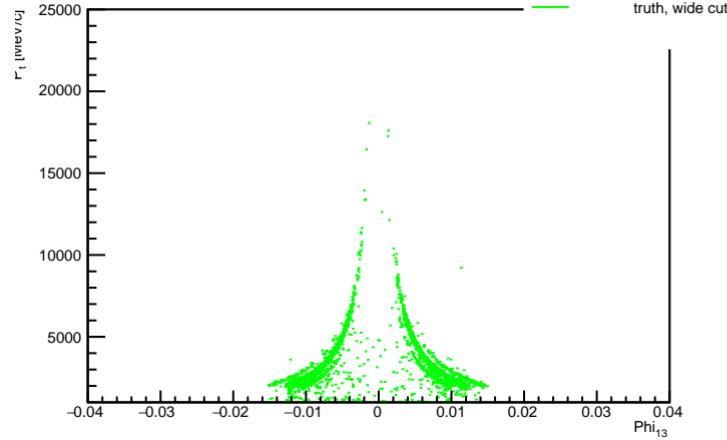
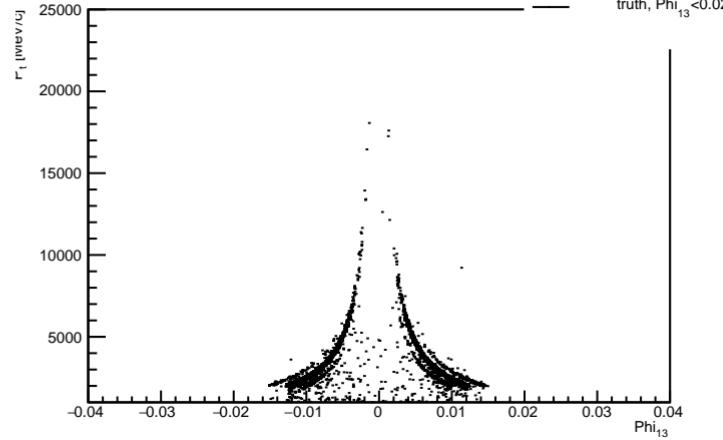


