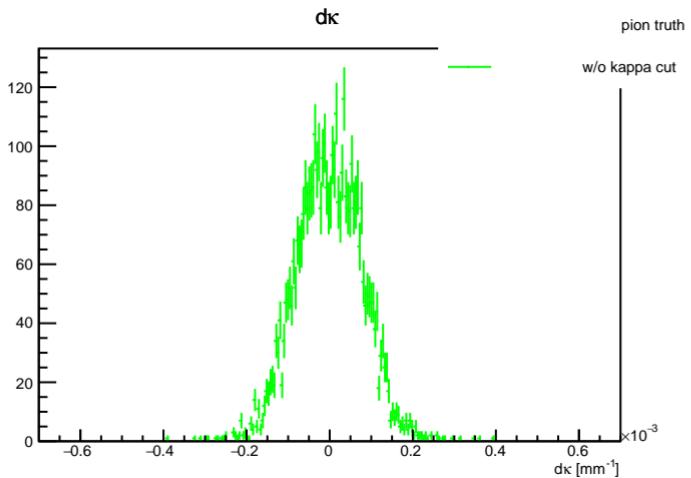
dz_2

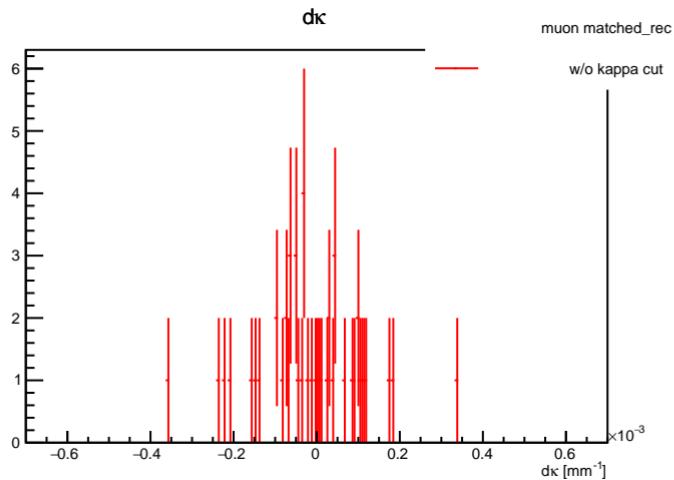
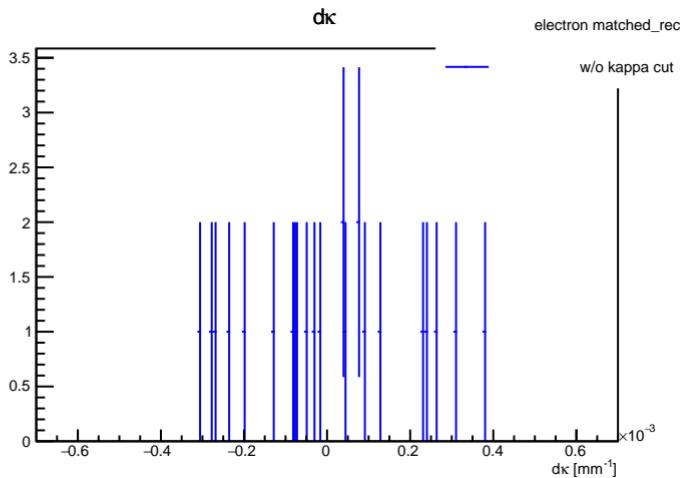
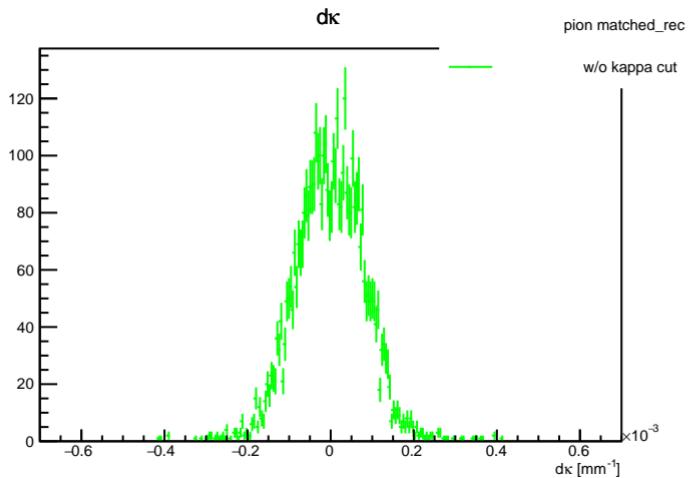
muon matched_rec

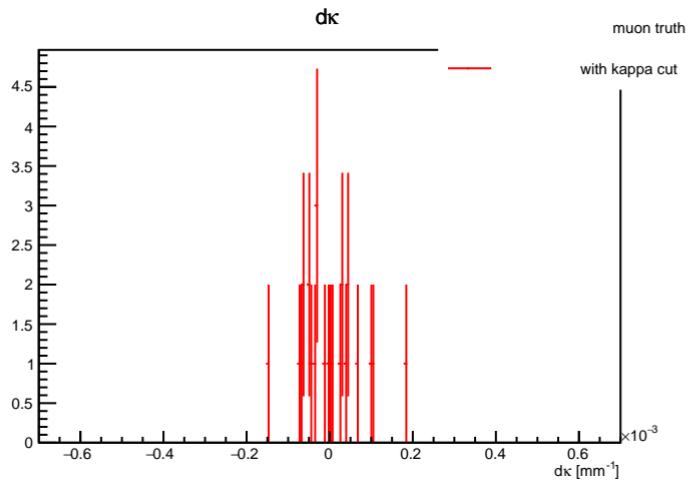
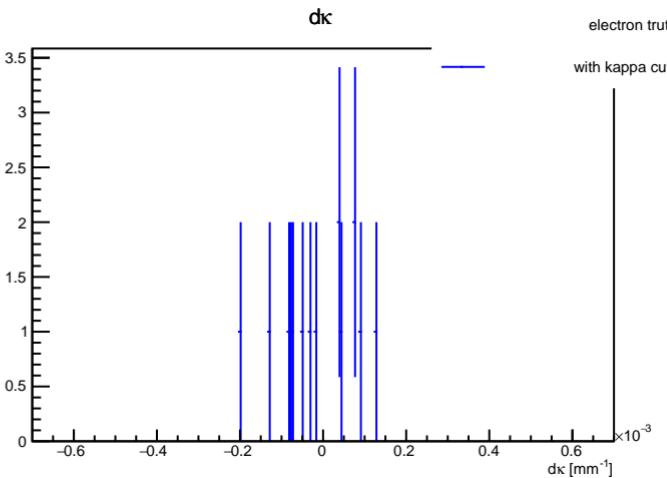
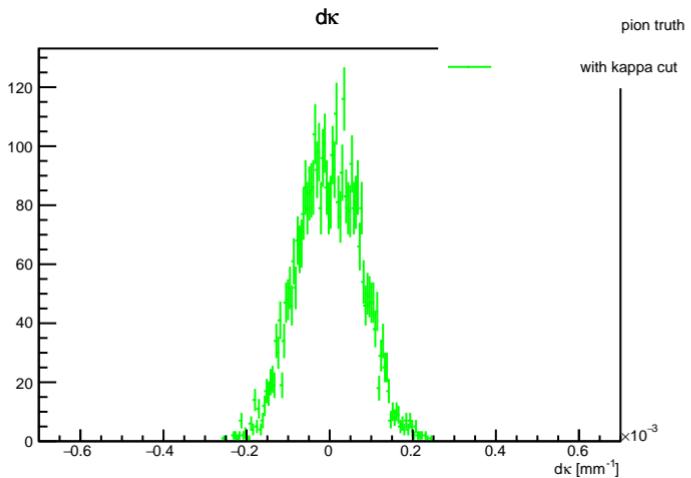
with kappa cut



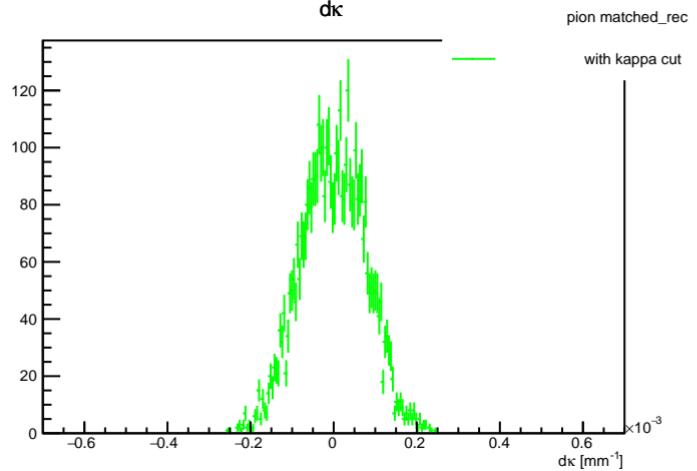








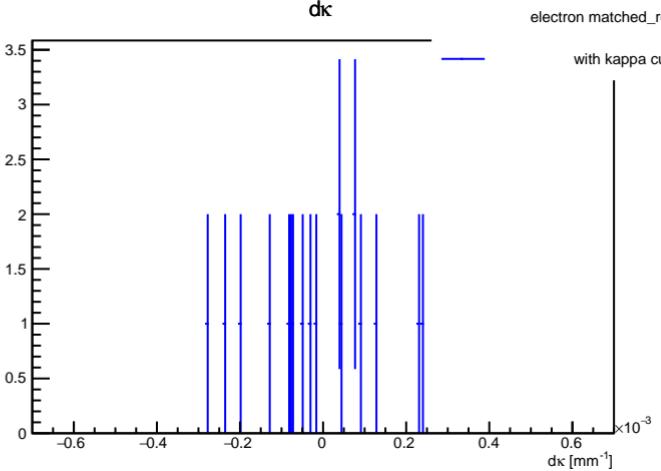
dk



pion matched_rec

with kappa cut

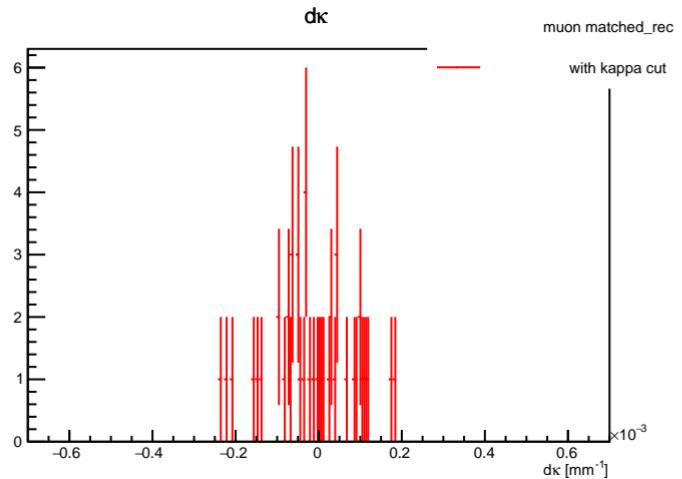
dk



electron matched_rec

with kappa cut

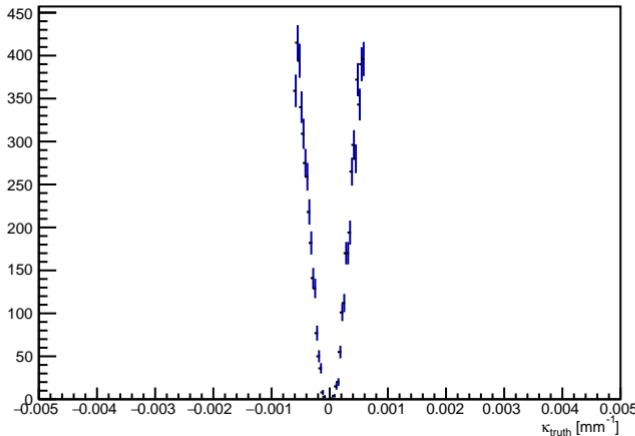
dk



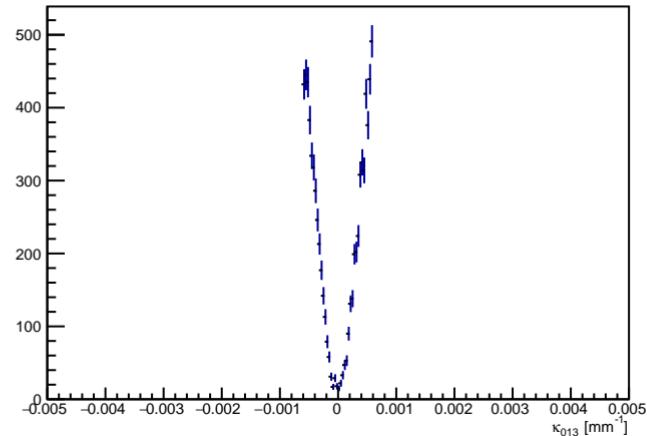
muon matched_rec

with kappa cut

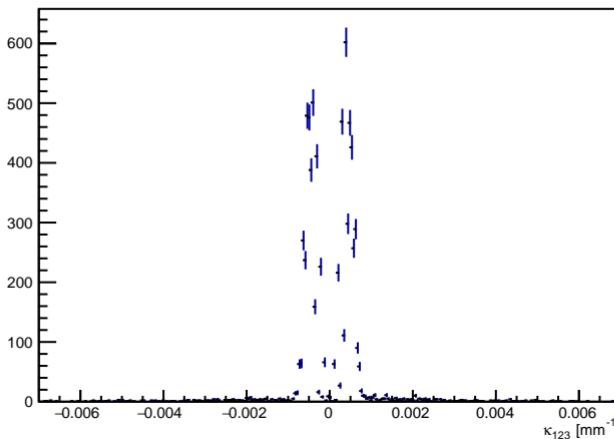
kappa truth

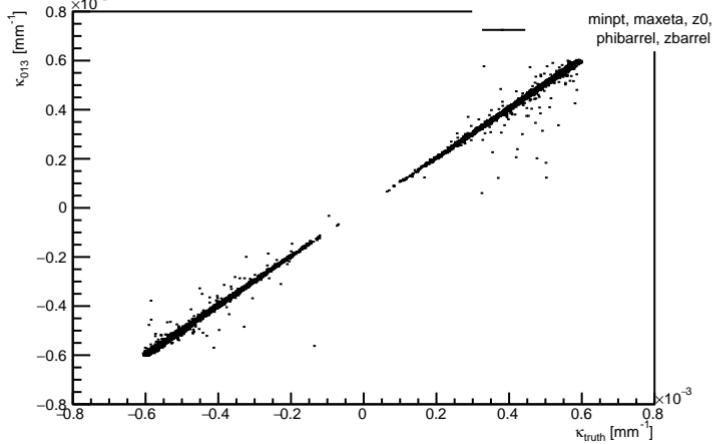
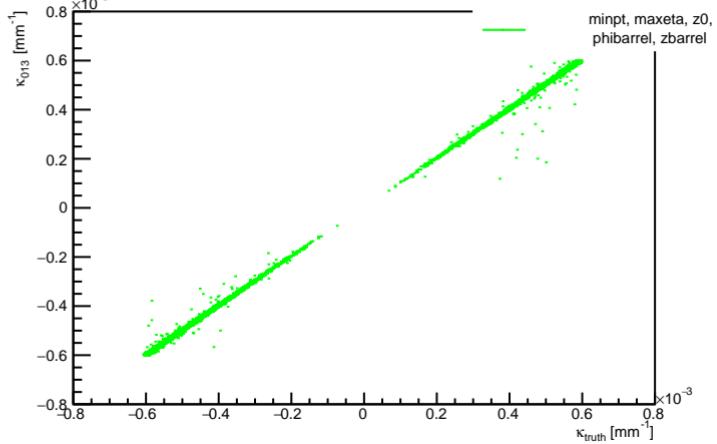
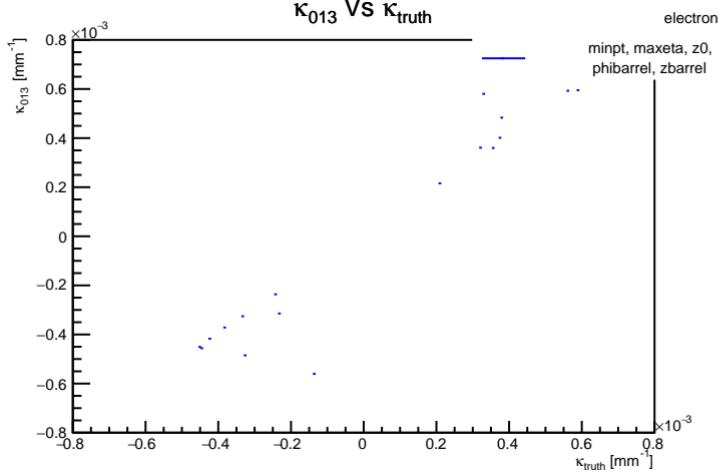
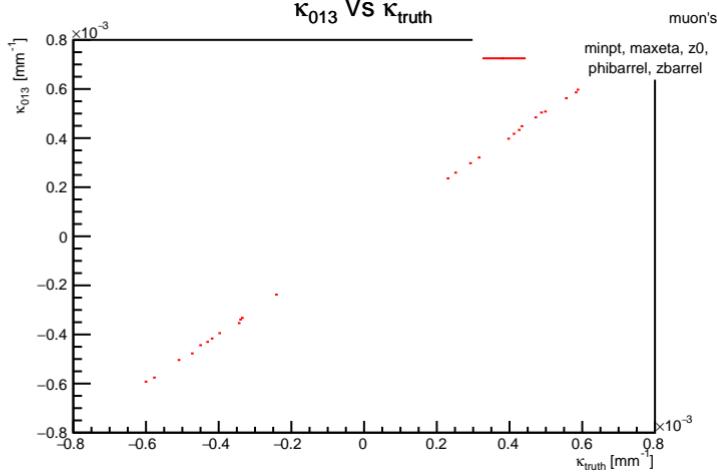


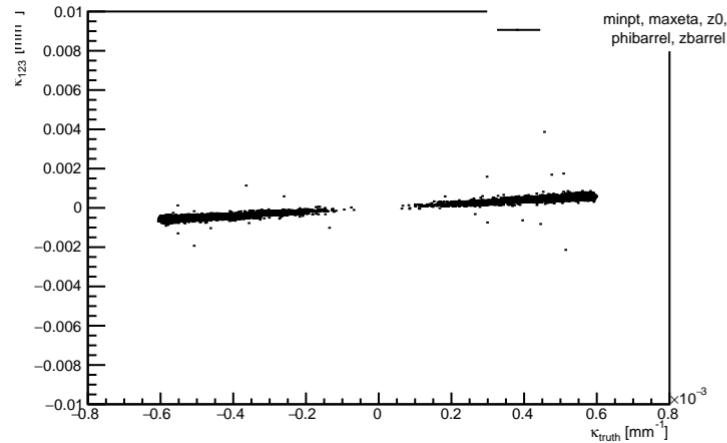
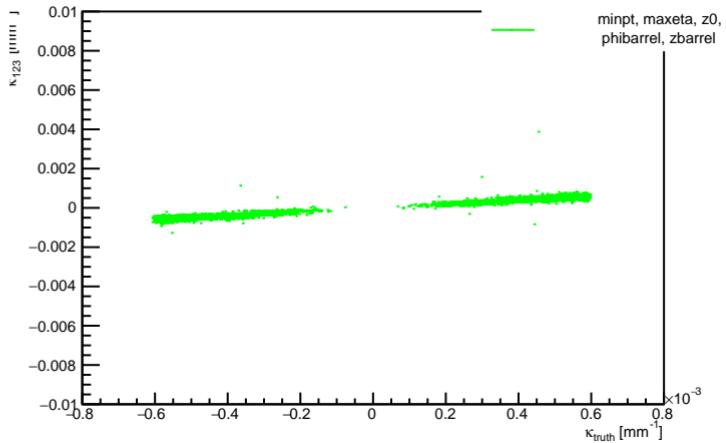
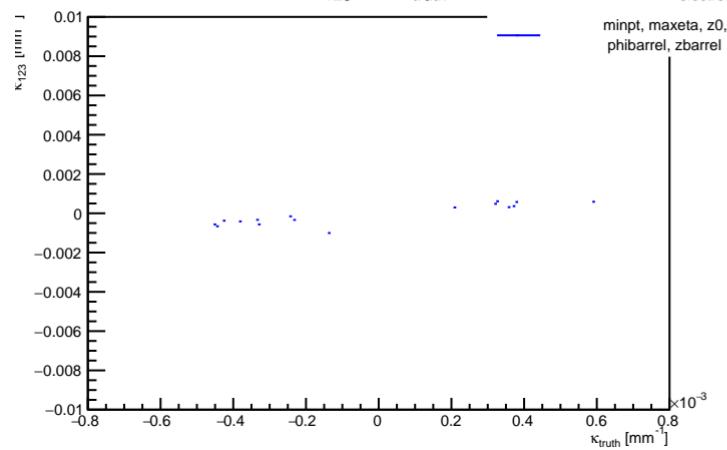
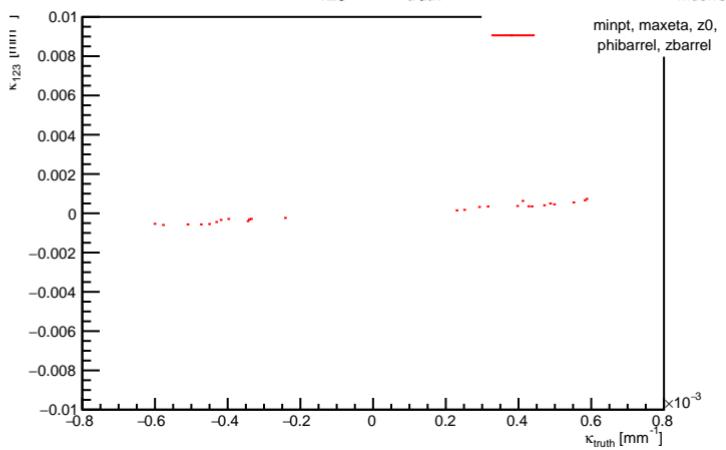
kappa rec with bml constraint

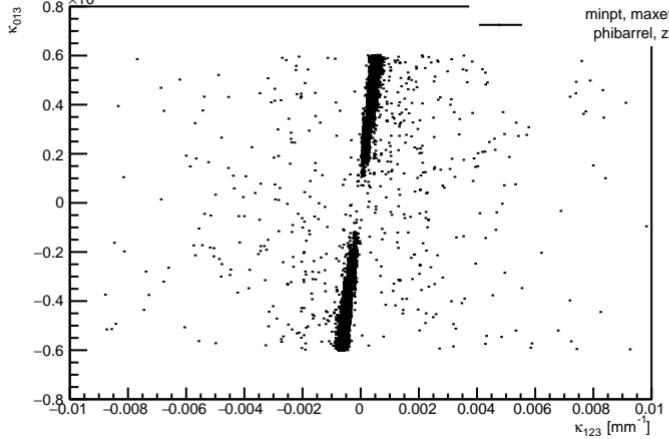
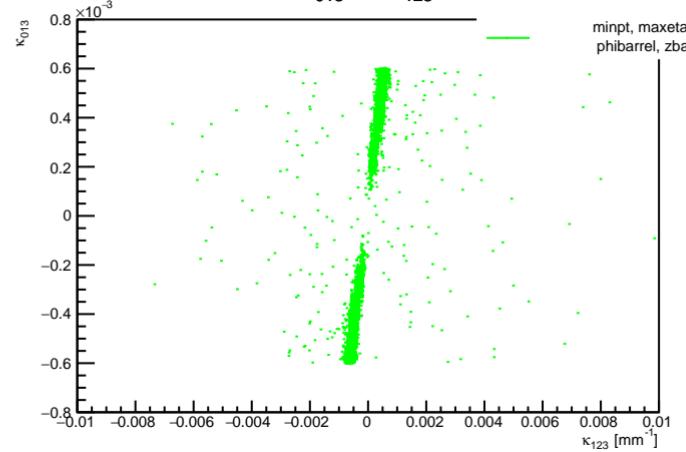
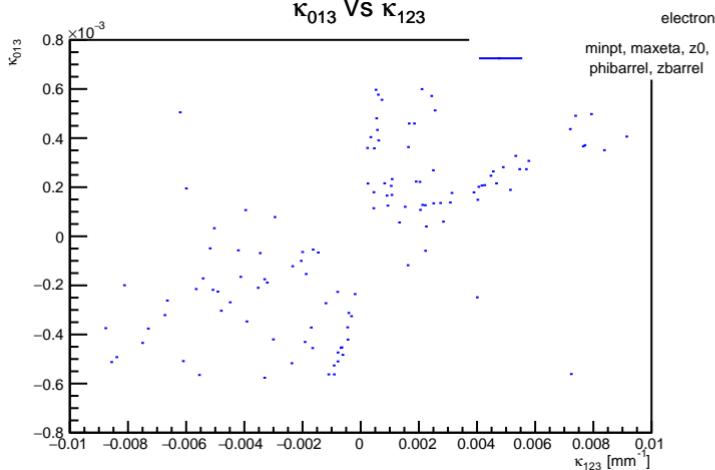
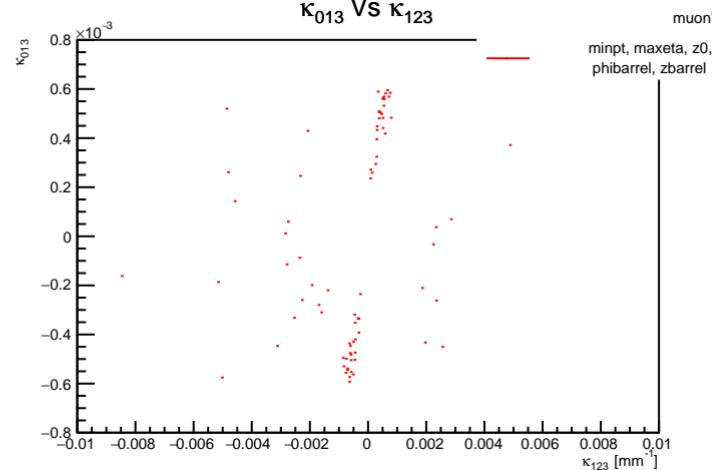


kappa rec w/o bml constraint



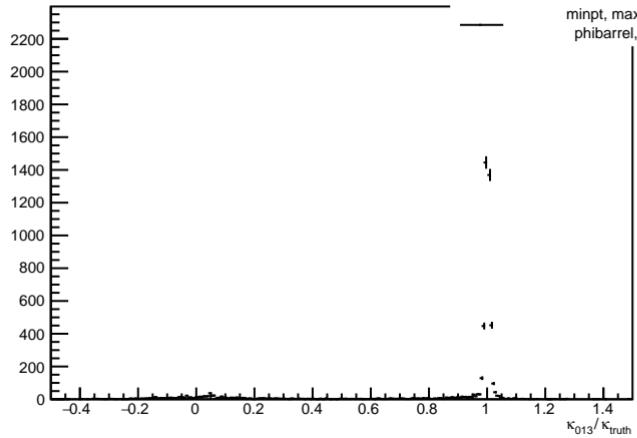
κ_{013} Vs κ_{truth}  κ_{013} Vs κ_{truth}  κ_{013} Vs κ_{truth}  κ_{013} Vs κ_{truth} 

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

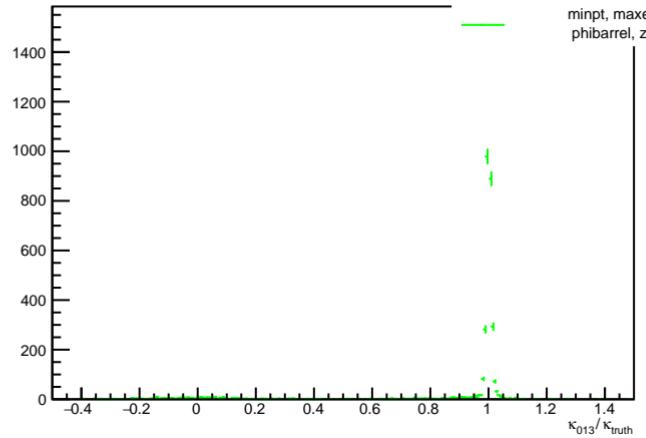
κ_{013} Vs κ_{123}  κ_{013} Vs κ_{123}  κ_{013} Vs κ_{123}  κ_{013} Vs κ_{123} 