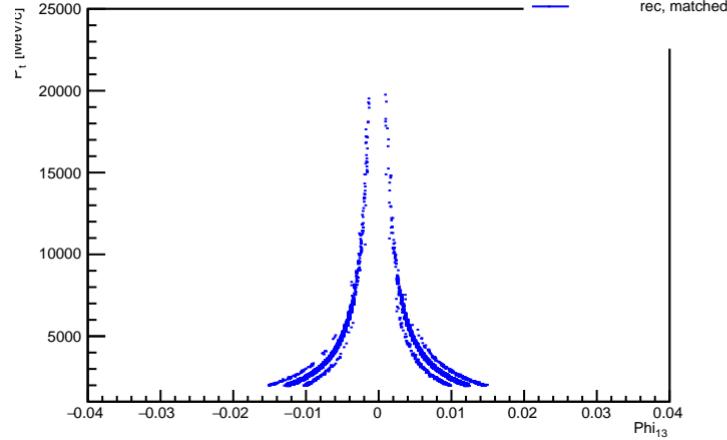
P_t Vs Φ_{13}



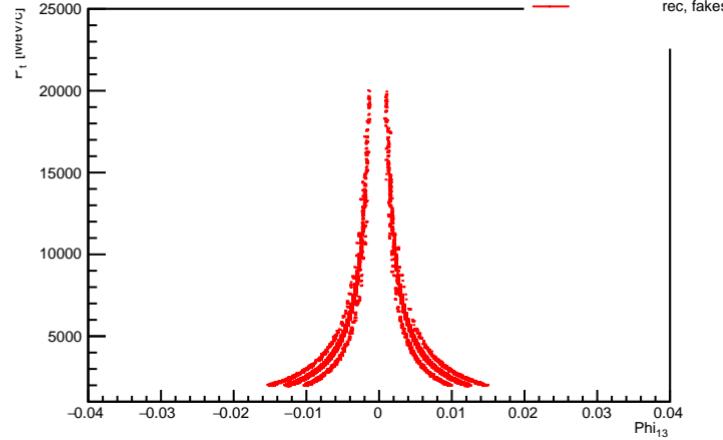
P_t Vs Φ_{13}



P_t Vs Φ_{13}



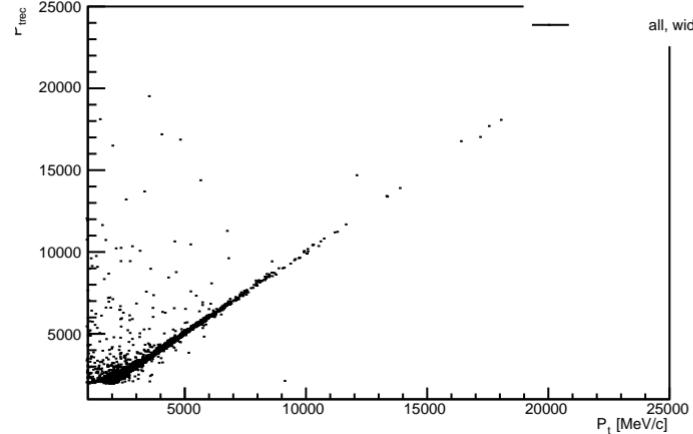
P_t Vs Φ_{13}



truth, $\Phi_{13} < 0.02$

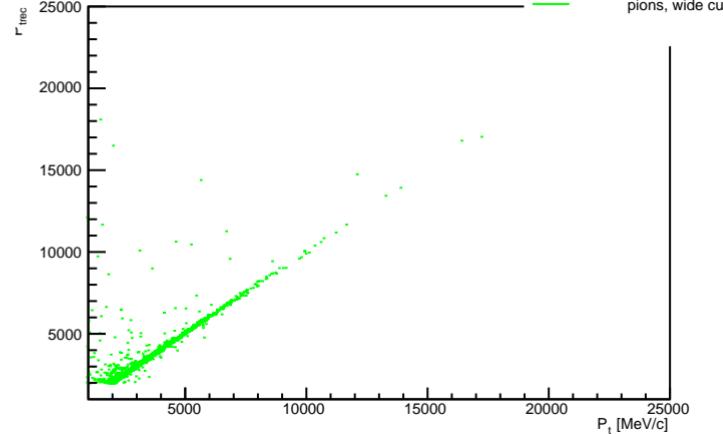
rec, matched

rec, fakes

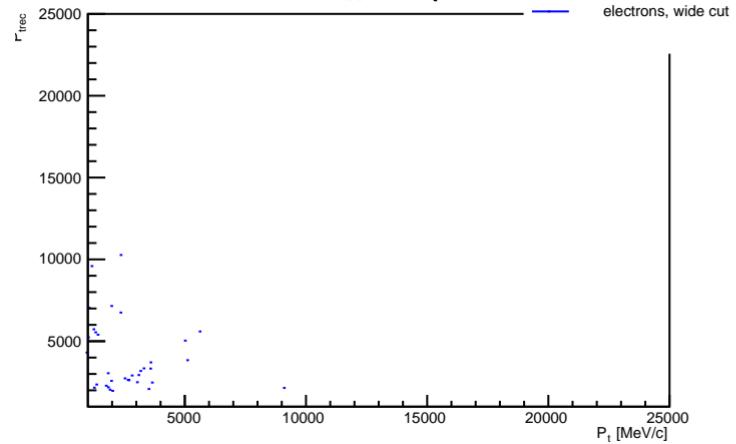
$P_{t\text{rec}}$ Vs P_t 

rec, matched

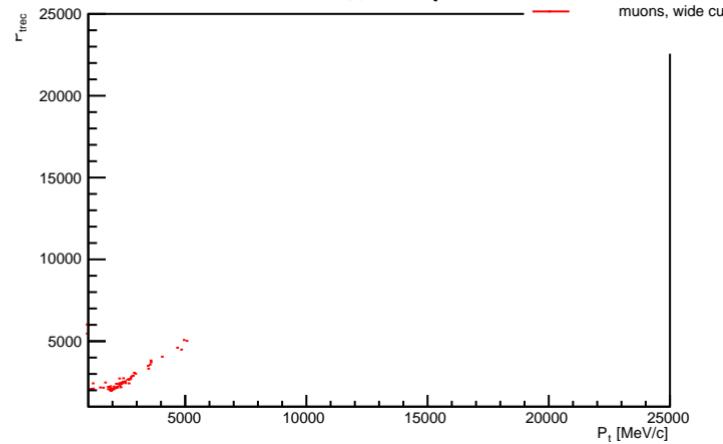
all, wide cut

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

pions, wide cut

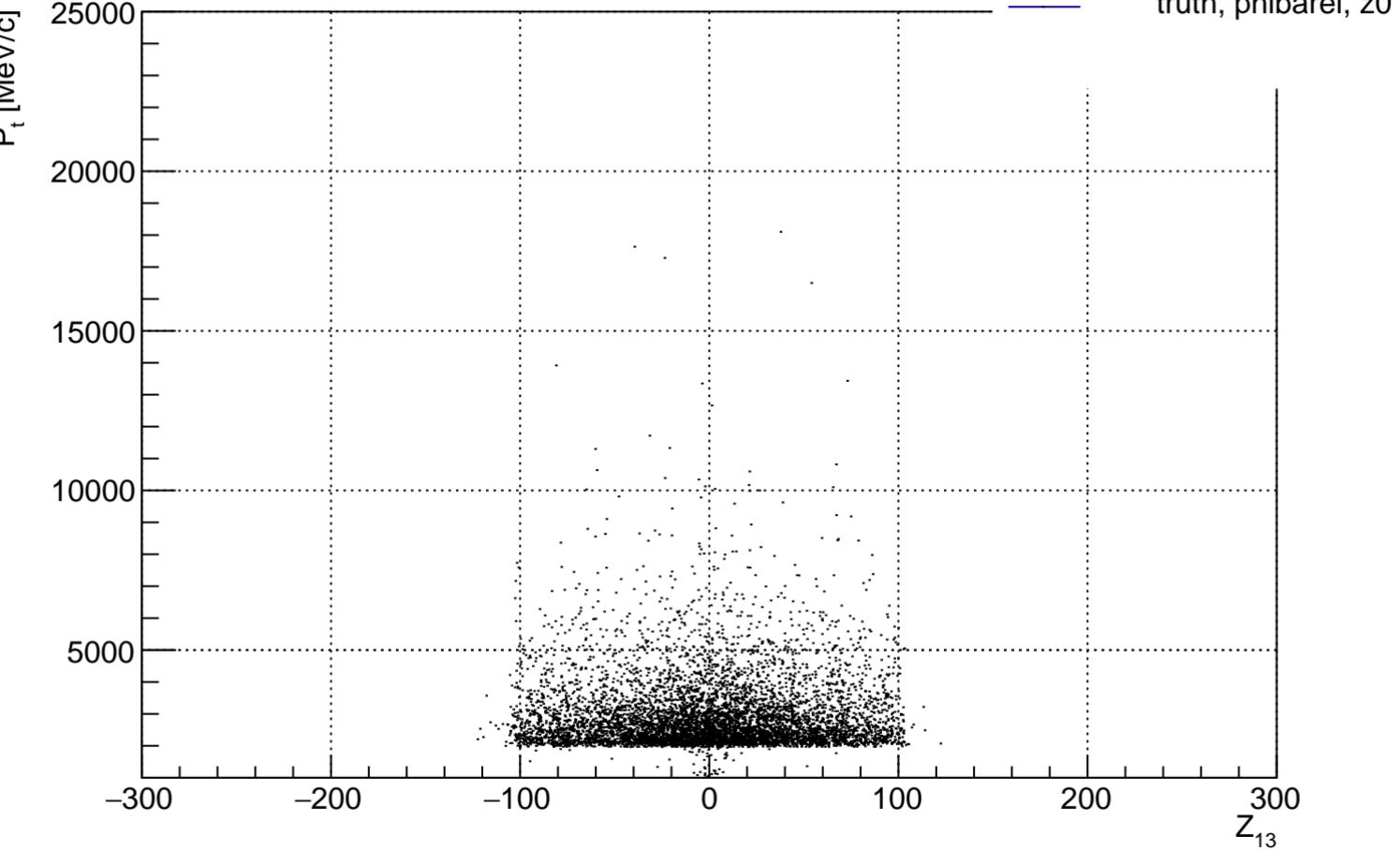
 $P_{t\text{rec}}$ Vs P_t 

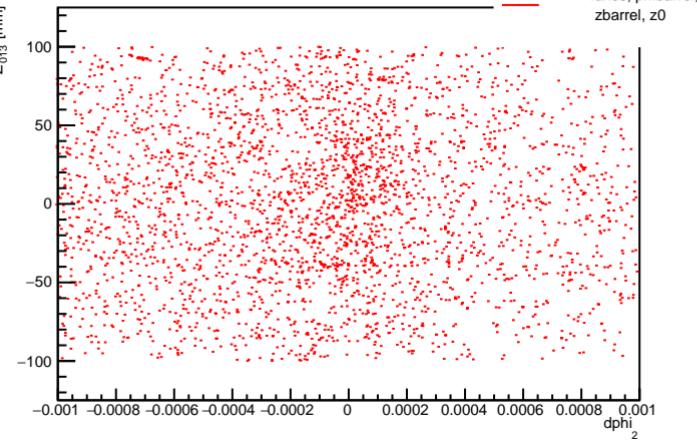
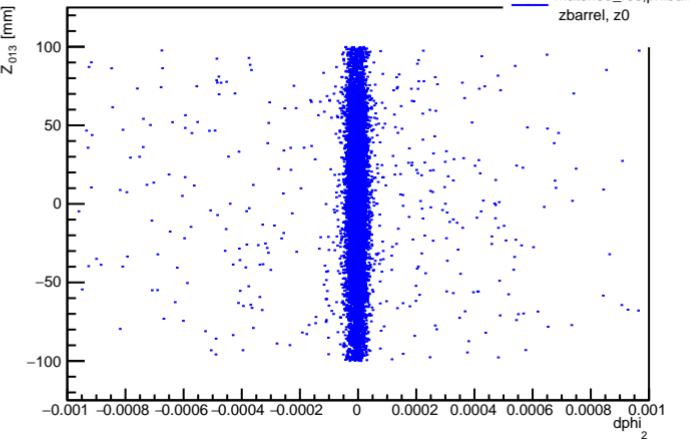
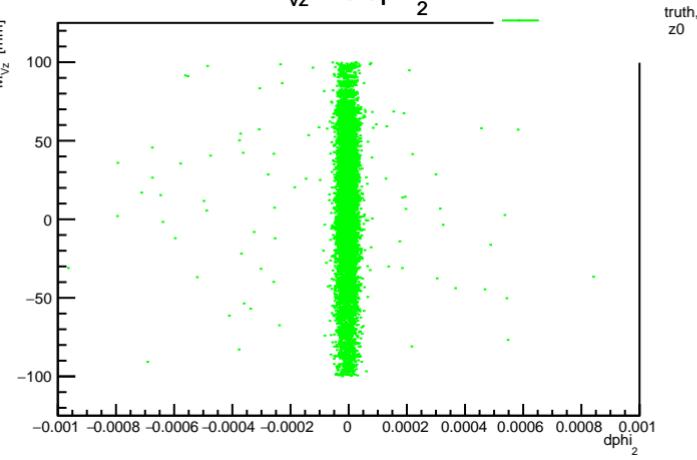
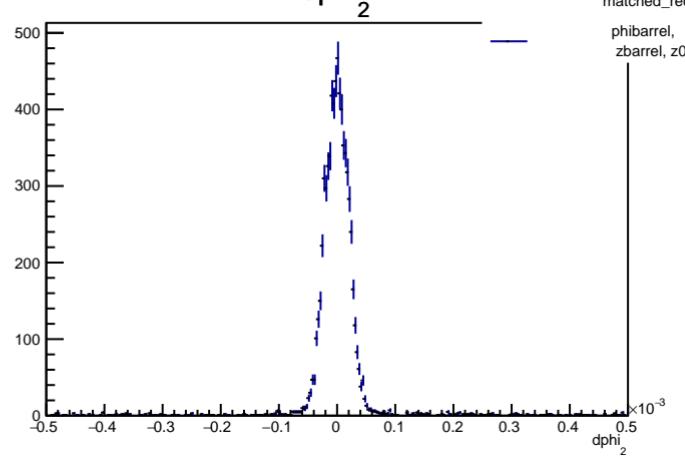
electrons, wide cut