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

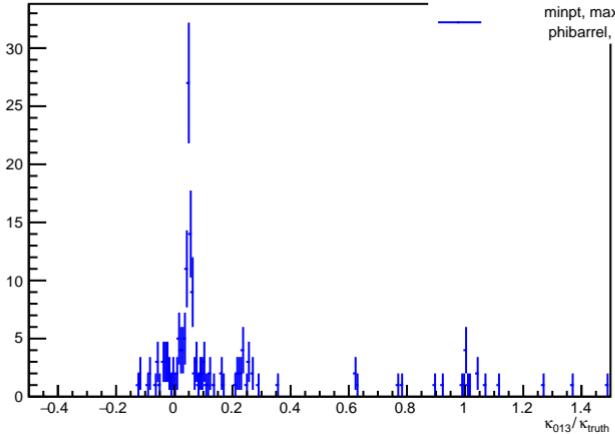
all

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

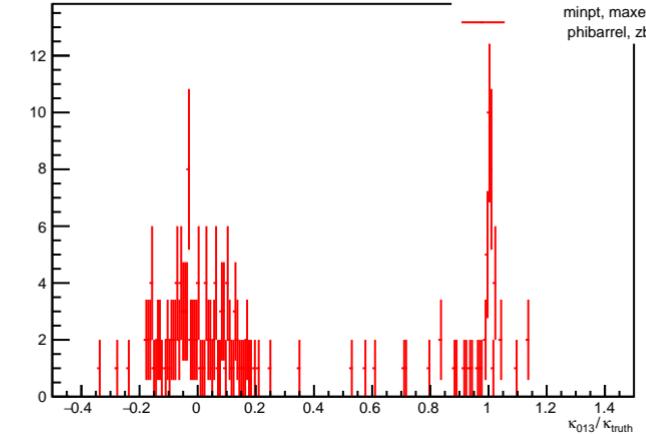
pion

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

electron

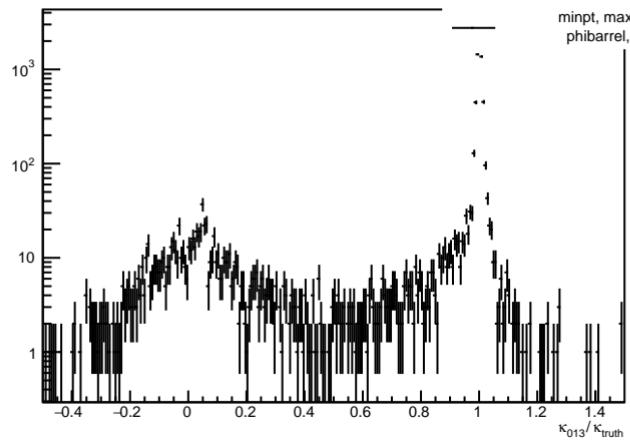
 $\kappa_{013}/\kappa_{\text{truth}}$

muon's

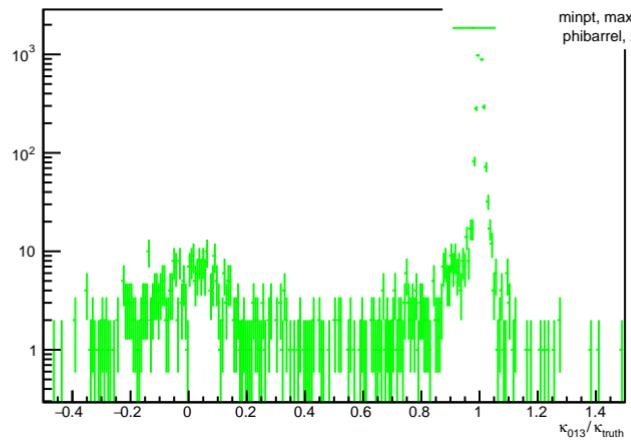


$\kappa_{013}/\kappa_{\text{truth}}$

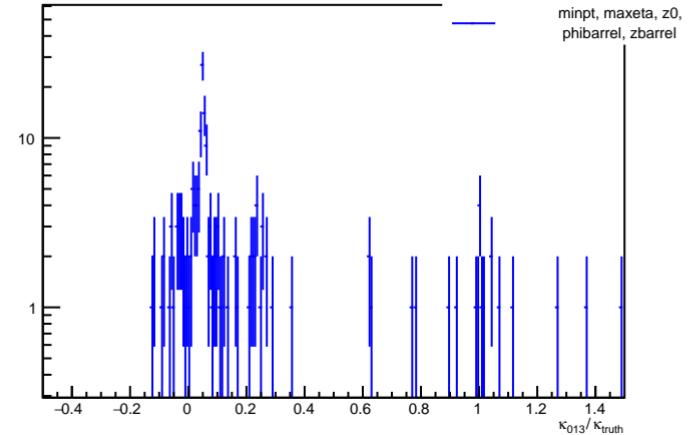
all

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

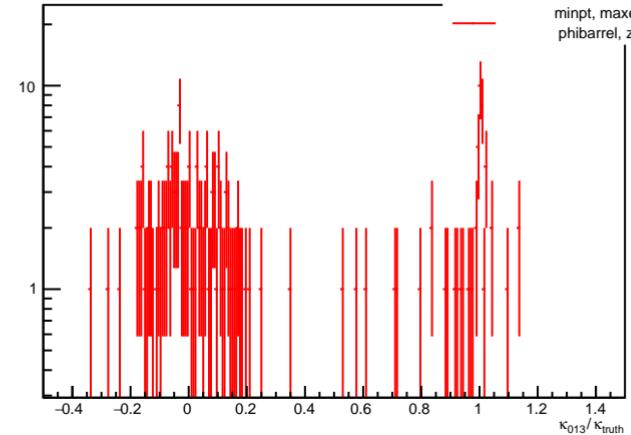
pion

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

electron

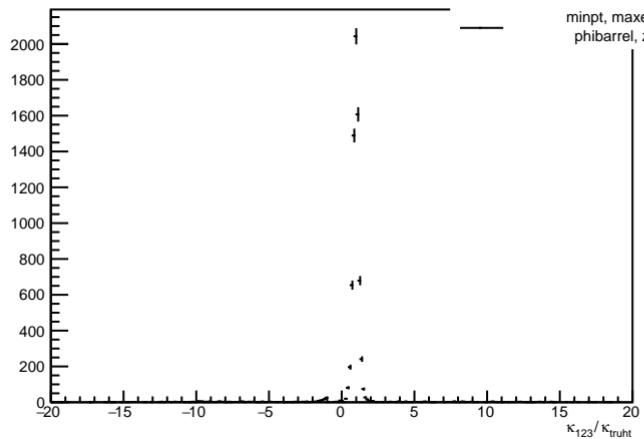
 $\kappa_{013}/\kappa_{\text{truth}}$

muon's

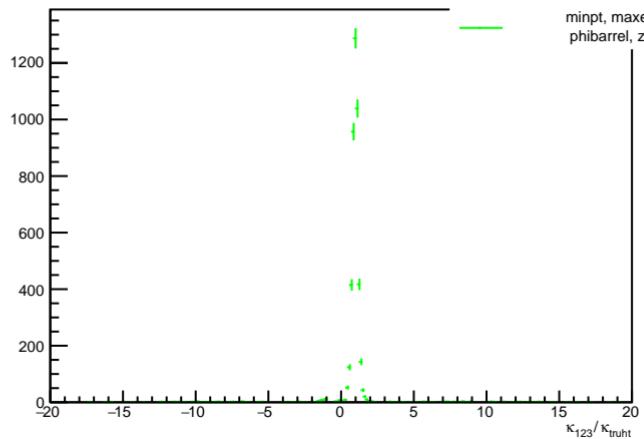


$\kappa_{123}/\kappa_{\text{truth}}$

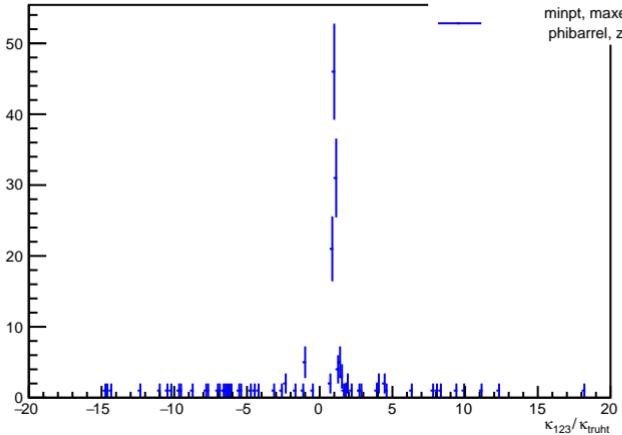
all

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

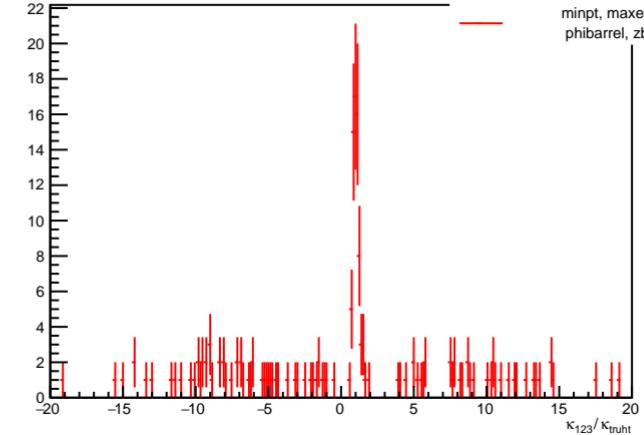
pion

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

electron

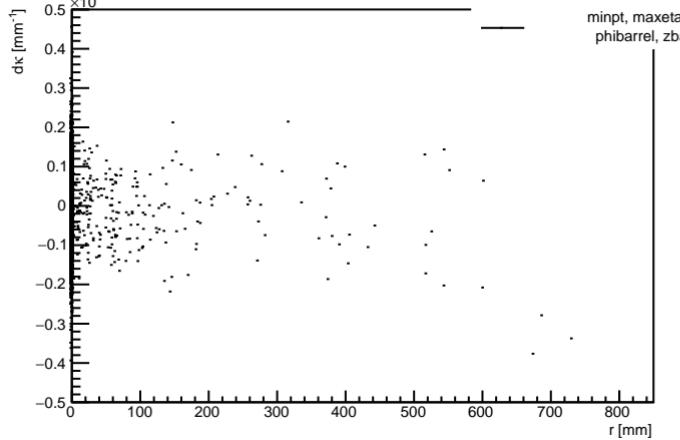
 $\kappa_{123}/\kappa_{\text{truth}}$

muon's



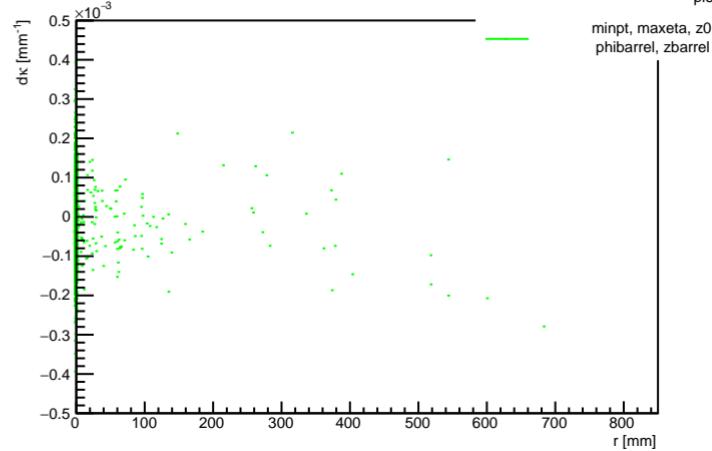
dk Vs r

all



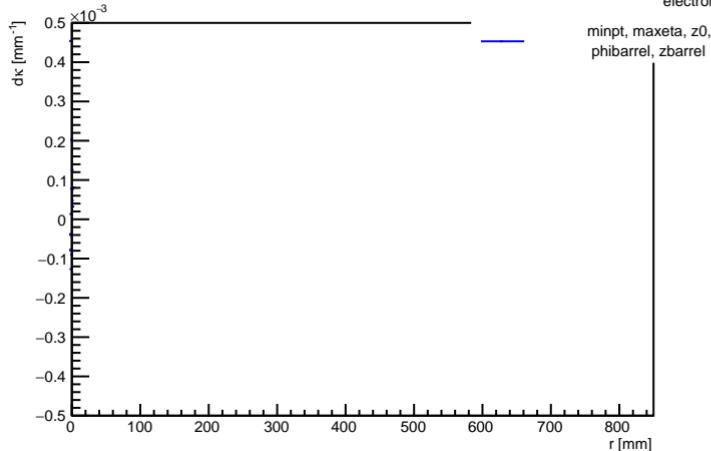
dk Vs r

pion



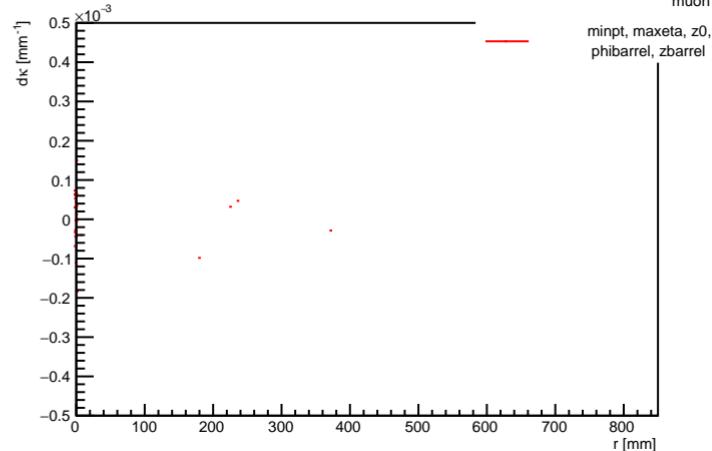
dk Vs r

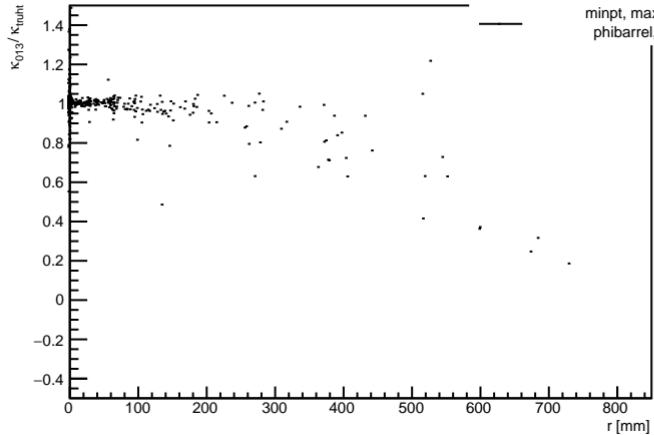
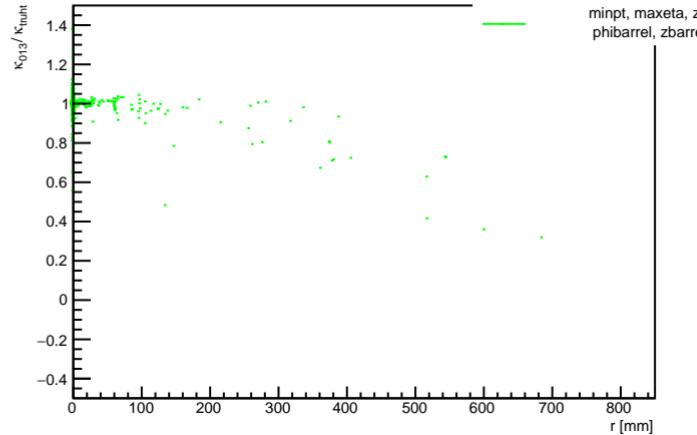
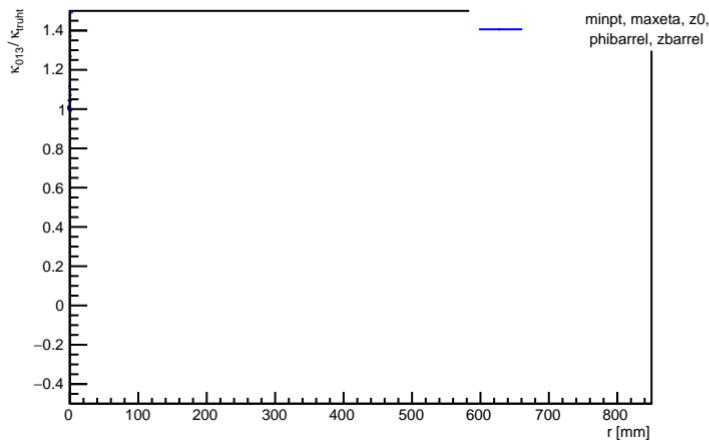
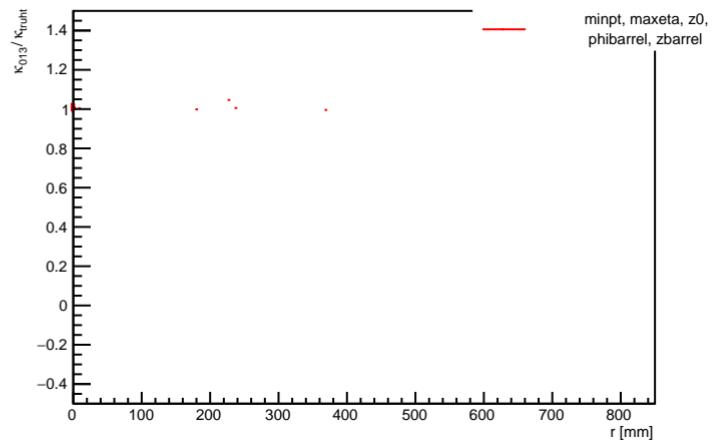
electron



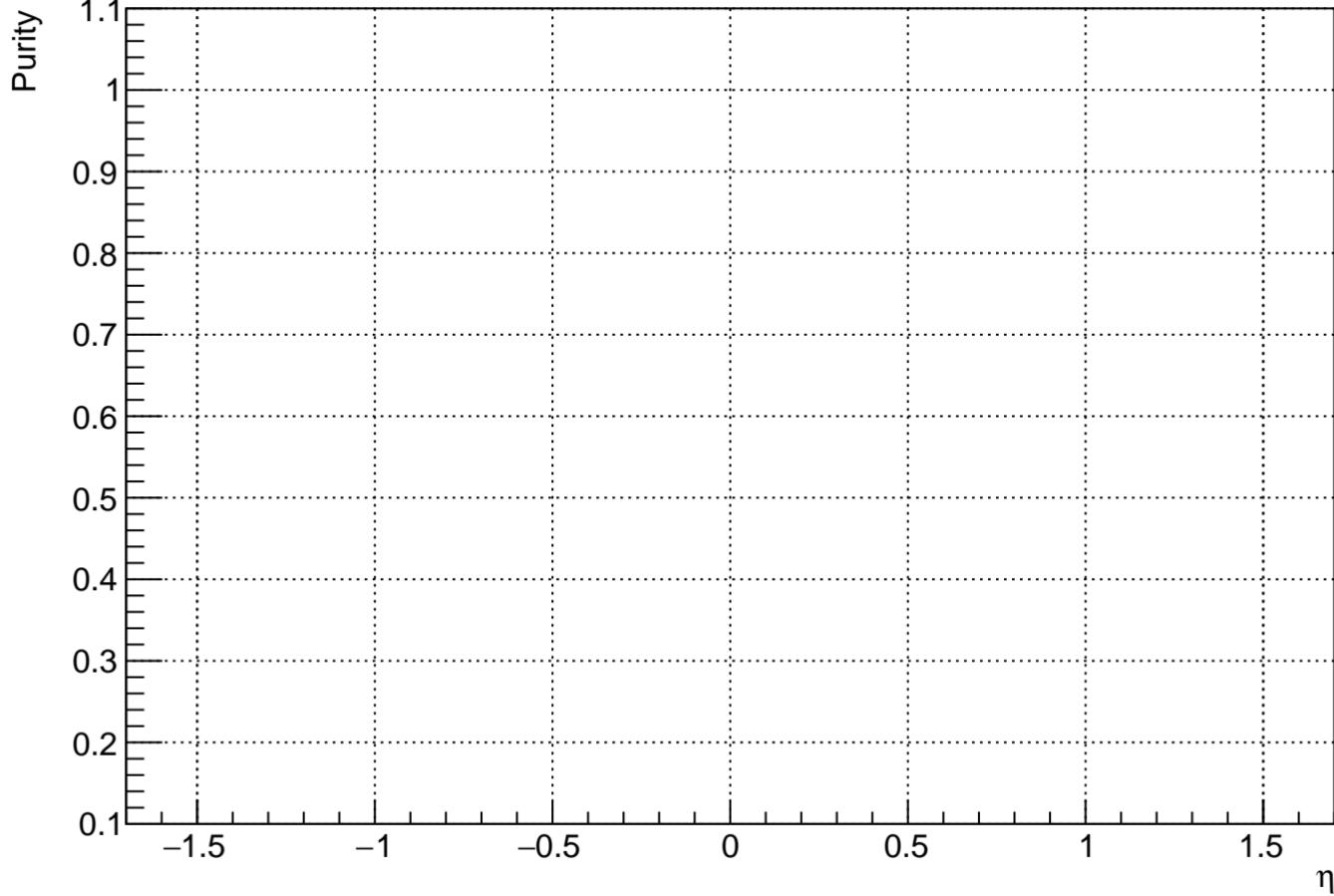
dk Vs r

muon's

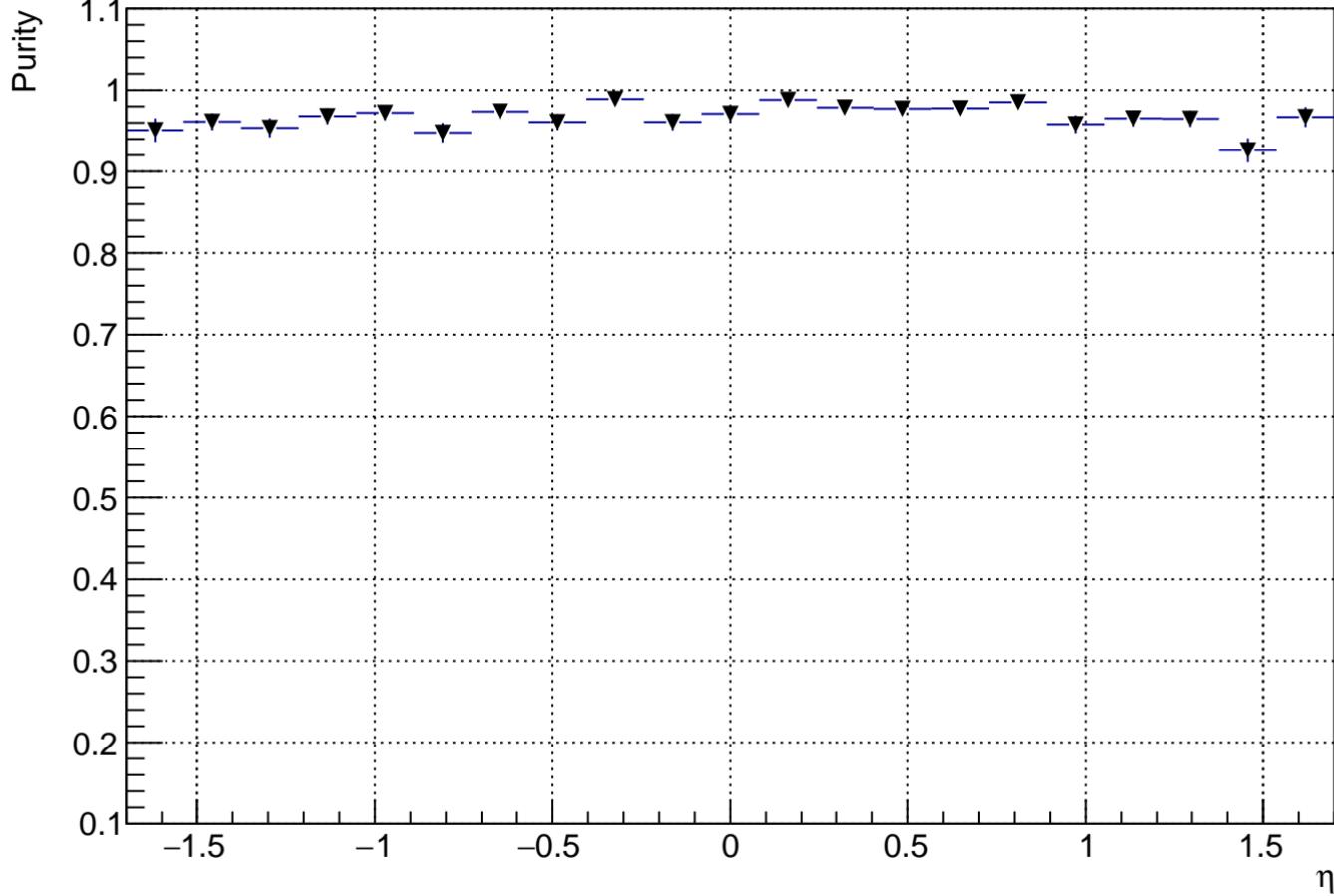


$\kappa_{013}/\kappa_{\text{truth}}$ Vs r  $\kappa_{013}/\kappa_{\text{truth}}$ Vs r  $\kappa_{013}/\kappa_{\text{truth}}$ Vs r  $\kappa_{013}/\kappa_{\text{truth}}$ Vs r 