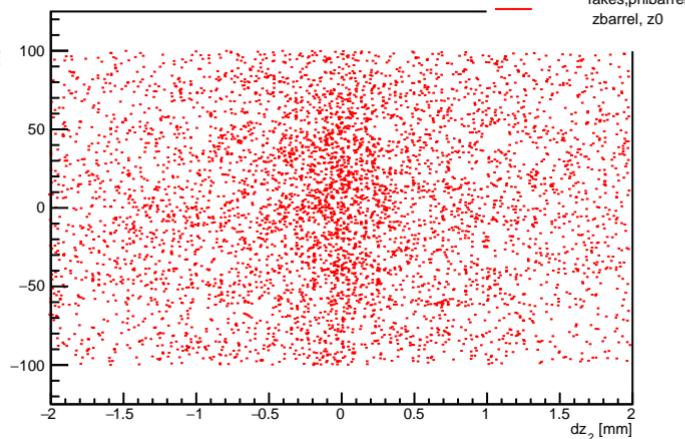
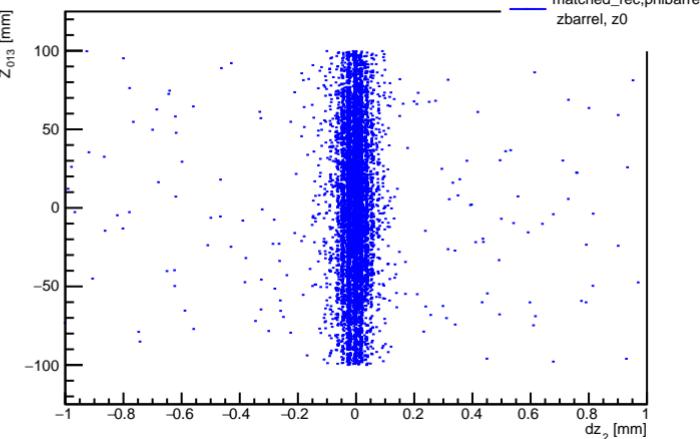
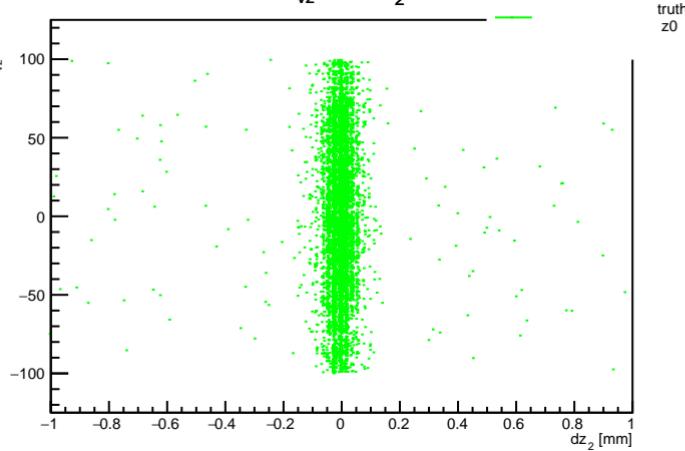
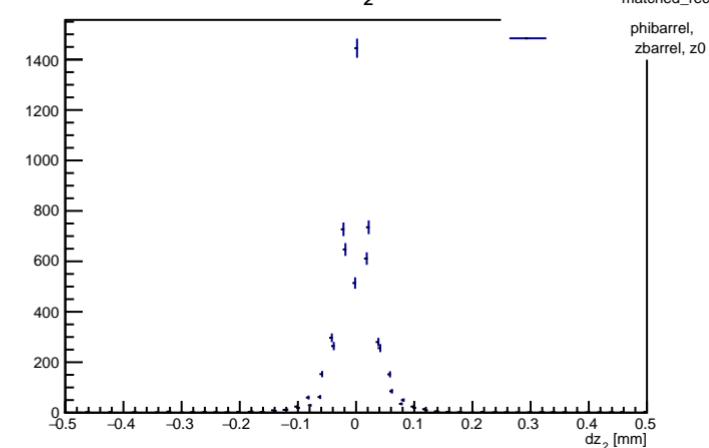
 $P_{t\text{rec}}$ Vs P_t 

muons, wide cut

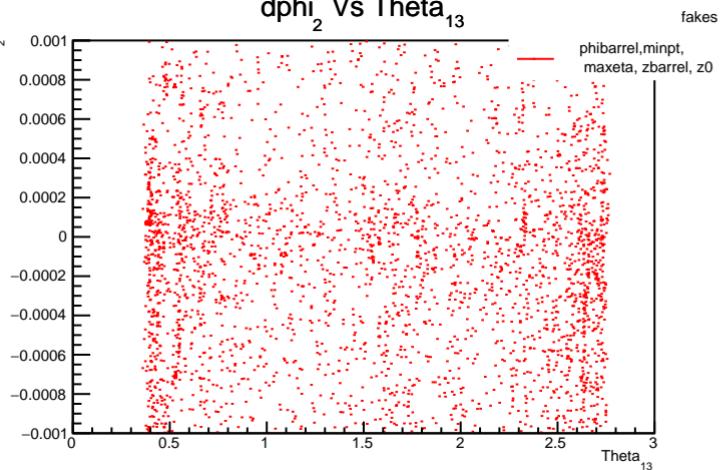
P_t Vs Z_{13}



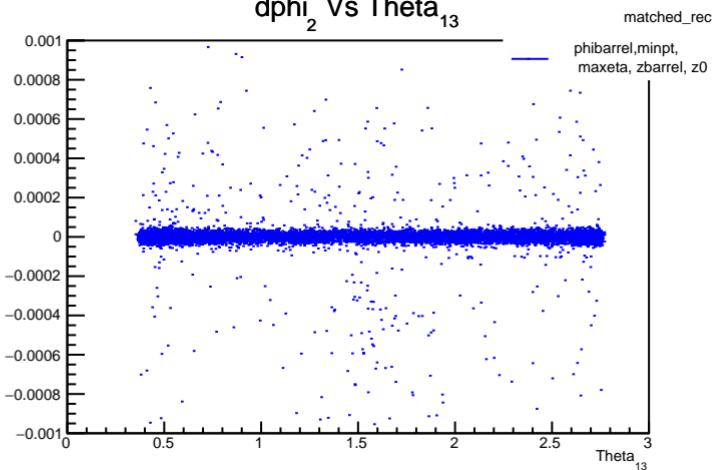
Z_{013} Vs $d\phi_2$  Z_{013} Vs $d\phi_2$  M_{vz} Vs $d\phi_2$  $d\phi_2$ 

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

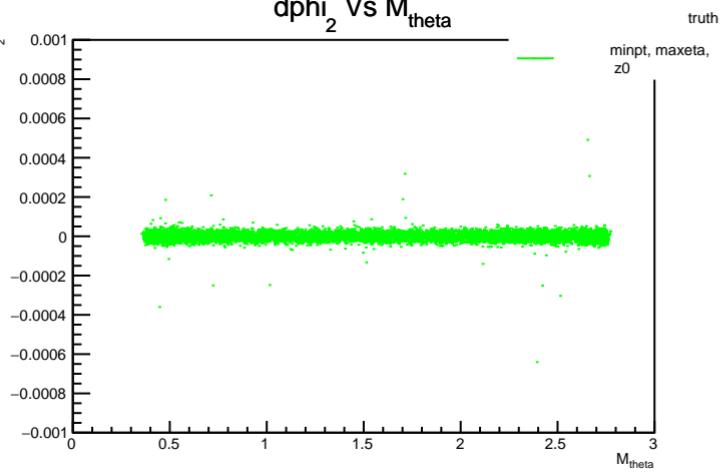
dphi₂ Vs Theta₁₃



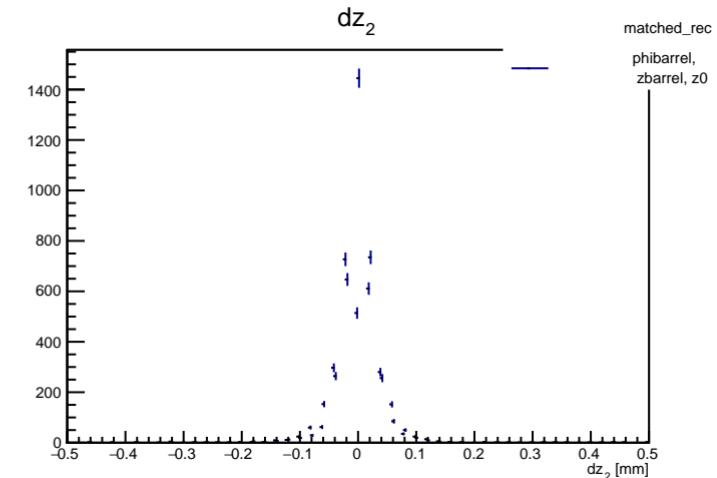
dphi₂ Vs Theta₁₃



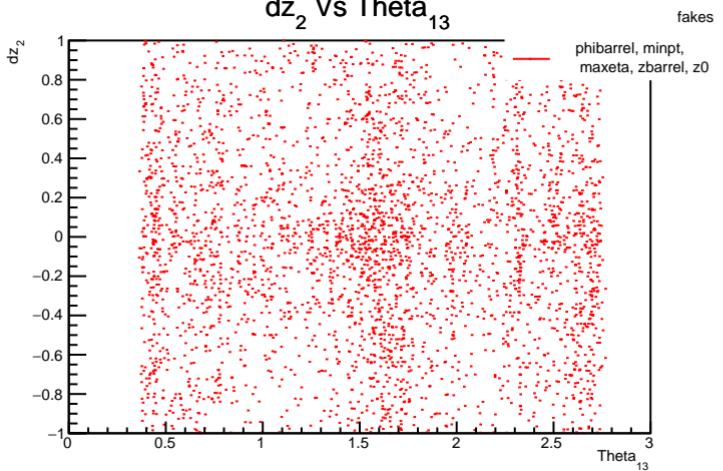
dphi₂ Vs M_{theta}



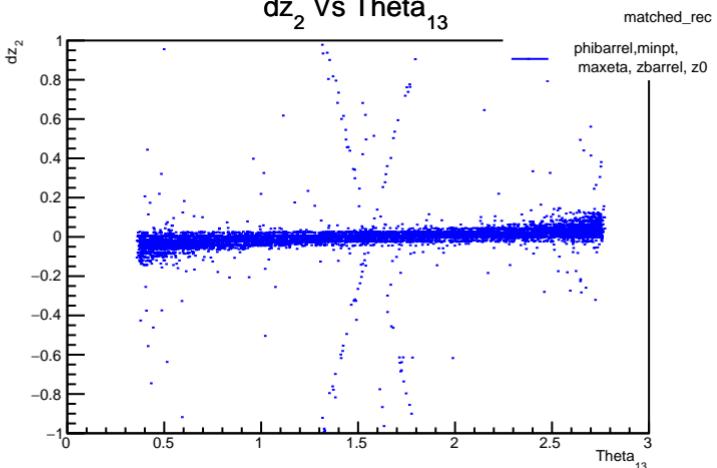
dz₂



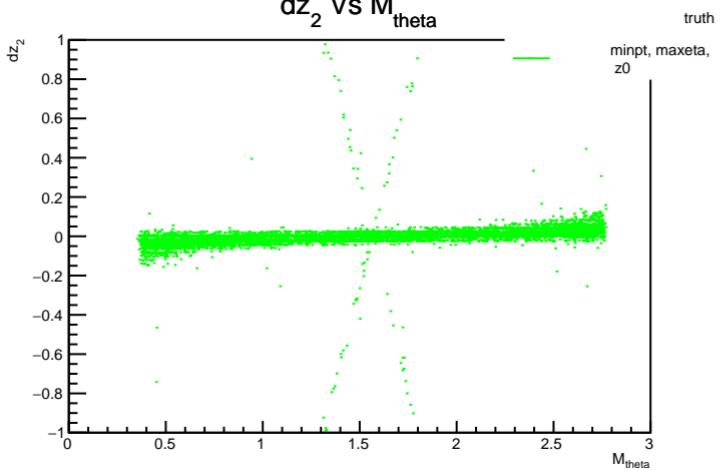
dz_2 Vs Θ_{13}



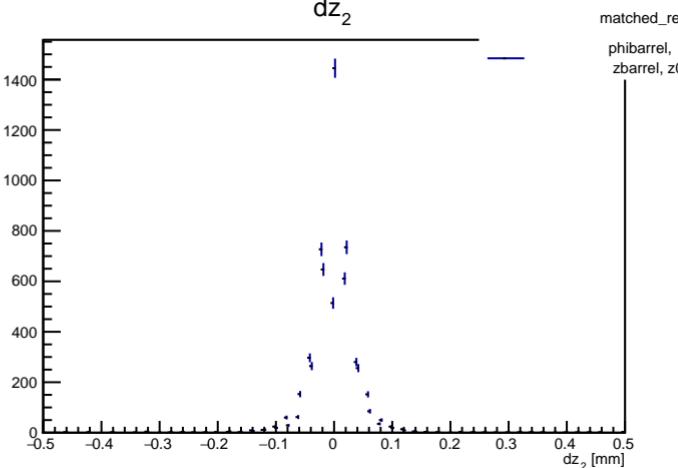
dz_2 Vs Θ_{13}



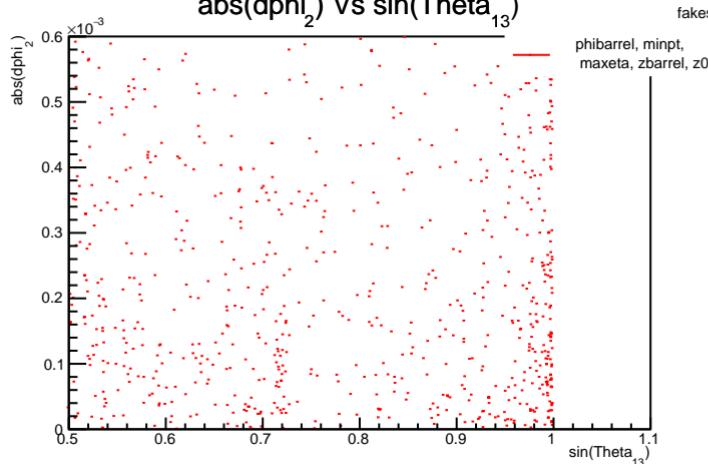
dz_2 Vs M_{θ}



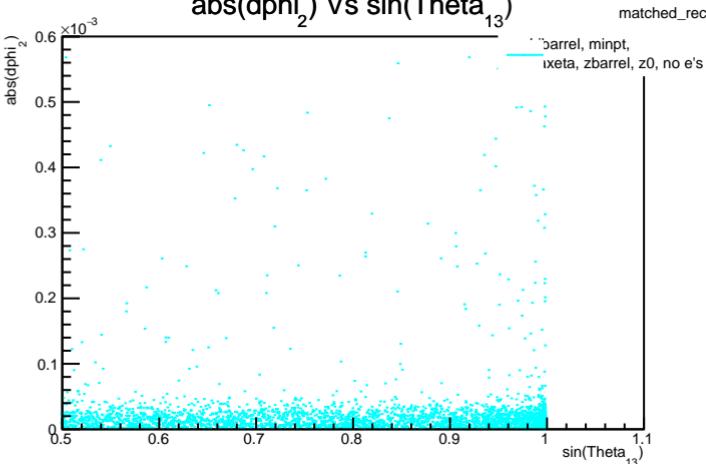