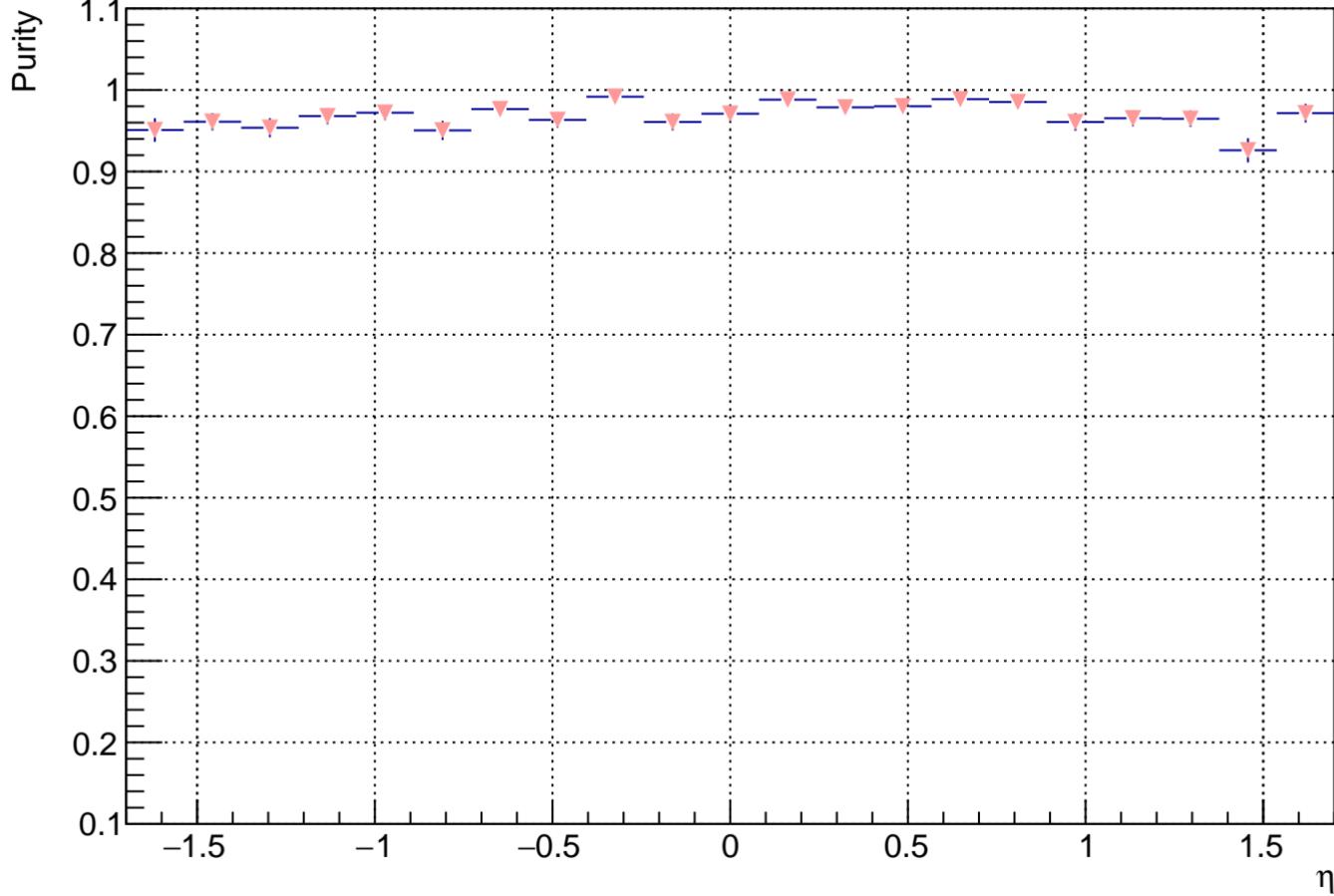
Purity vs η



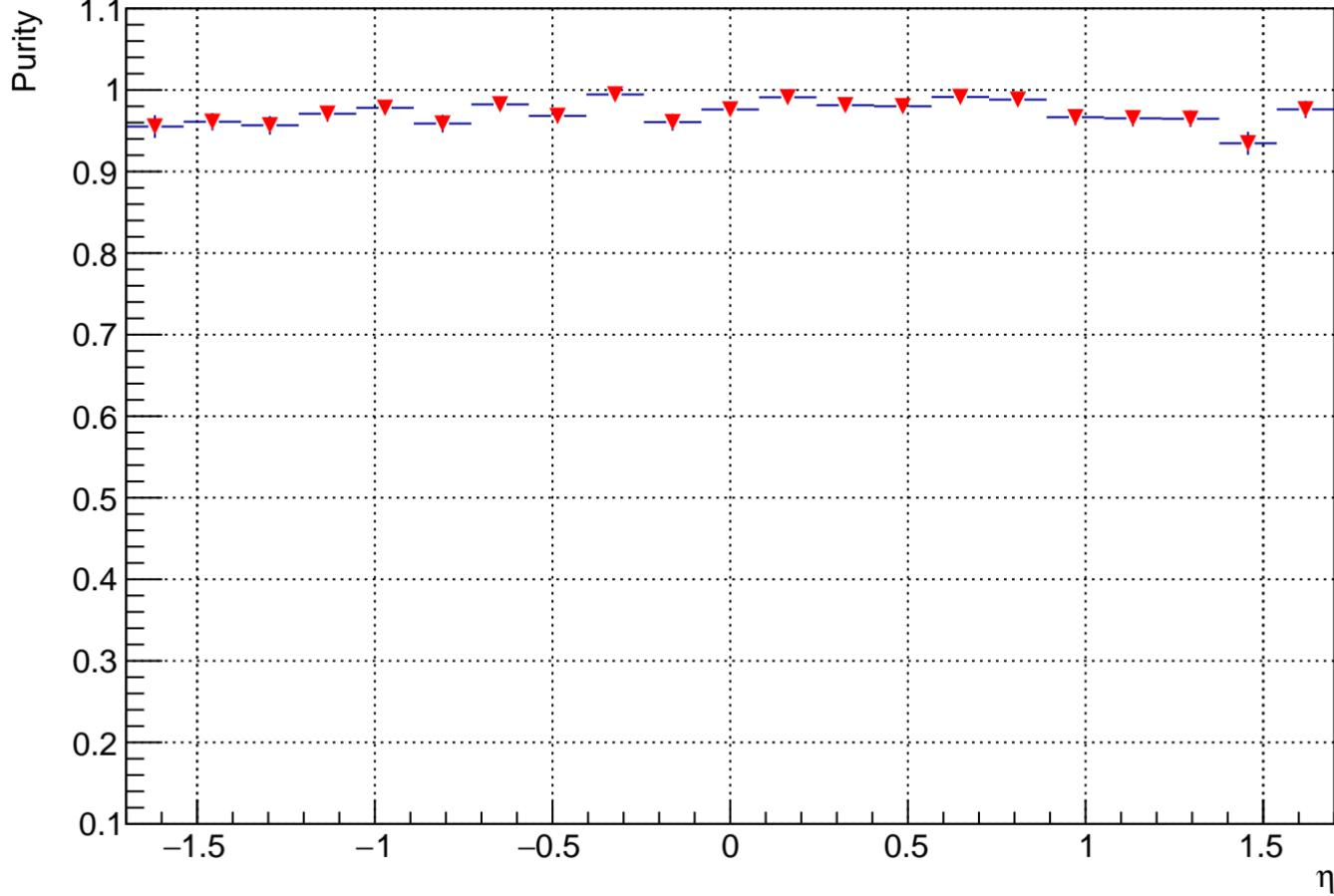
Purity vs η



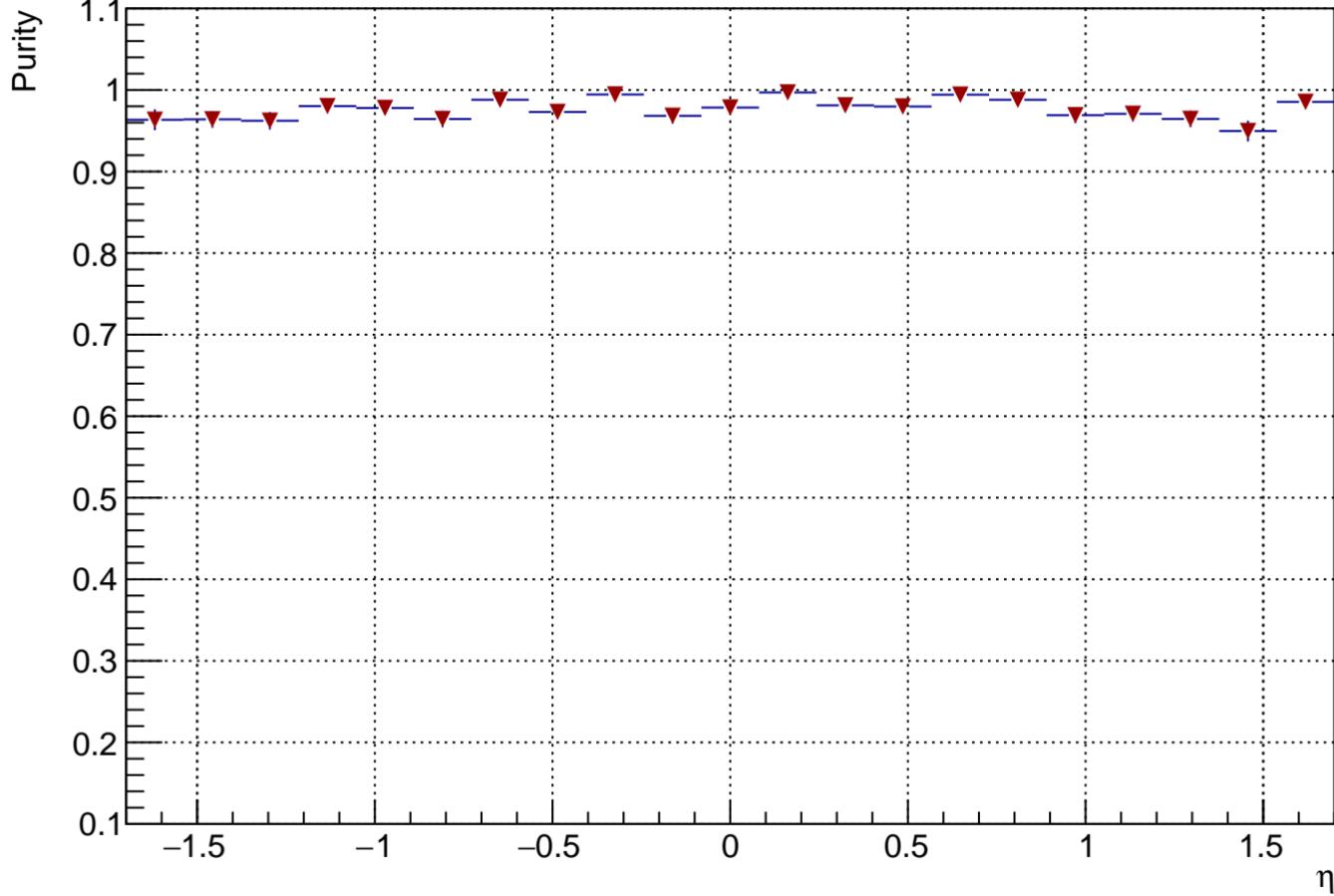
Purity vs η



Purity vs η

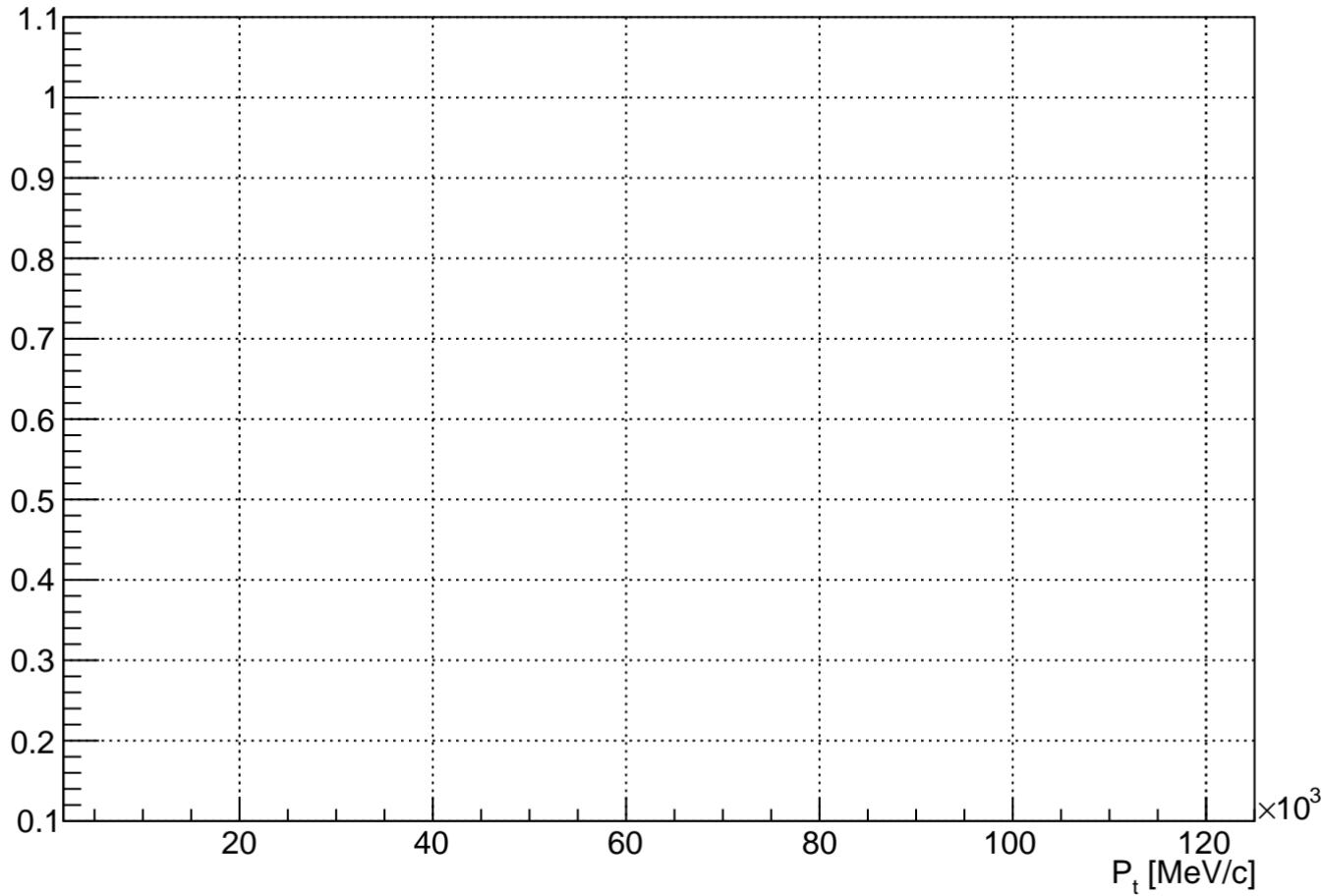


Purity vs η

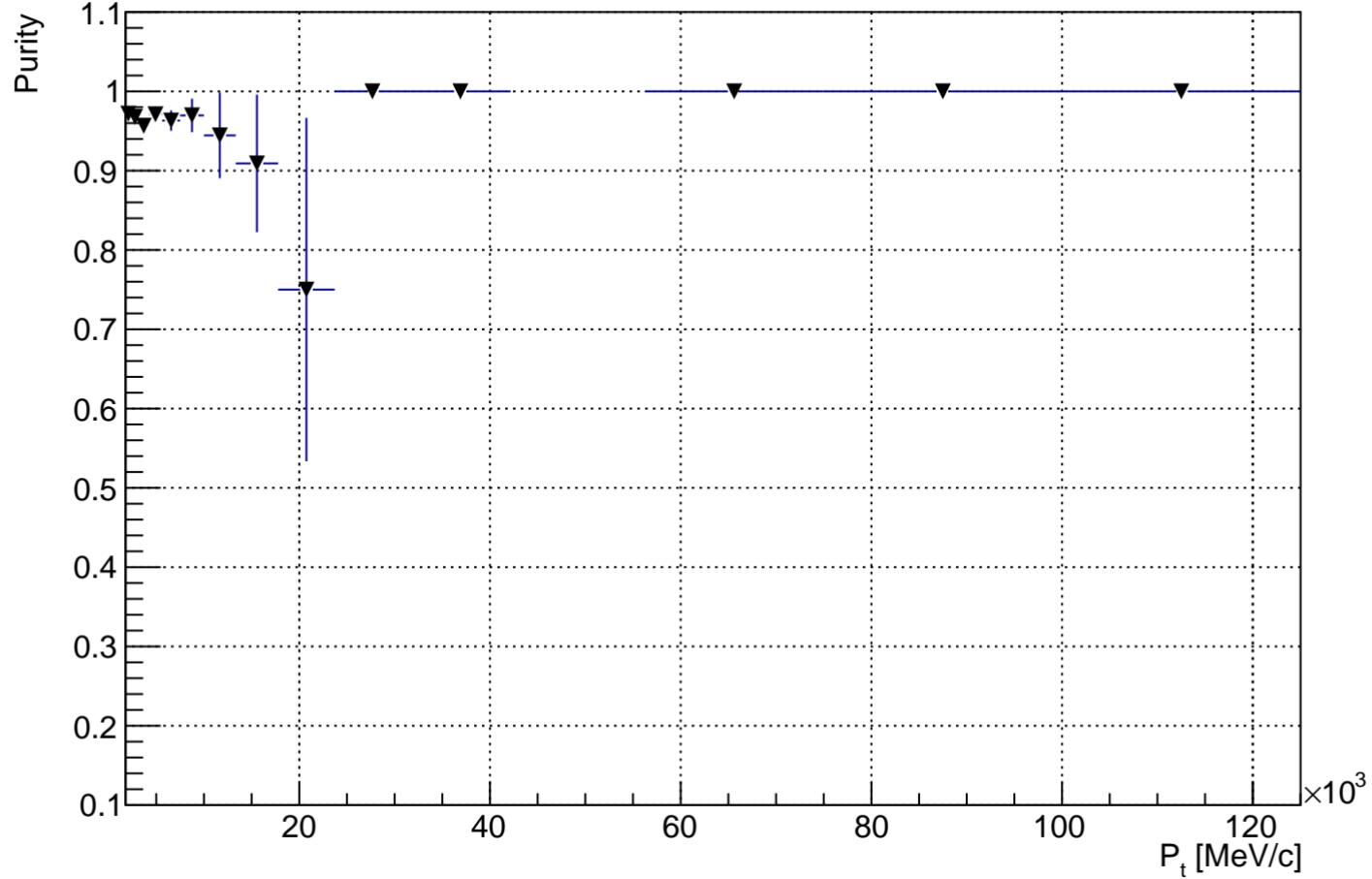


Purity vs P_t

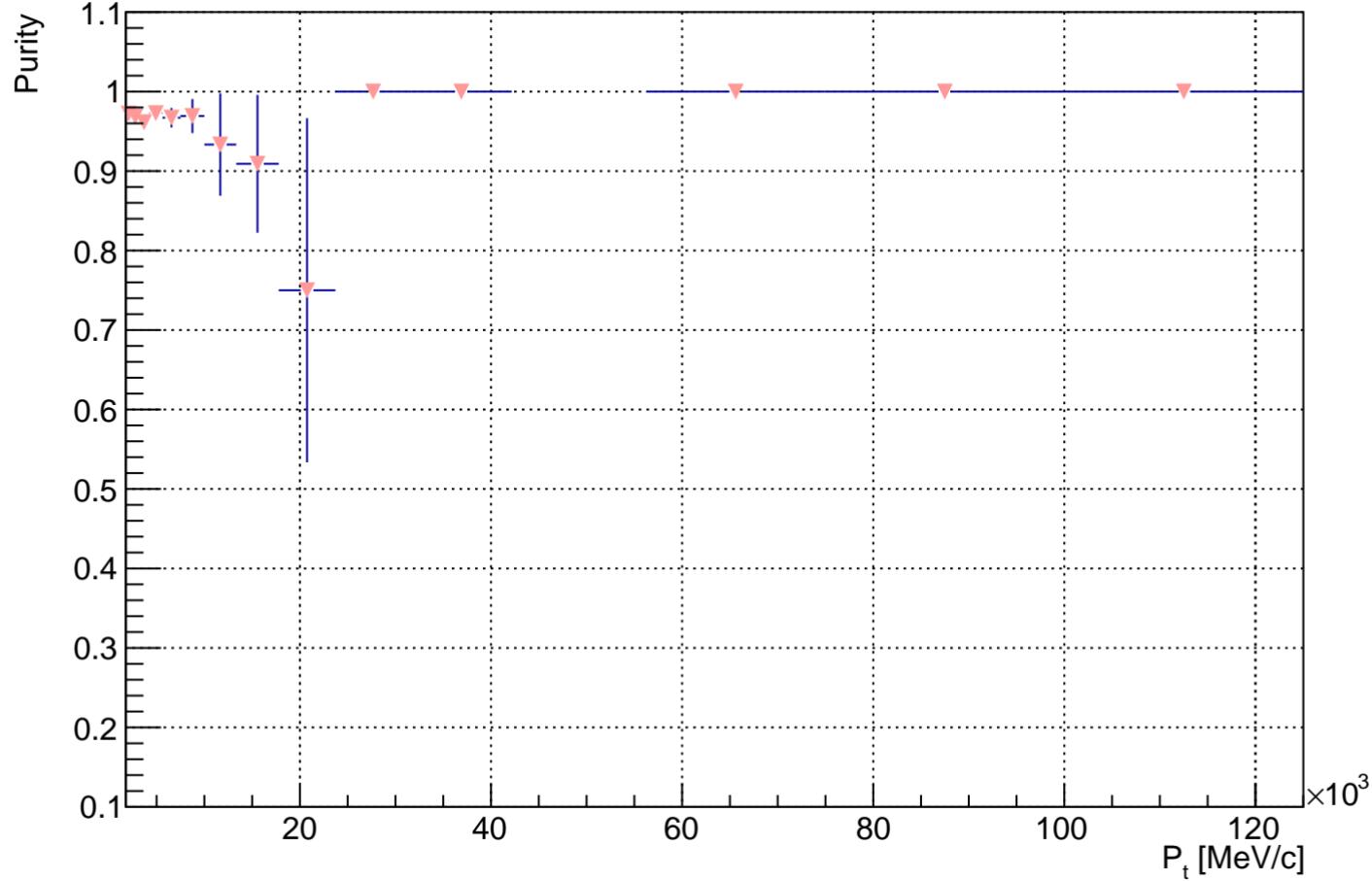
Purity



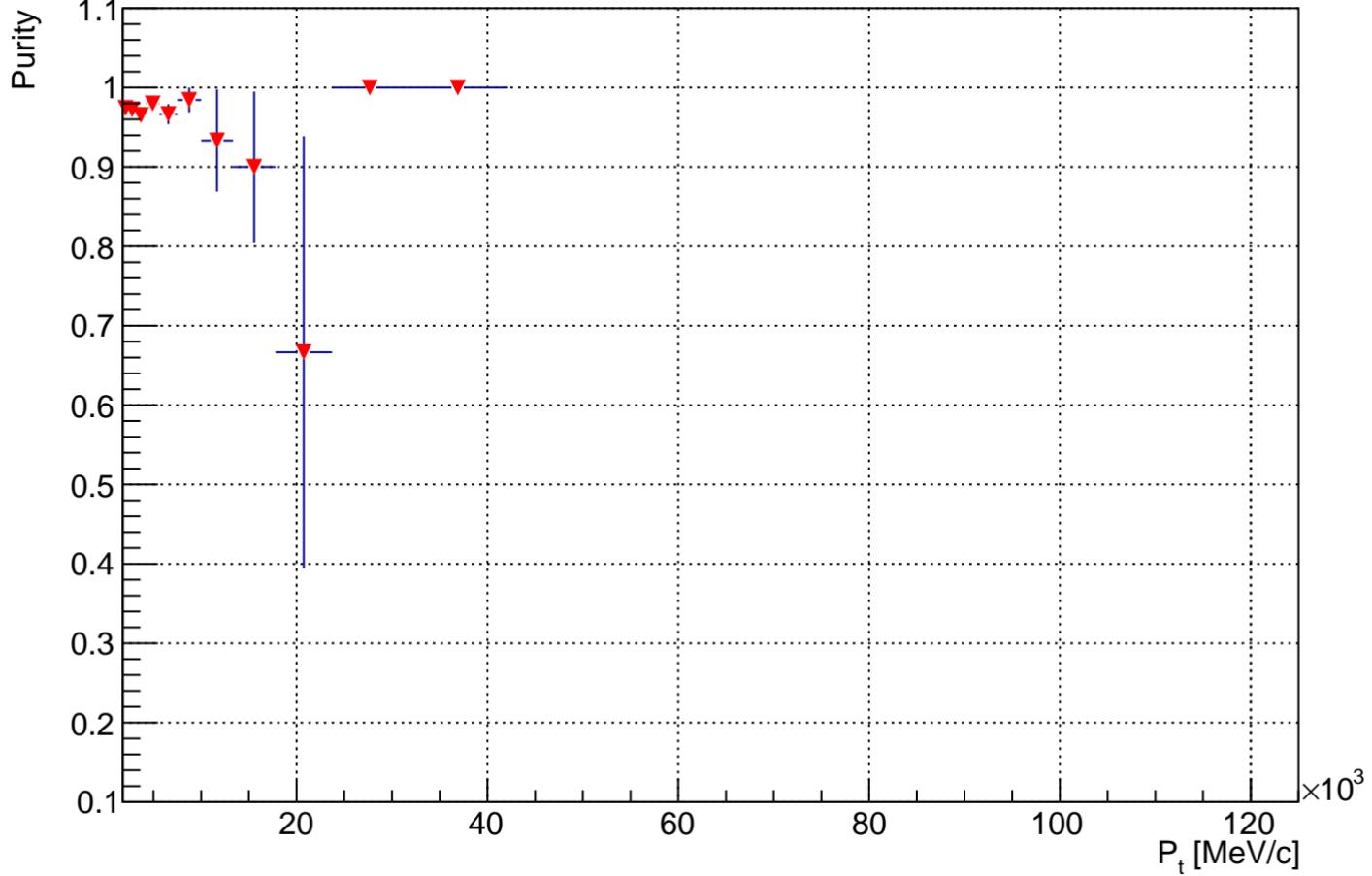