dz_2



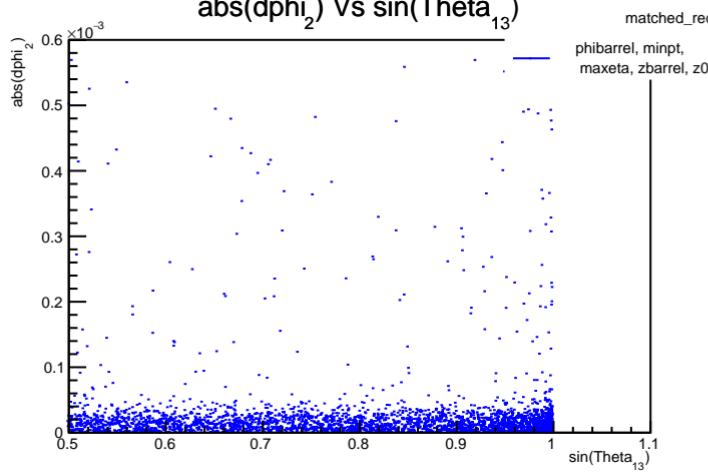
$\text{abs}(\text{dphi}_2)$ Vs $\sin(\Theta_{13})$



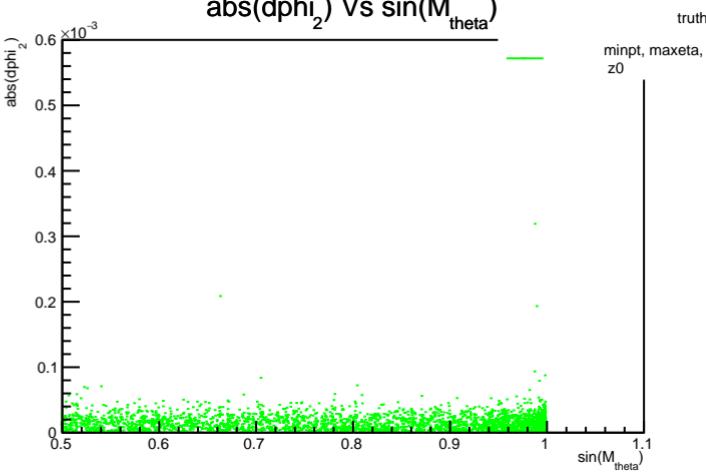
$\text{abs}(\text{dphi}_2)$ Vs $\sin(\Theta_{13})$



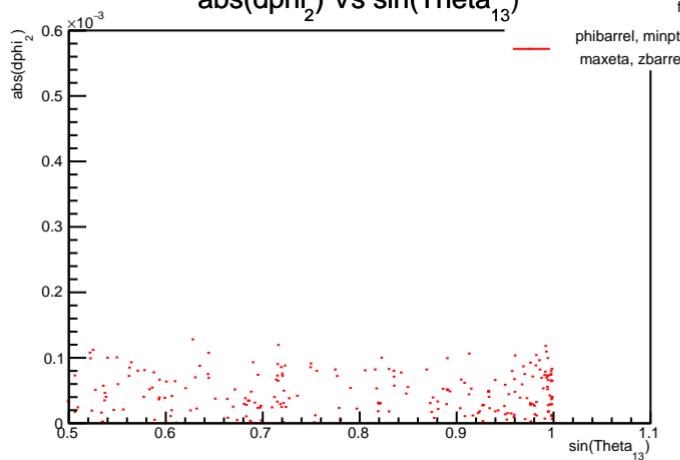
$\text{abs}(\text{dphi}_2)$ Vs $\sin(\Theta_{13})$



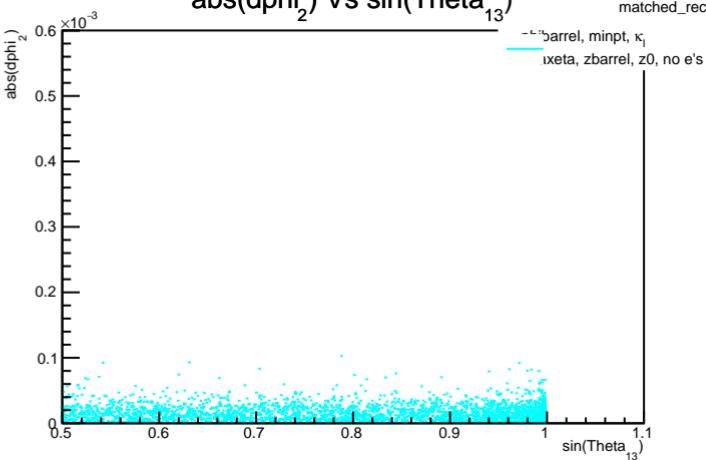
$\text{abs}(\text{dphi}_2)$ Vs $\sin(M_{\theta})$



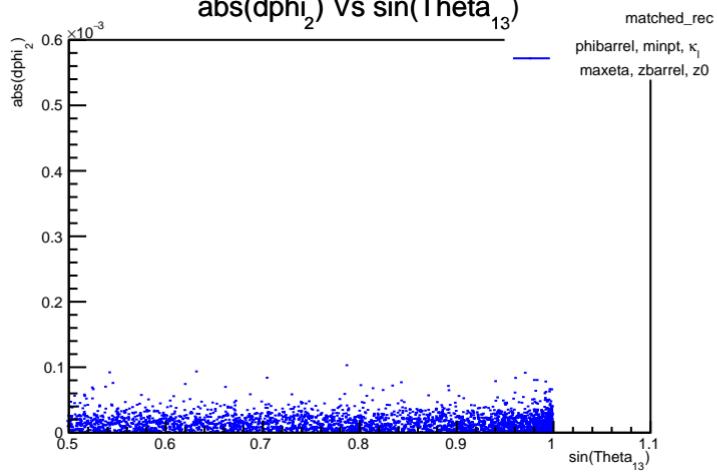
$\text{abs}(\text{dphi}_2)$ Vs $\sin(\Theta_{13})$



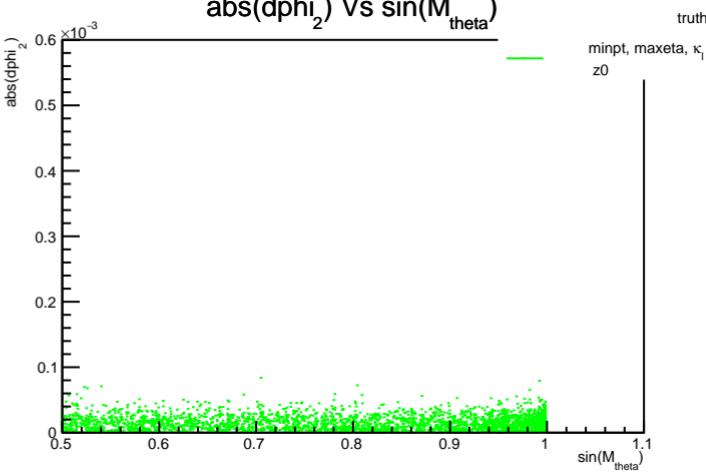
$\text{abs}(\text{dphi}_2)$ Vs $\sin(\Theta_{13})$

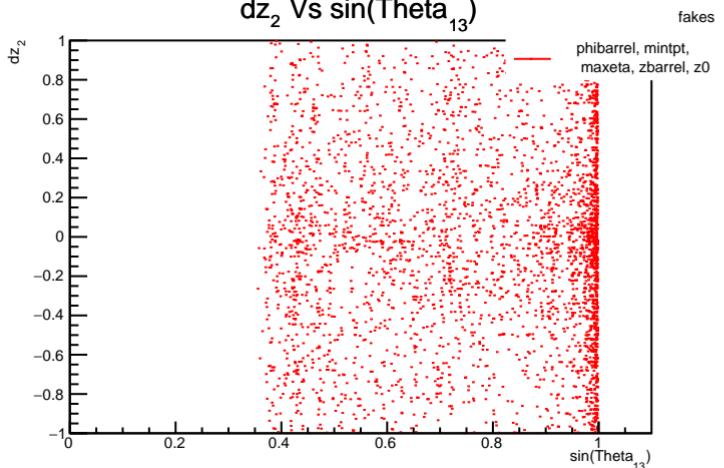
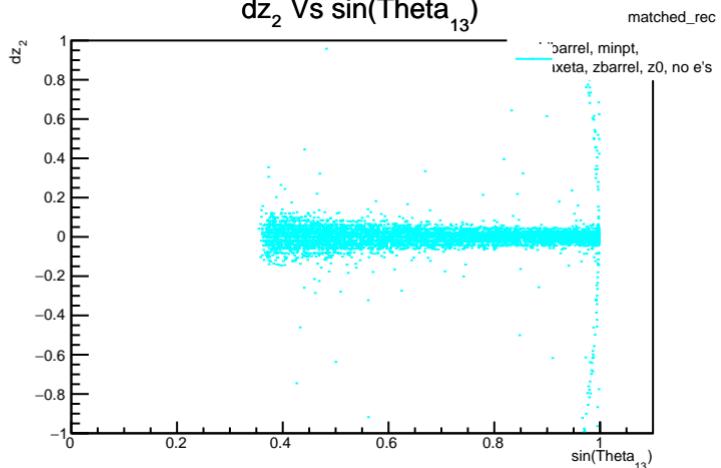
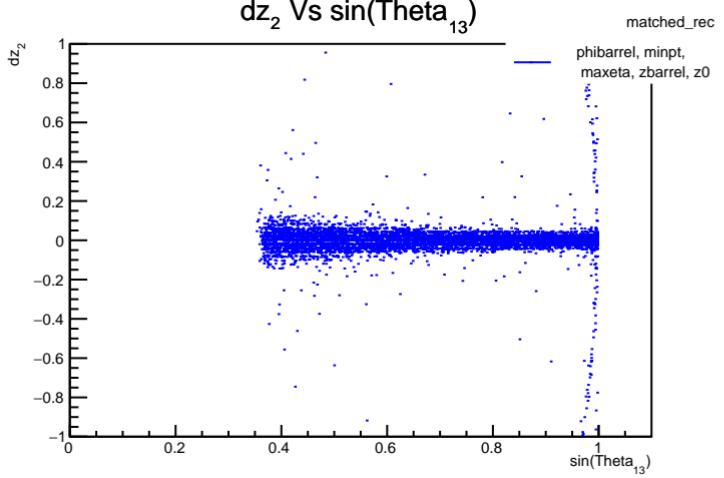
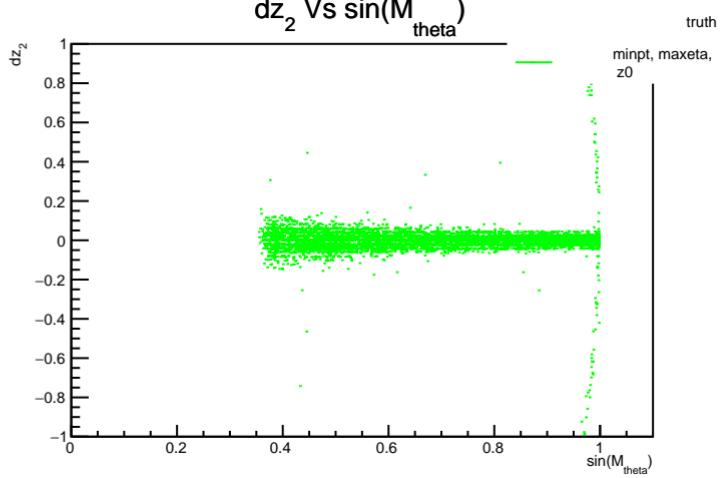