Purity vs P_t



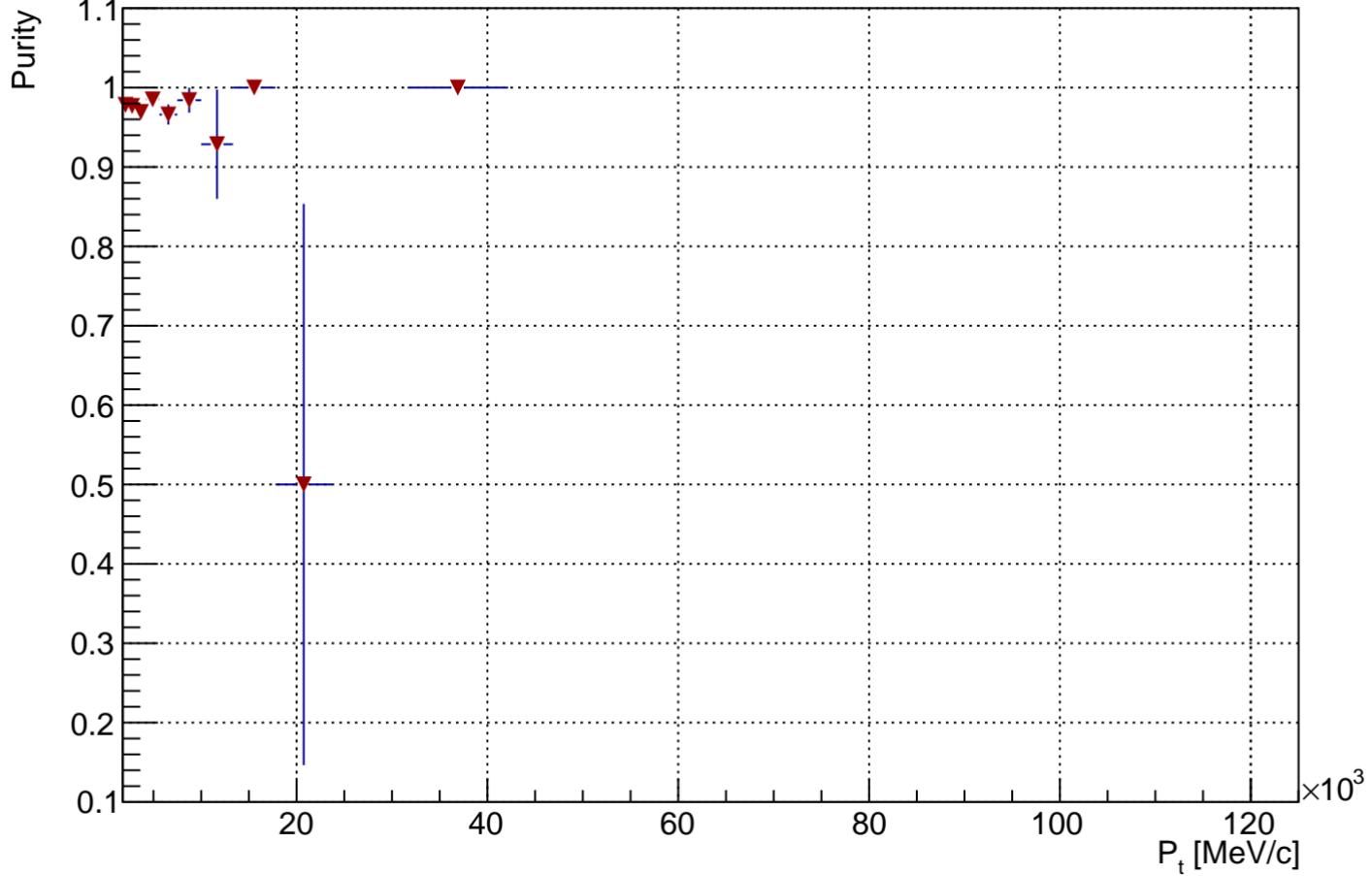
Purity vs P_t



Purity vs P_t

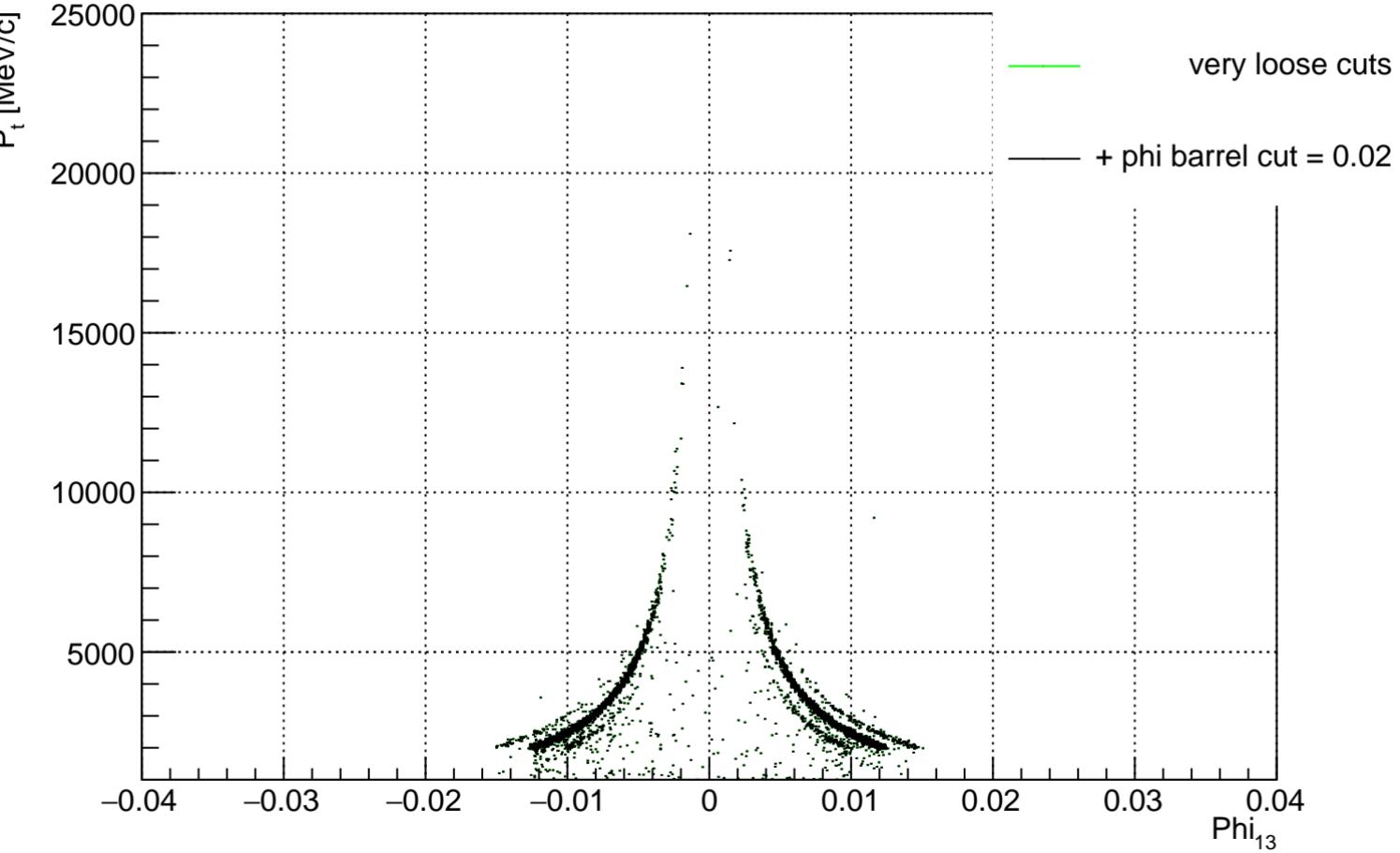


Purity vs P_t

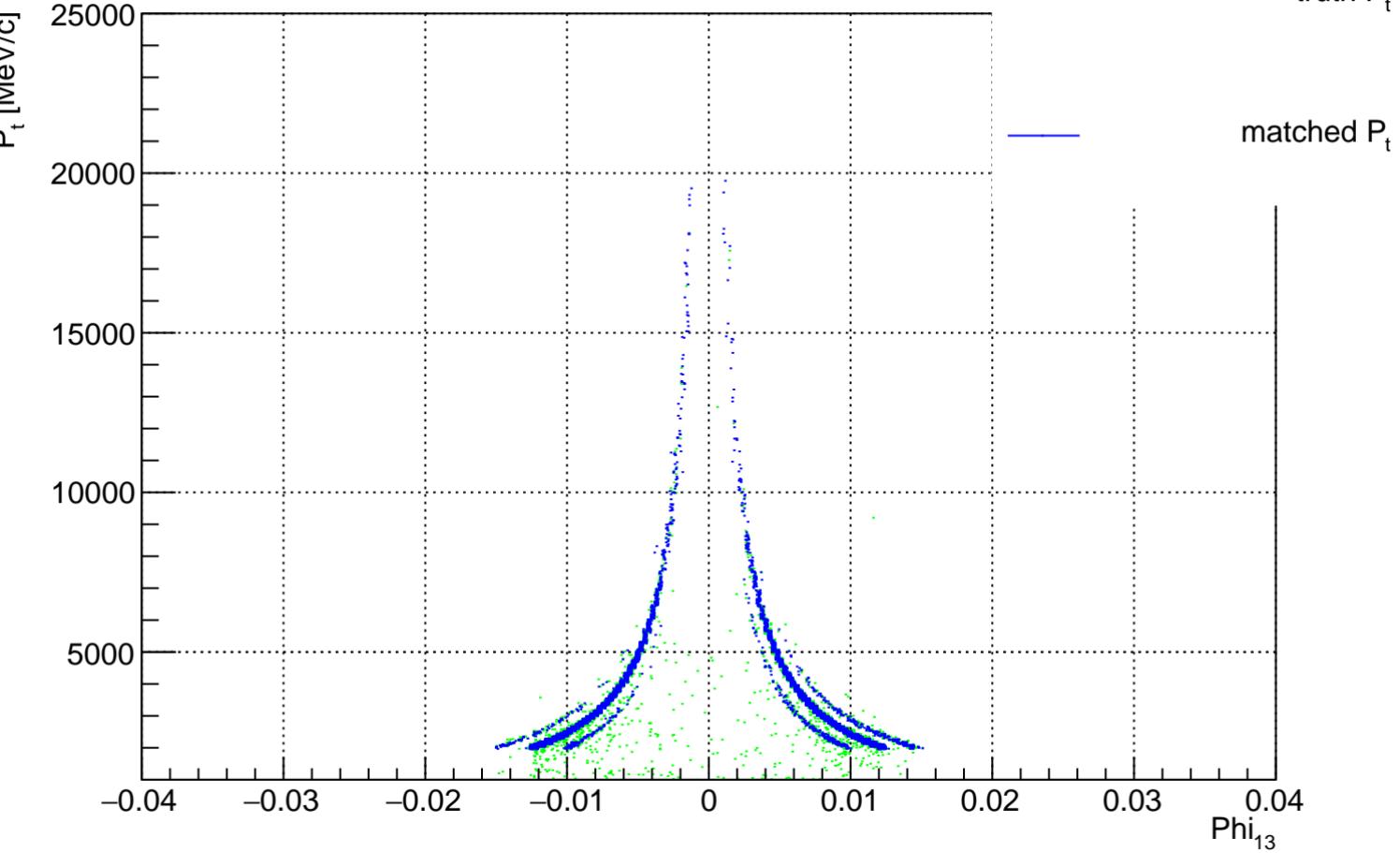


P_t Vs Φ_{13}

truth P_t

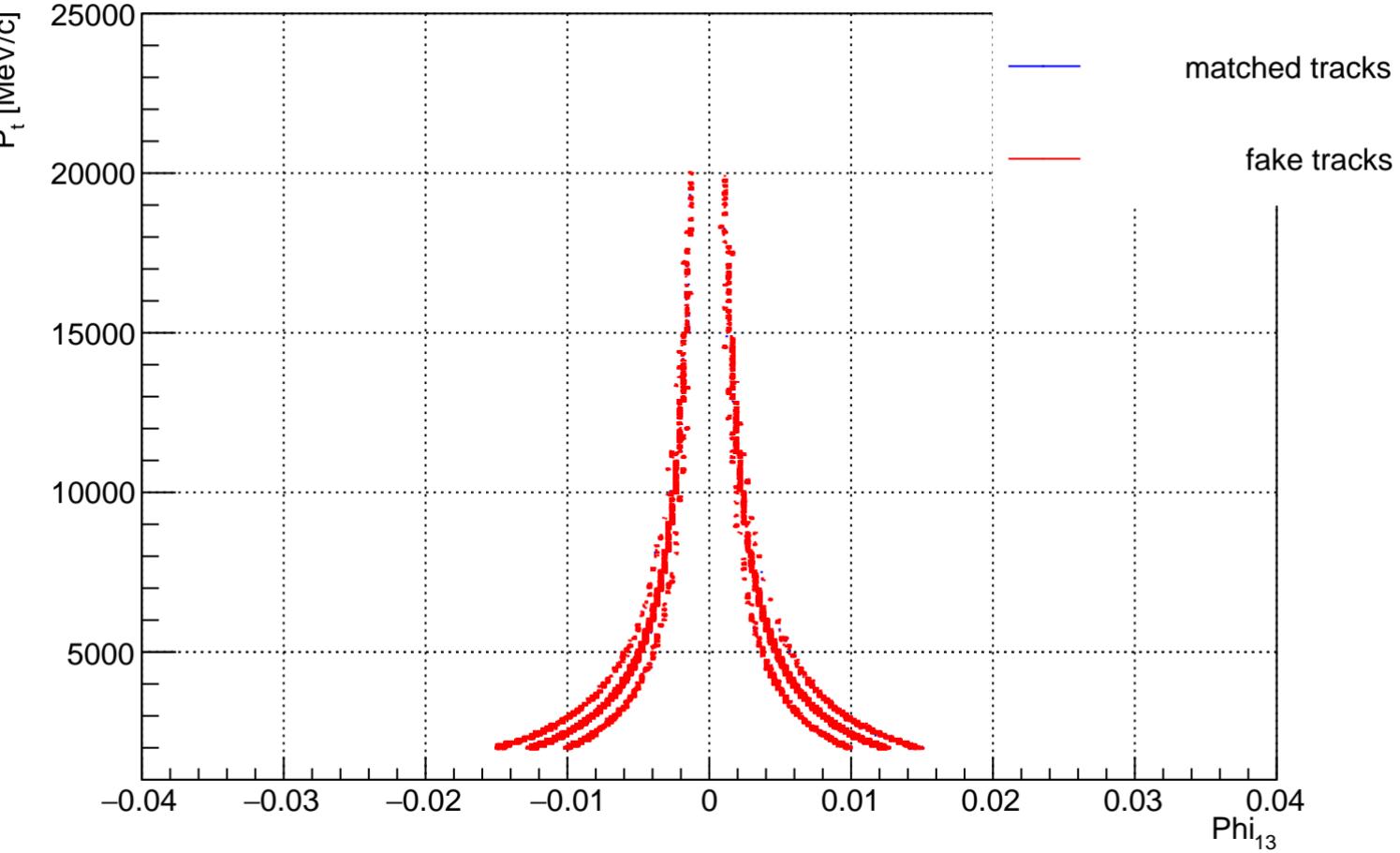


P_t Vs Φ_{13}

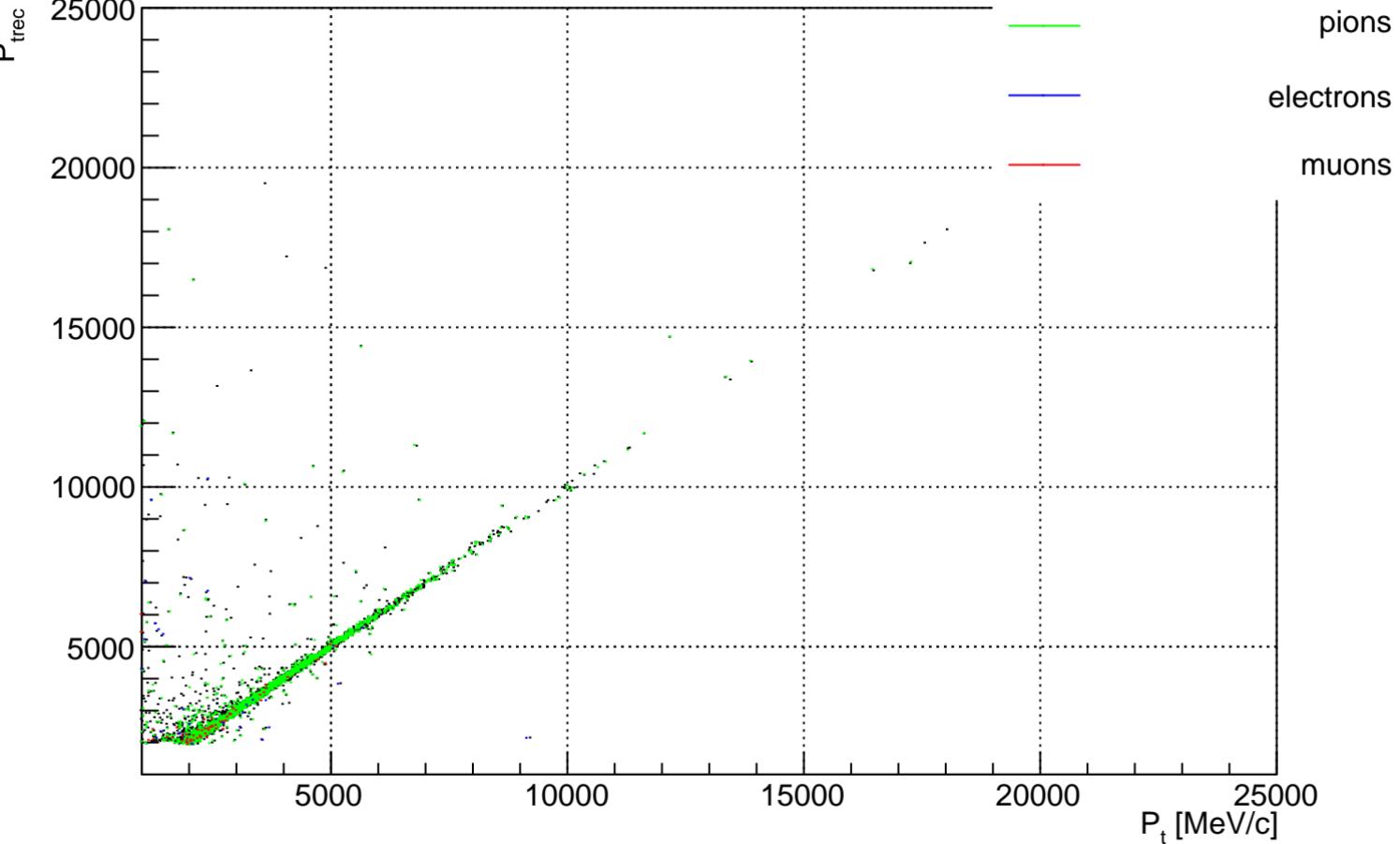


P_t Vs Φ_{13}

rec P_t

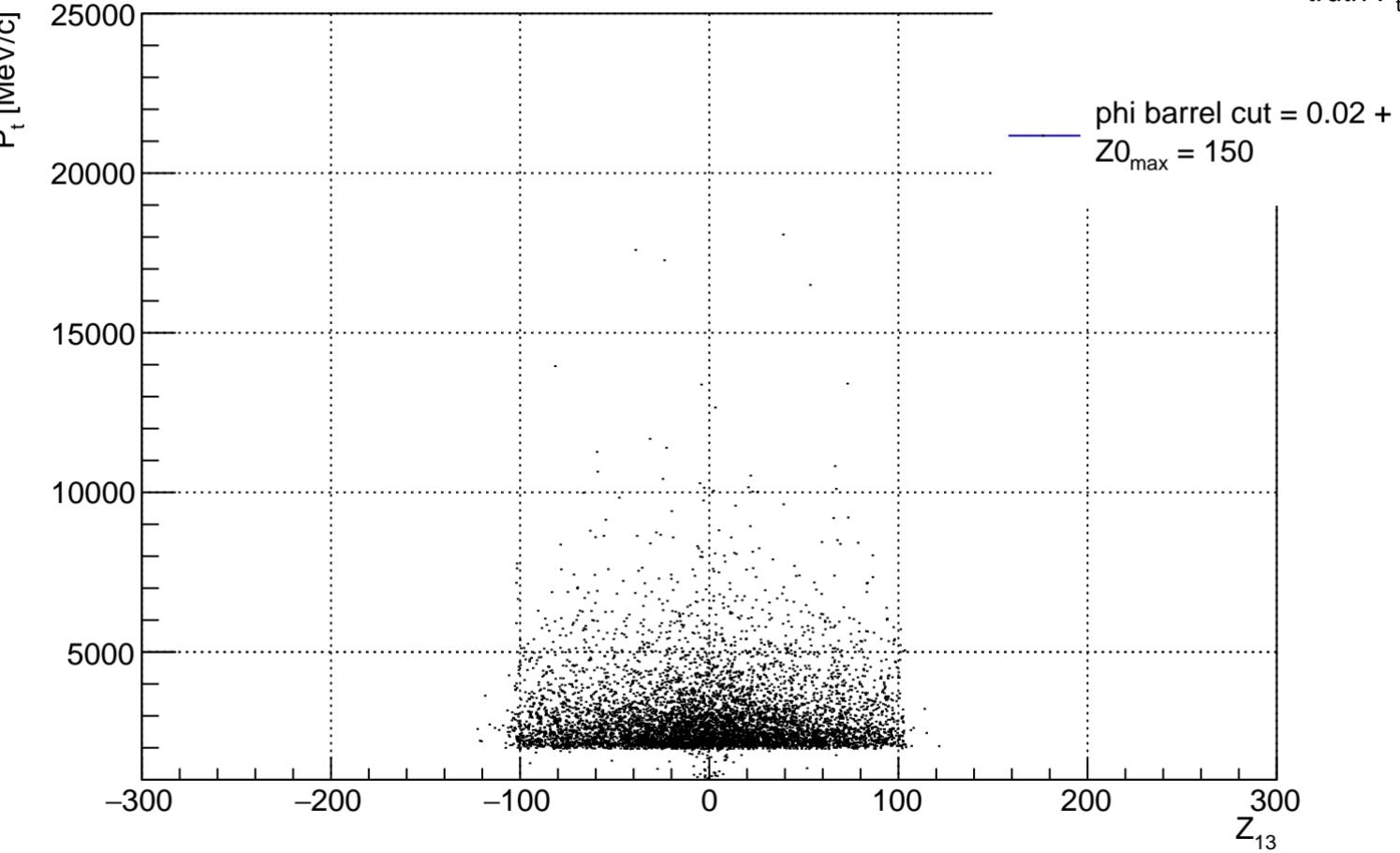


P_{trec} Vs P_t



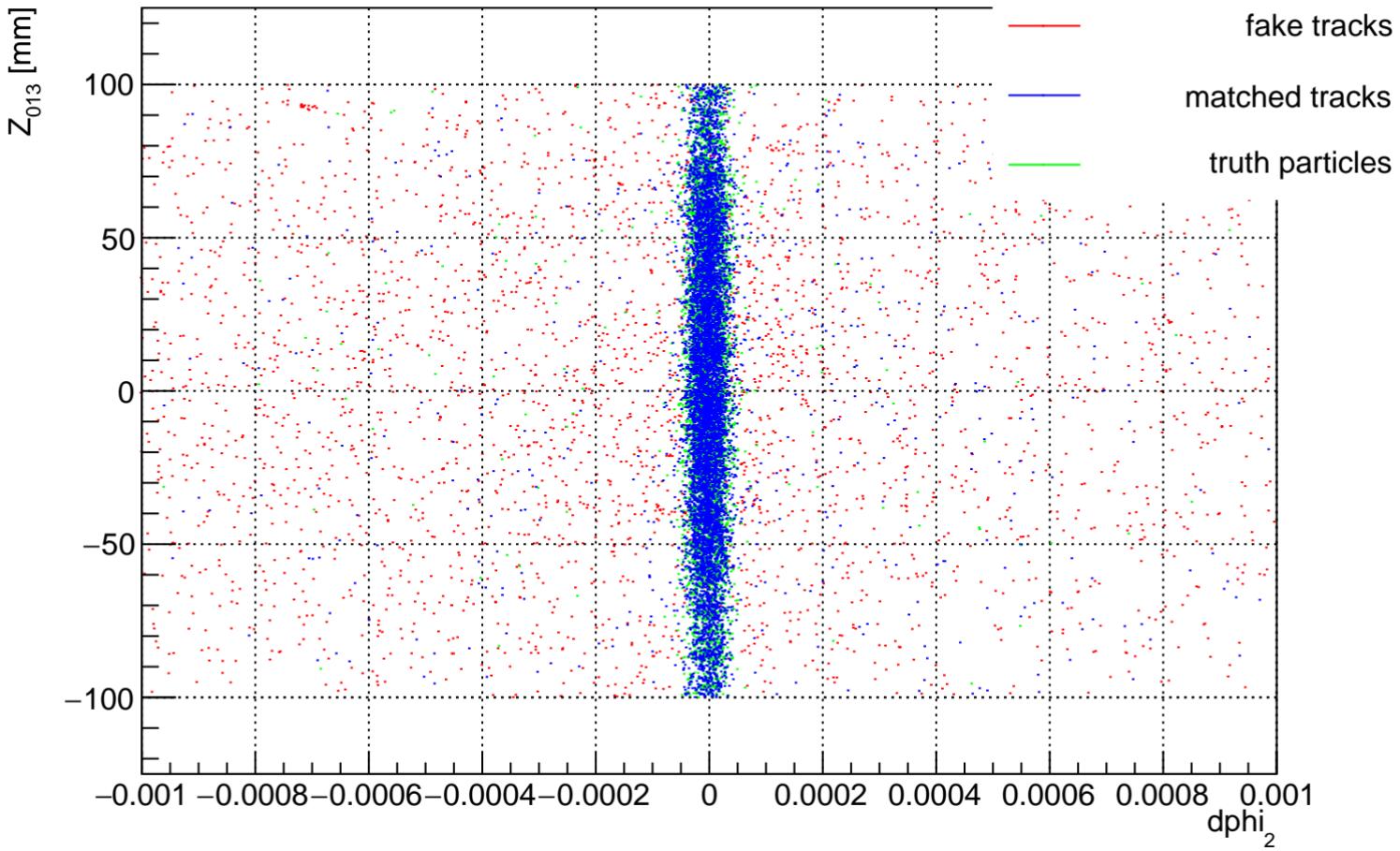
P_t Vs Z_{13}

truth P_t



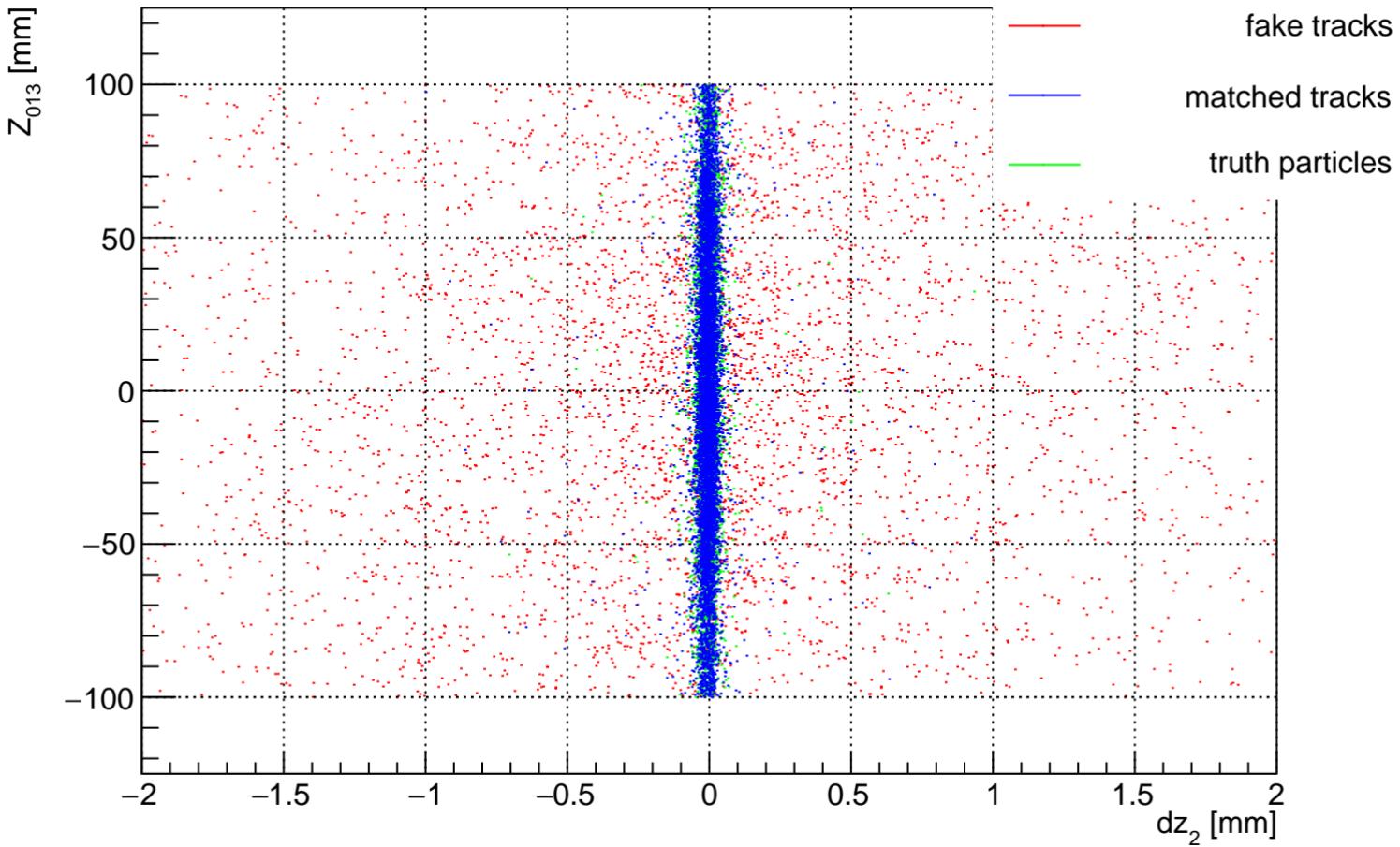
Z_{013} Vs $d\phi_{_2}$

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



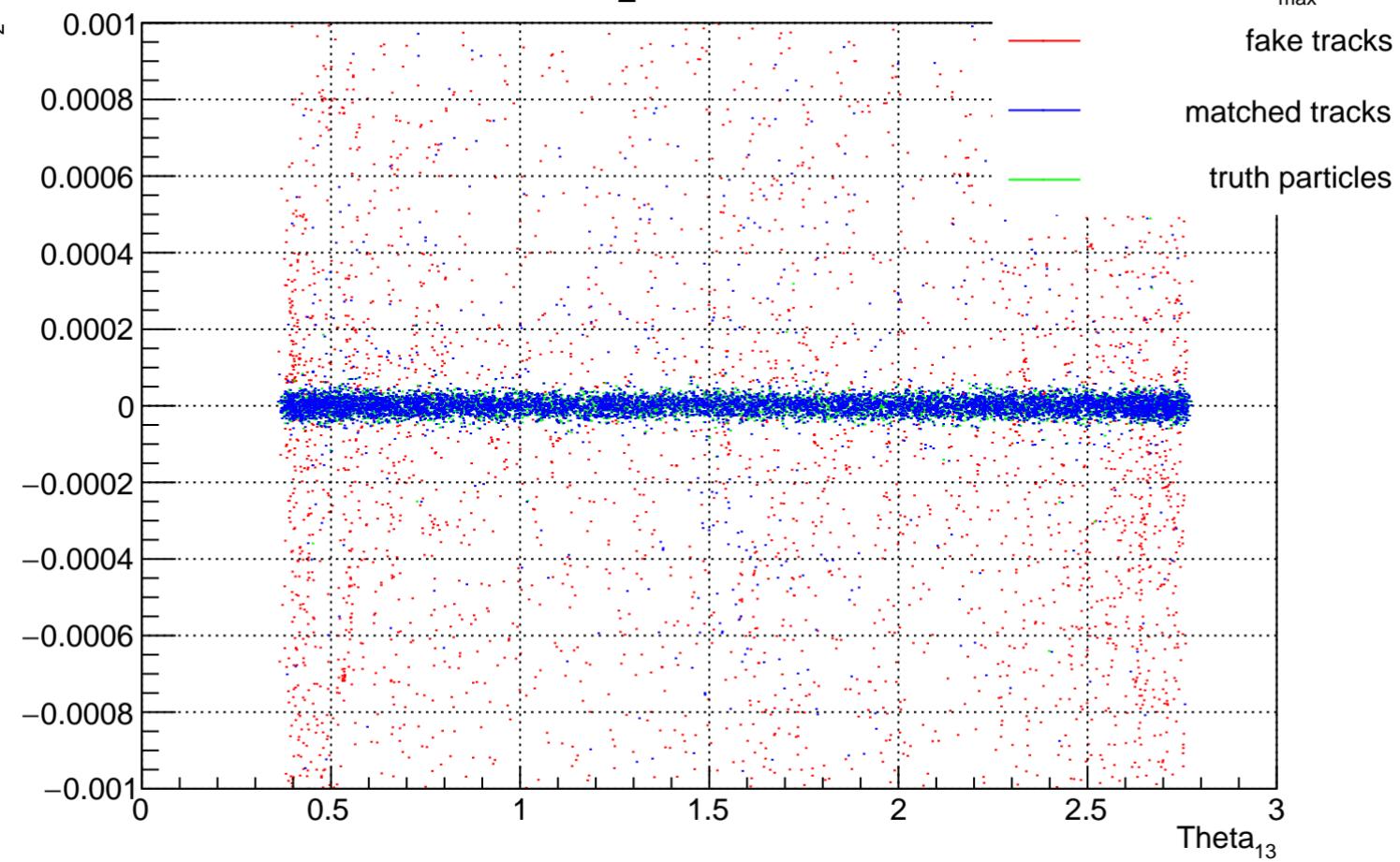
Z_{013} Vs dz_2

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



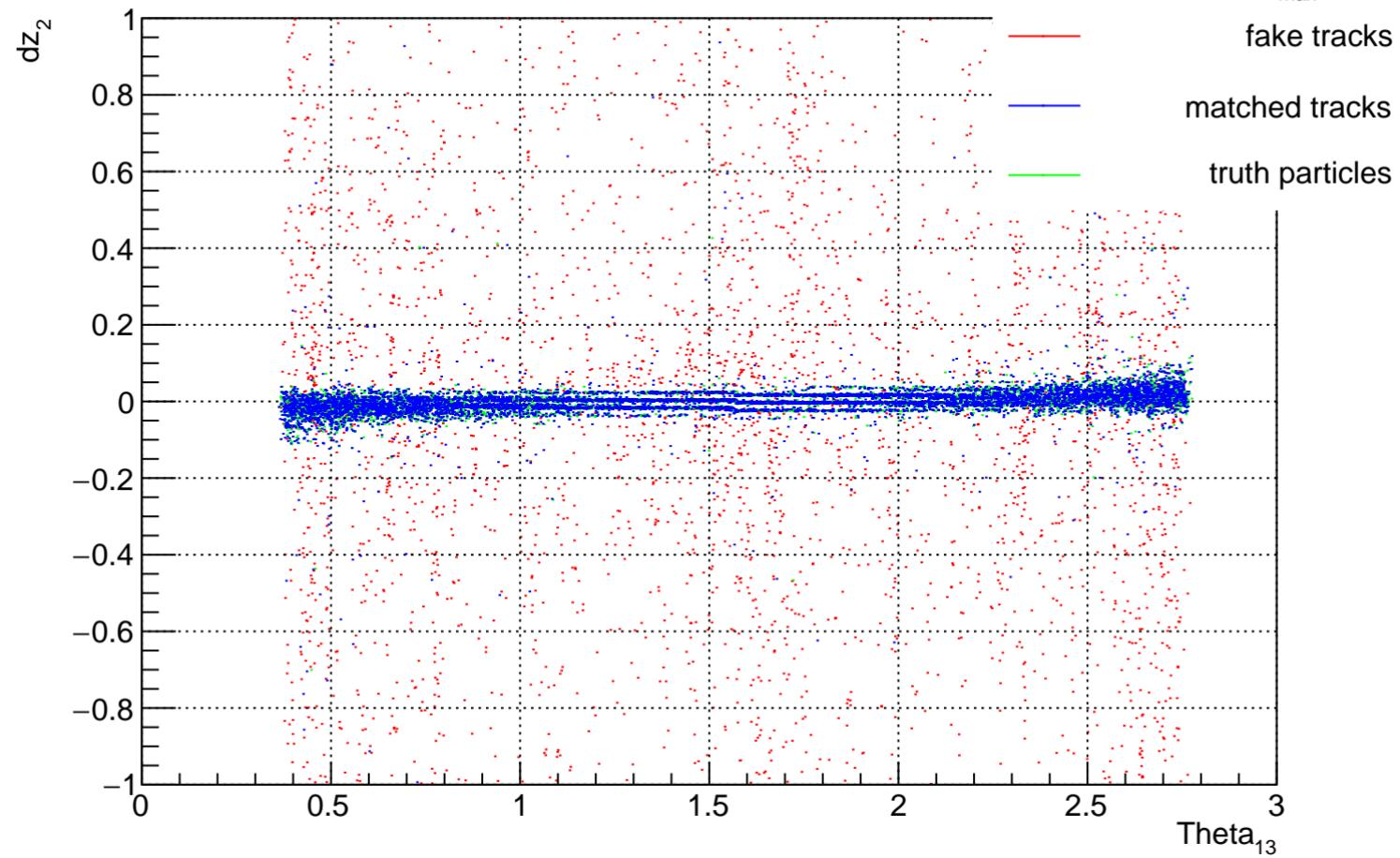
dphi₂ Vs Theta₁₃

phi Barrel = 0.02 +