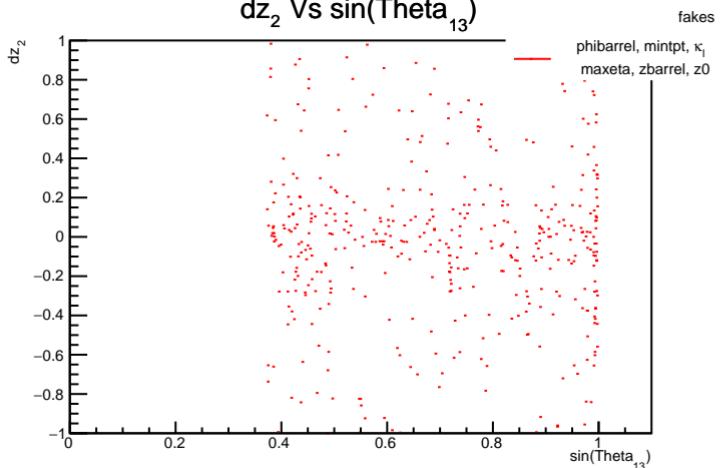
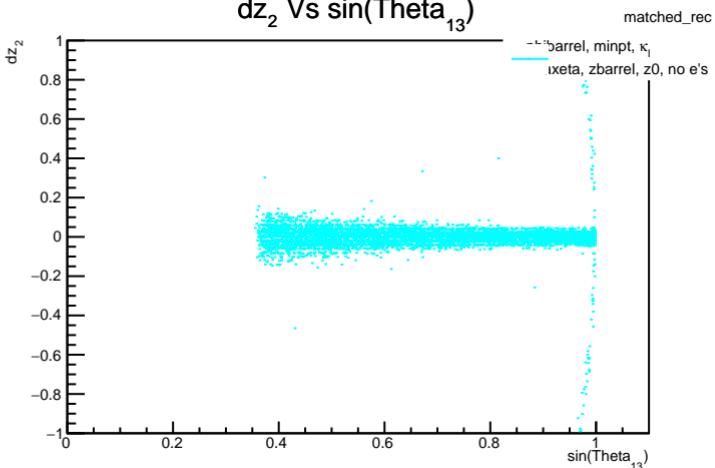
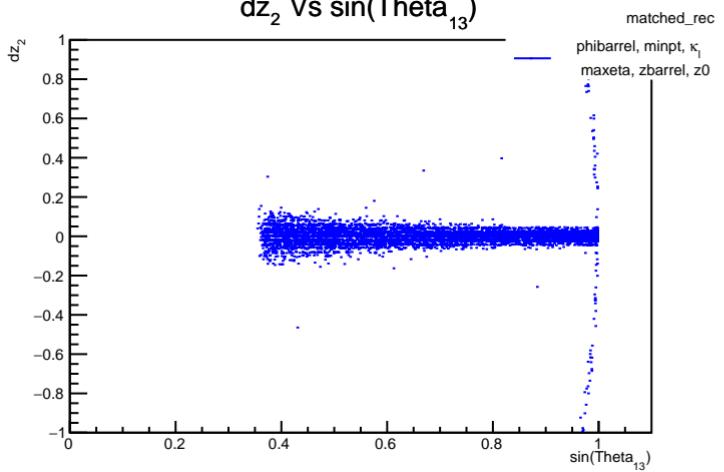
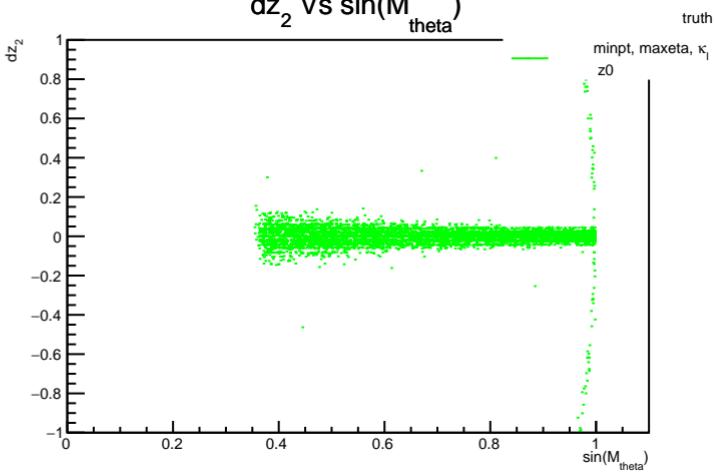
$\text{abs}(\text{dphi}_2)$ Vs $\sin(\Theta_{13})$



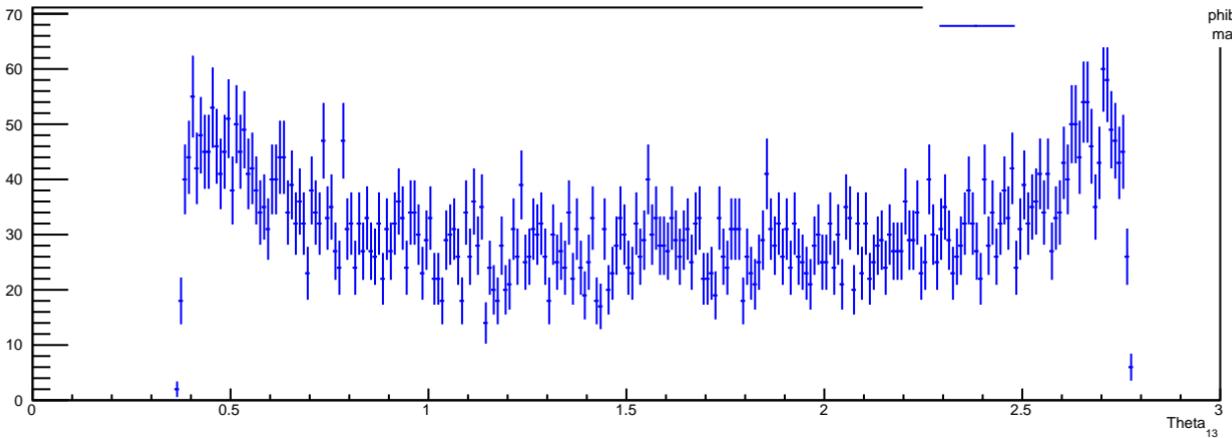
$\text{abs}(\text{dphi}_2)$ Vs $\sin(M_{\theta})$