Zbarrel = 160 + Z0_{max} = 150



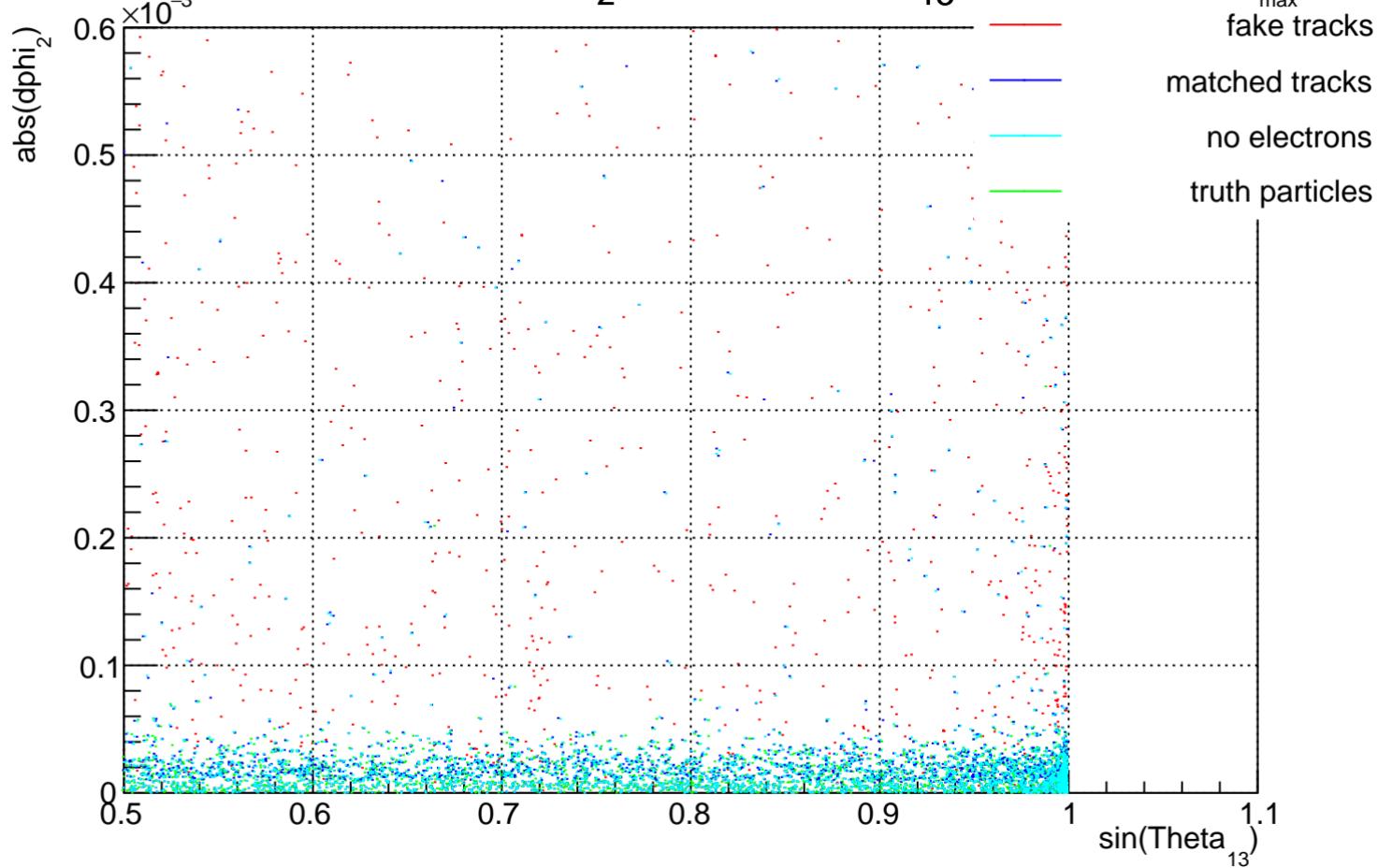
dz_2 Vs Θ_{13}

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

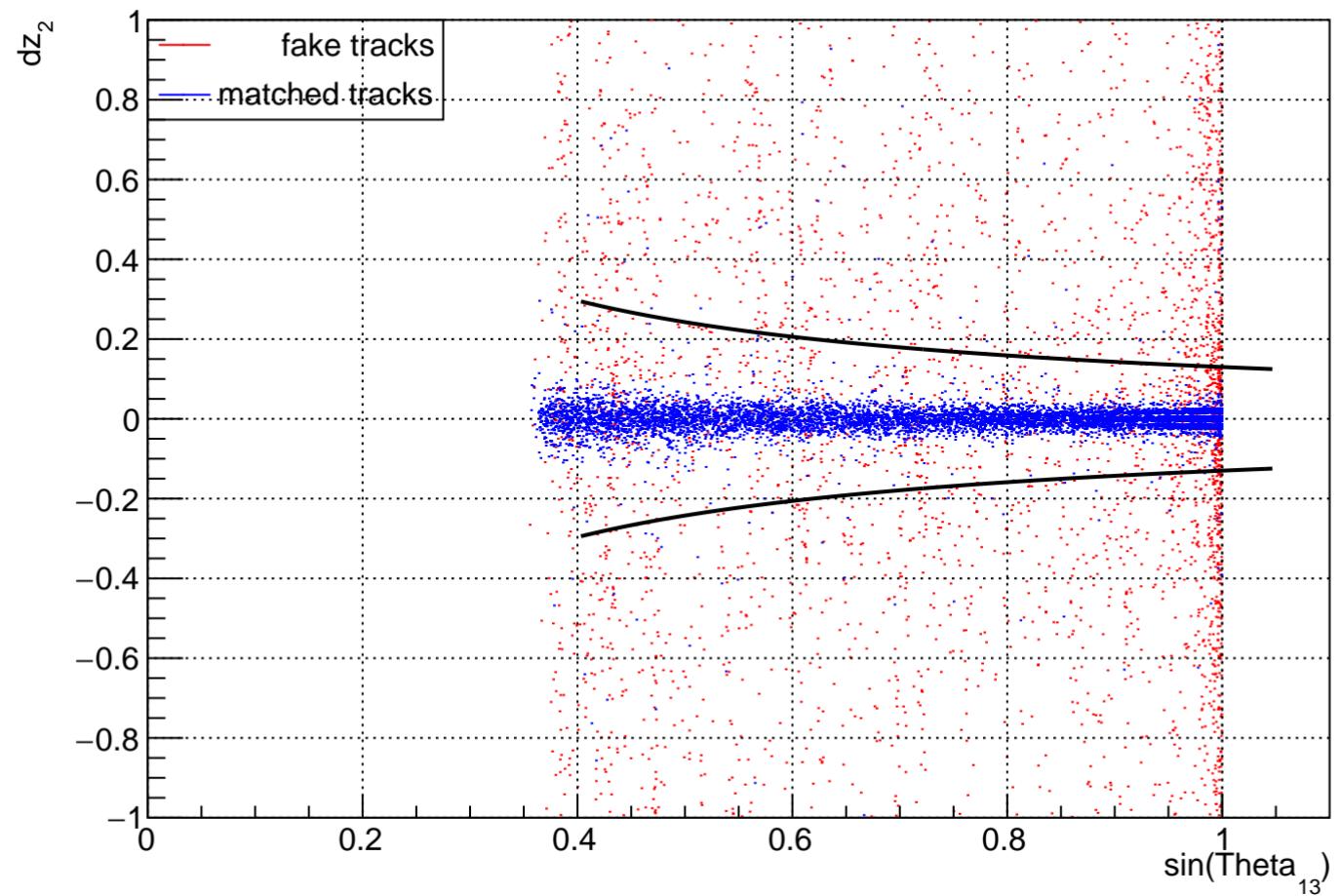


$\text{abs}(\text{dphi}_2)$ Vs $\sin(\text{Theta}_{13})$

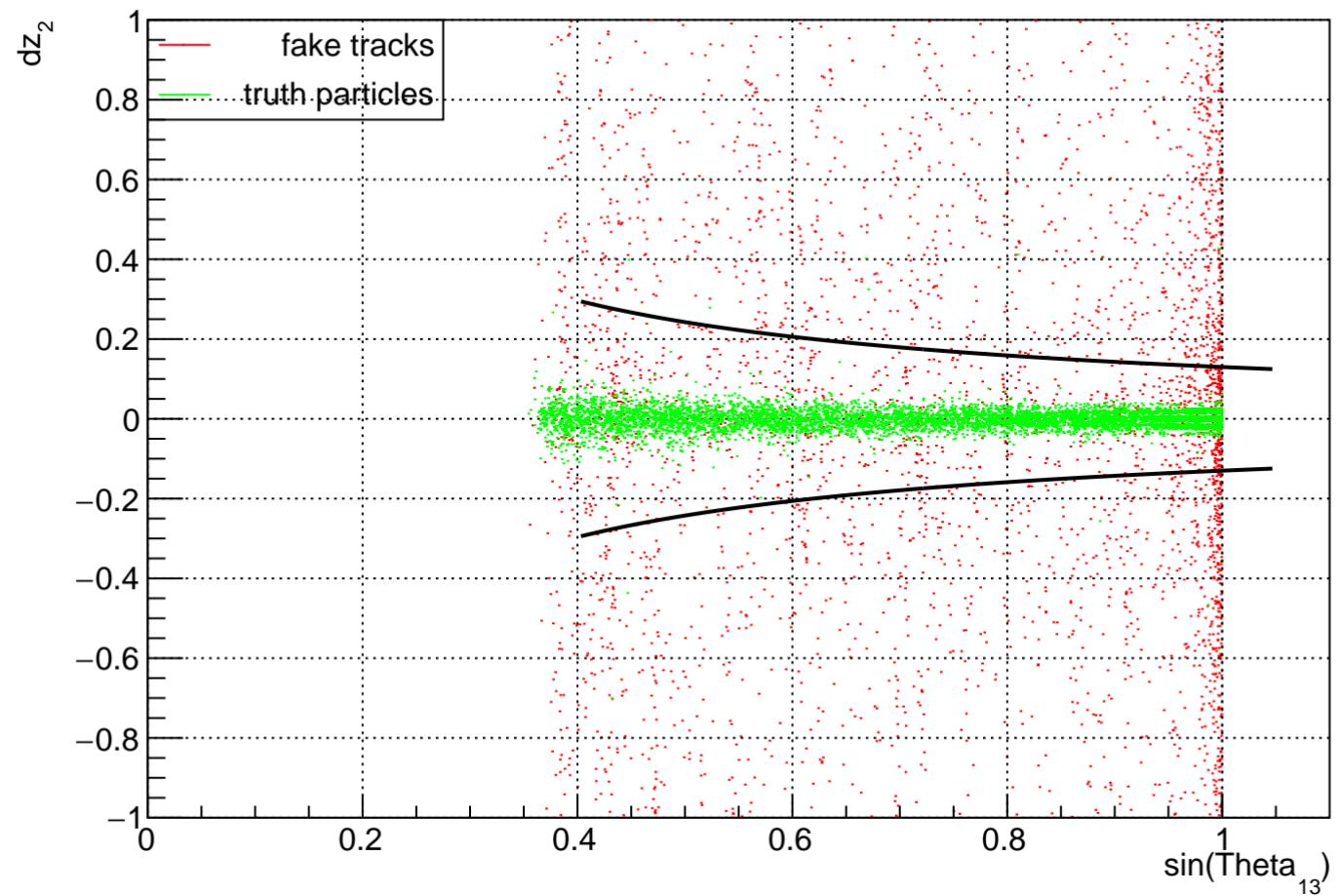
$\phi_{\text{Barrel}} = 0.02 +$
 $Z_{\text{barrel}} = 160 + Z_{0,\text{max}} = 150$
fake tracks



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

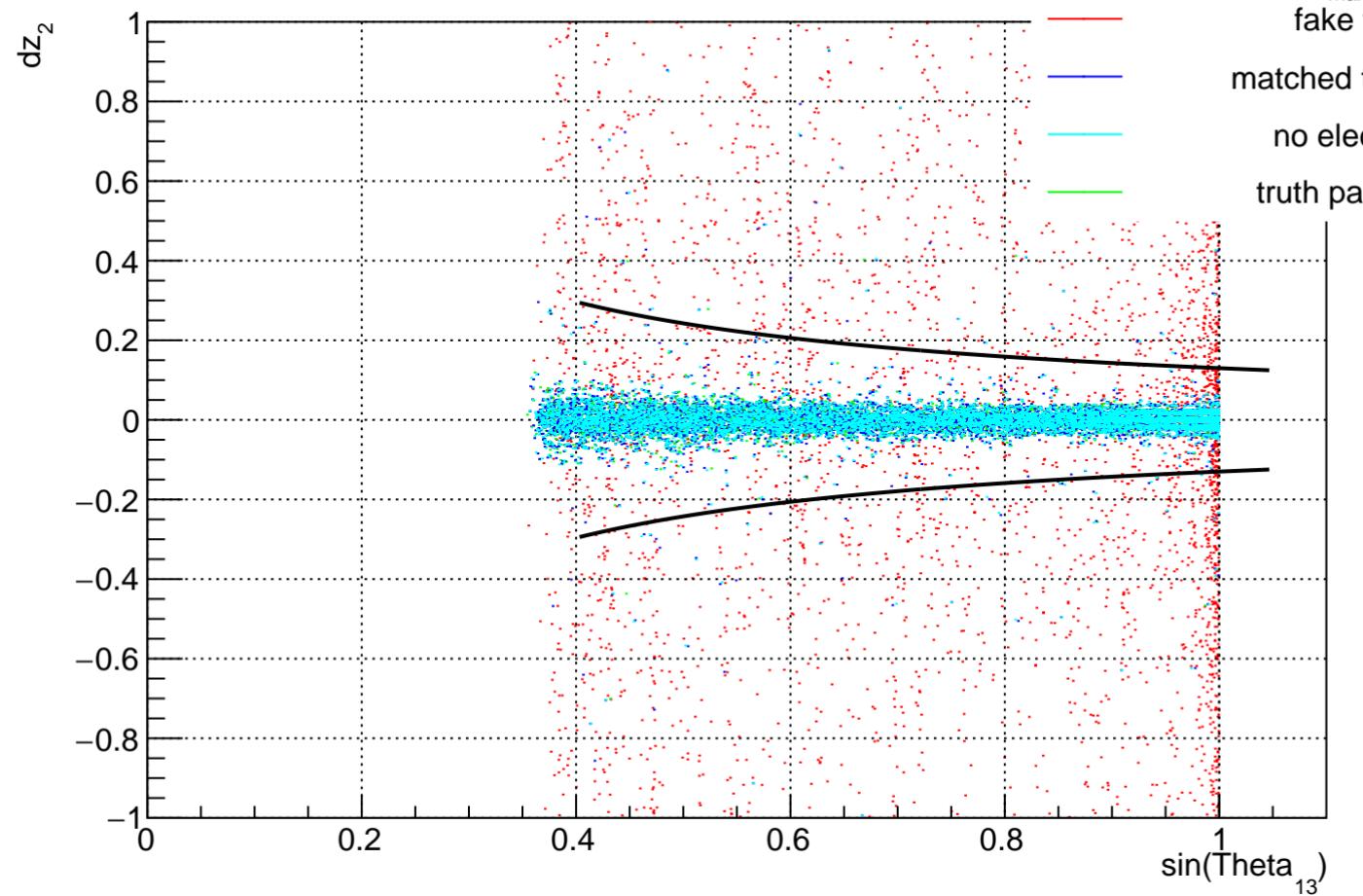


dz_2 Vs $\sin(\Theta_{13})$



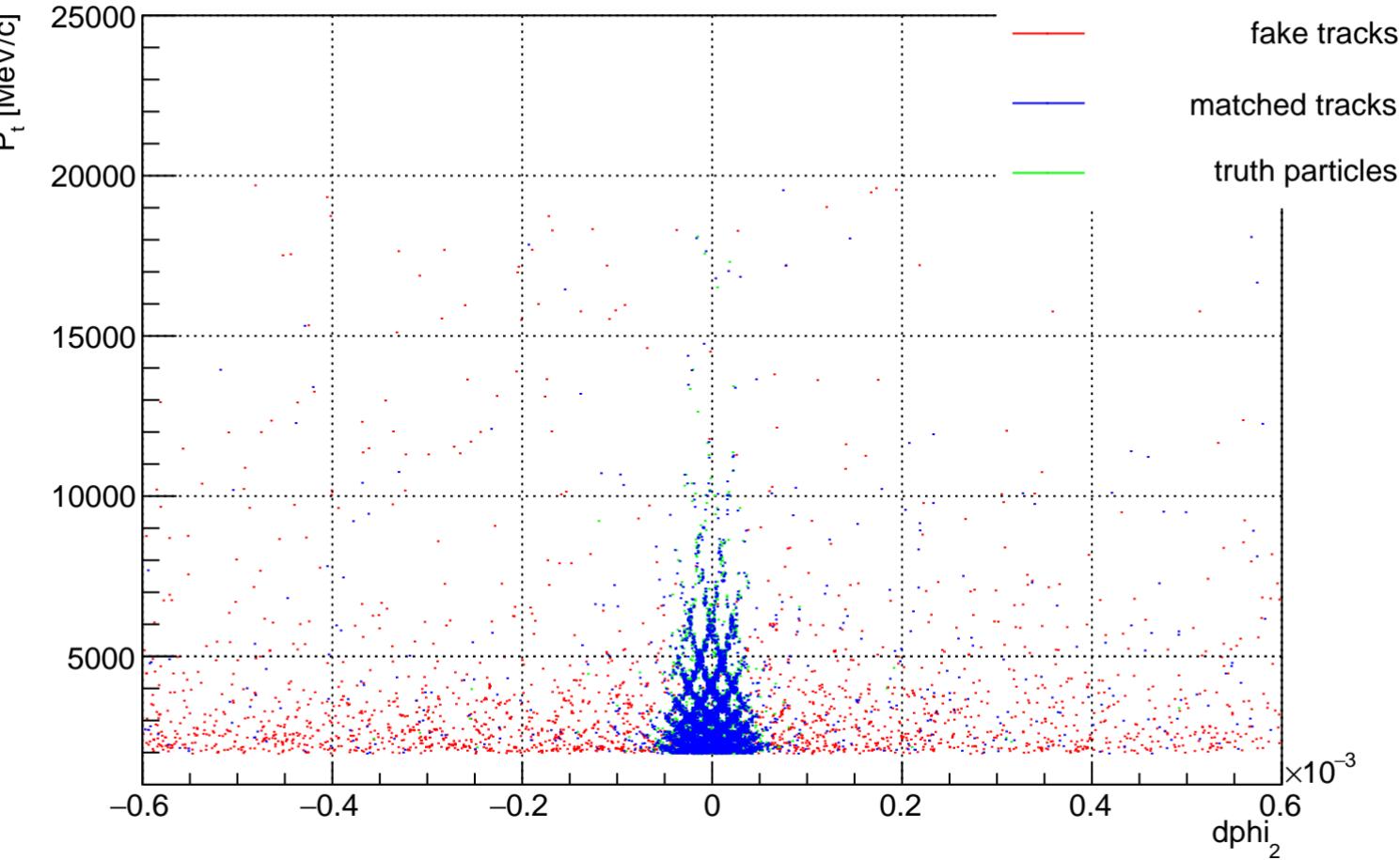
dz_2 Vs $\sin(\Theta_{13})$

$\phi_{\text{Barrel}} = 0.02 +$
 $Z_{\text{barrel}} = 160 + Z_{0,\text{max}} = 150$
fake tracks
matched tracks
no electrons
truth particles



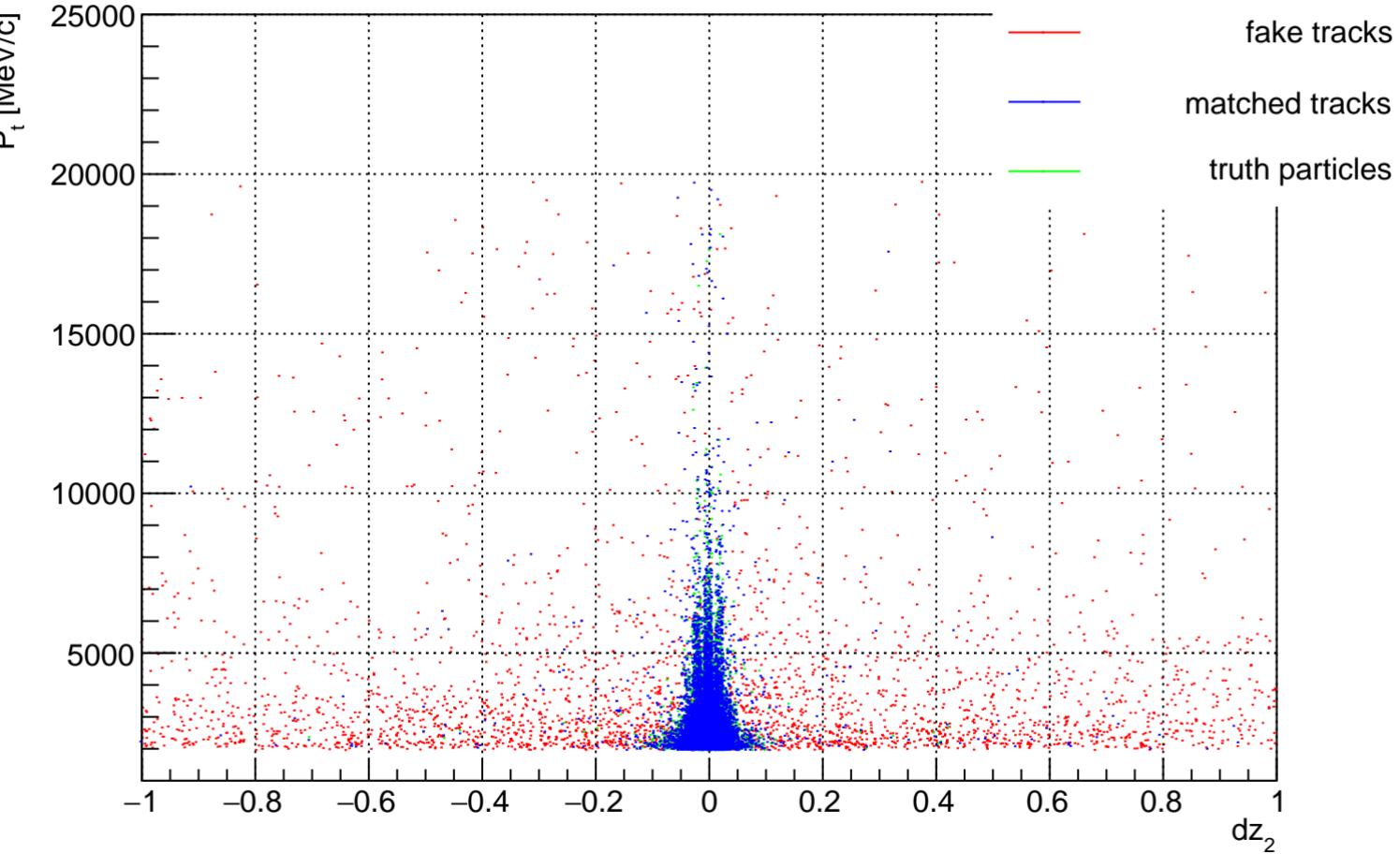
P_t Vs $d\phi_{2}$

phi Barrel = 0.02 +
Zbarrel = 160 + Z0_{max} = 150



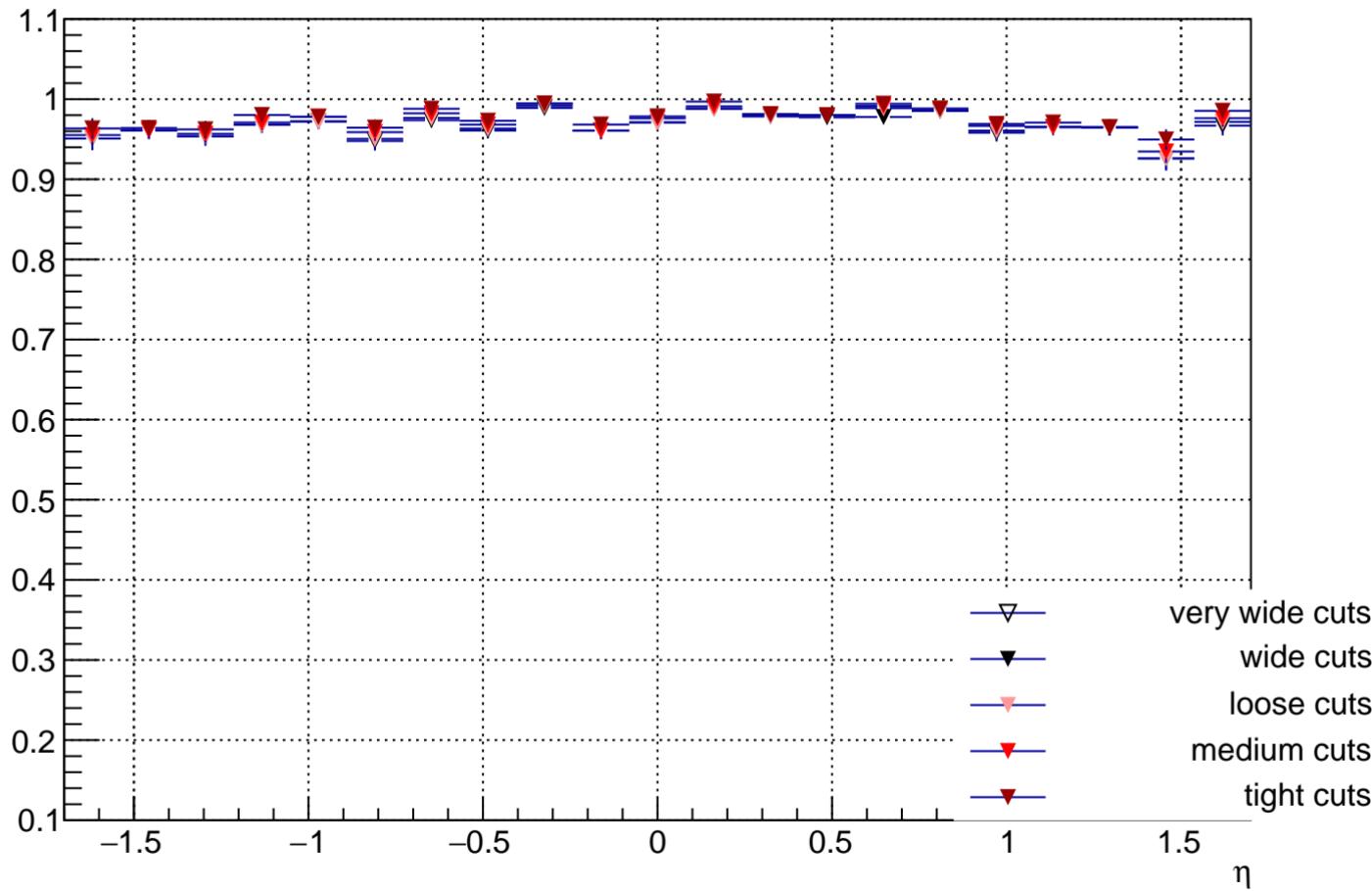
P_t Vs dz_2

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

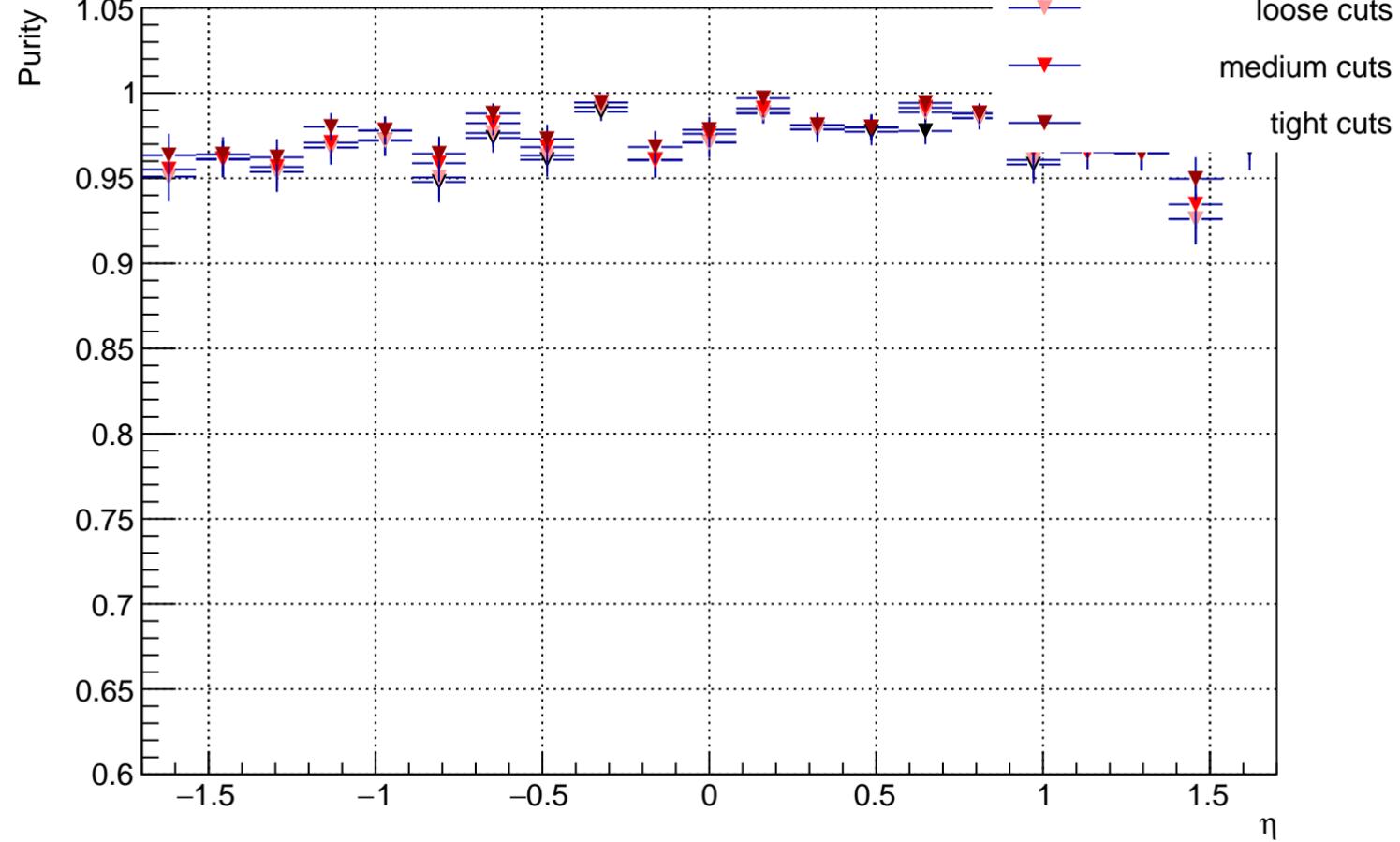


Purity vs η

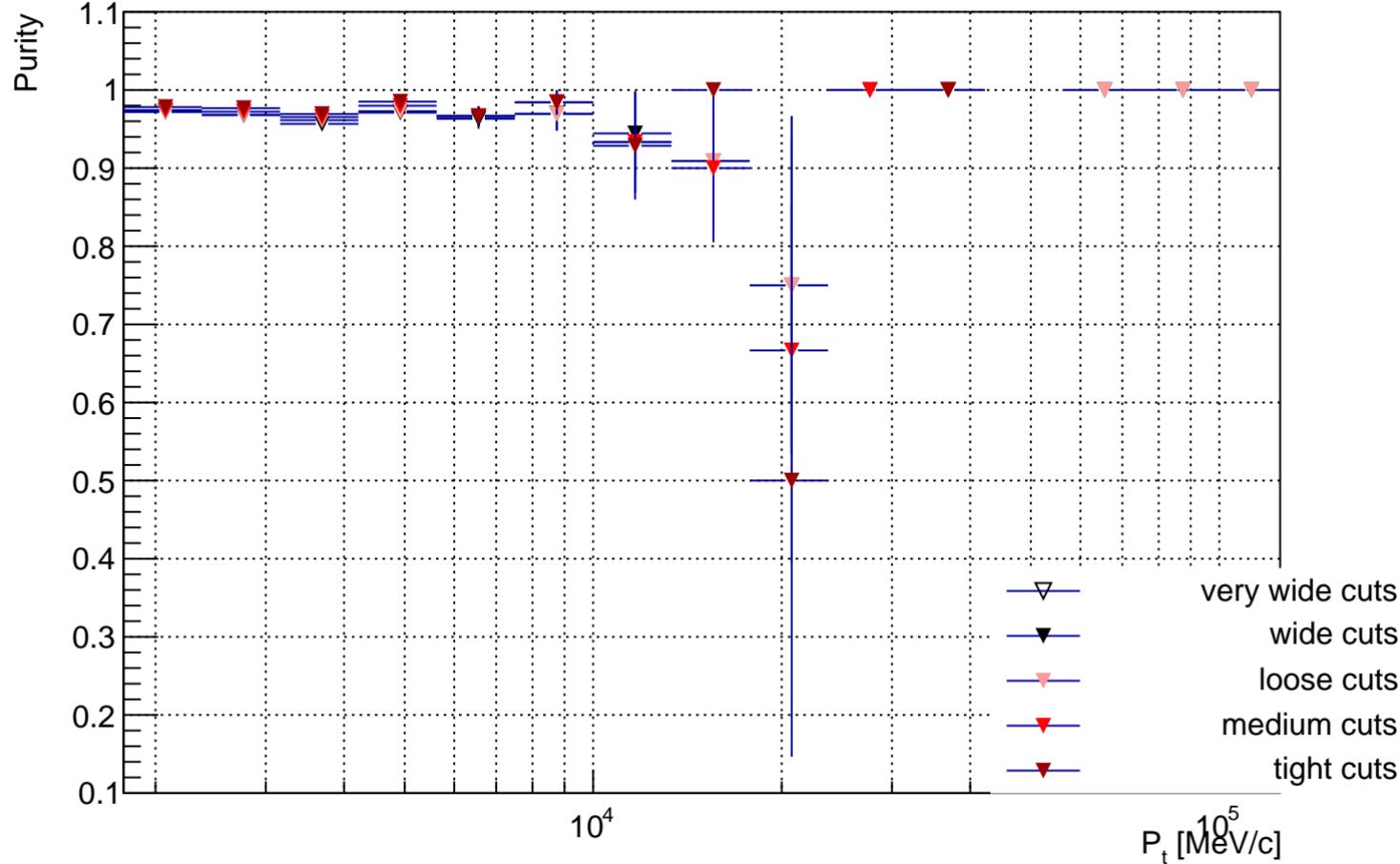
Purity



Purity vs η



Purity vs P_t



Purity vs P_t