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 $\sin(M_{\theta})$ 

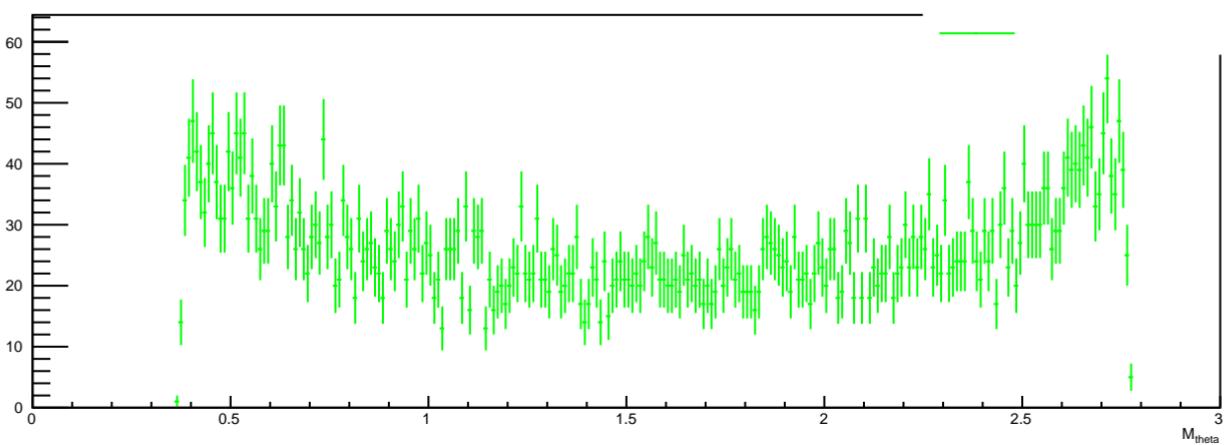
Theta₁₃



matched_rec

phibarrel,minpt,
maxeta, zbarrel, z0

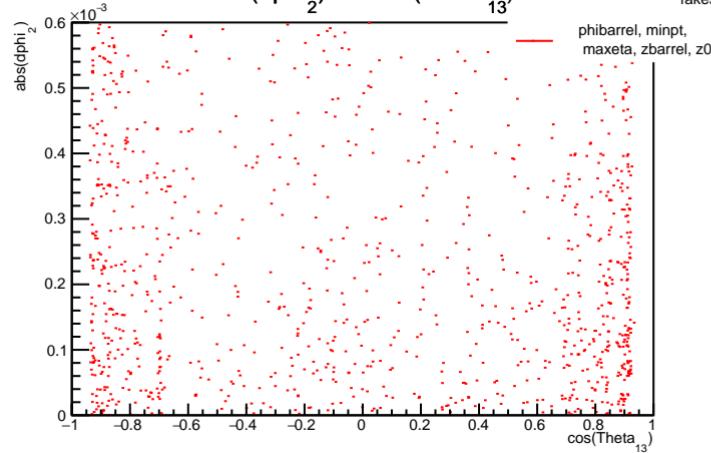
M_{theta}



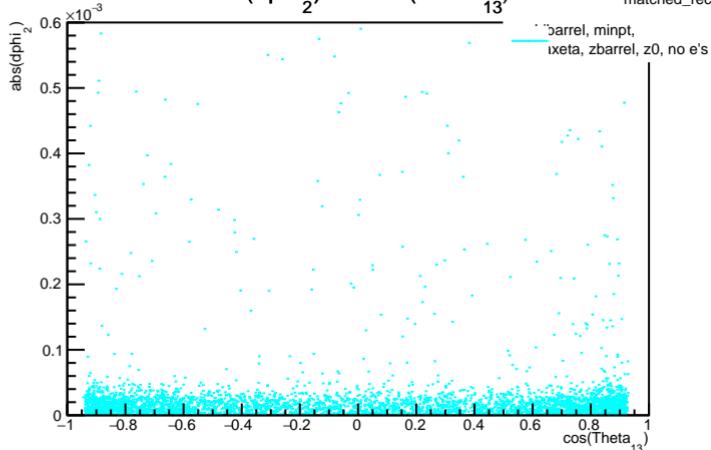
truth

minpt, maxeta,
z0

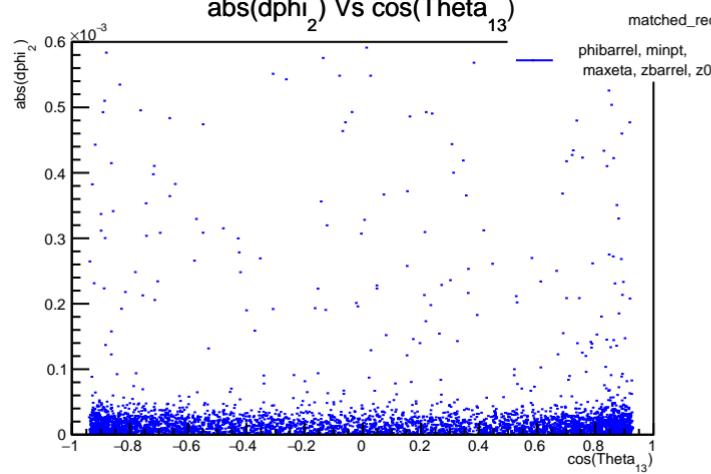
$\text{abs}(\text{dphi}_2)$ Vs $\cos(\Theta_{13})$



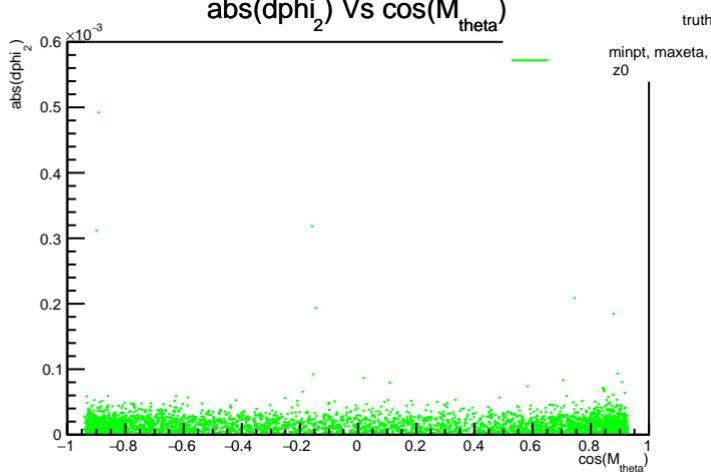
$\text{abs}(\text{dphi}_2)$ Vs $\cos(\Theta_{13})$



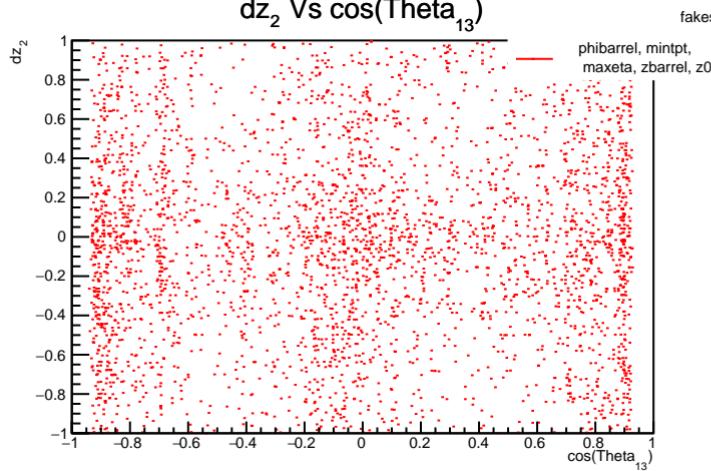
$\text{abs}(\text{dphi}_2)$ Vs $\cos(\Theta_{13})$



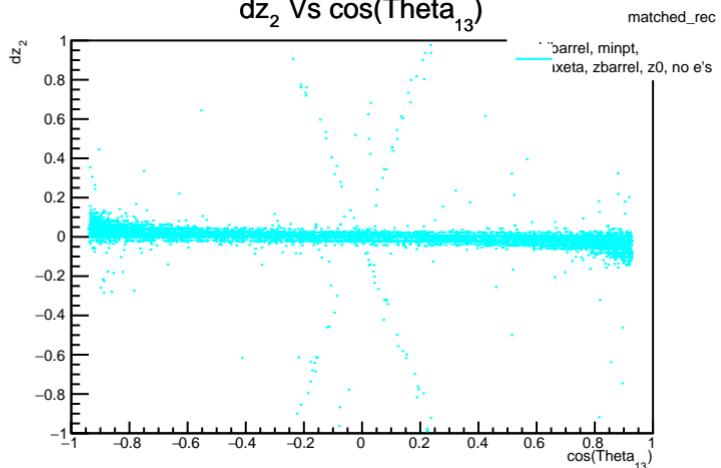
$\text{abs}(\text{dphi}_2)$ Vs $\cos(M_{\theta})$



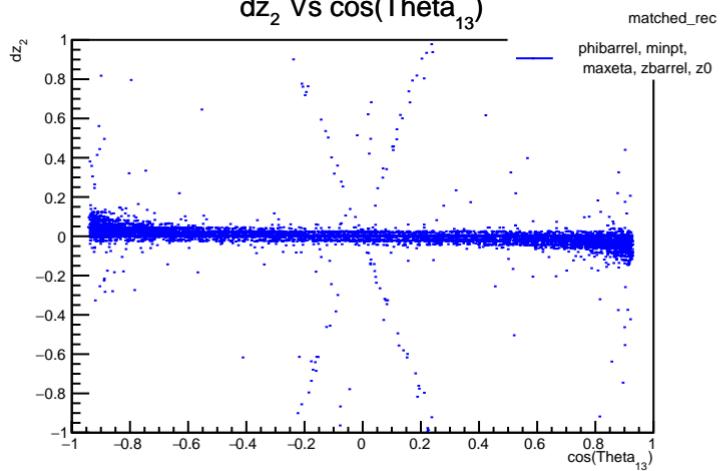
dz_2 Vs $\cos(\Theta_{13})$



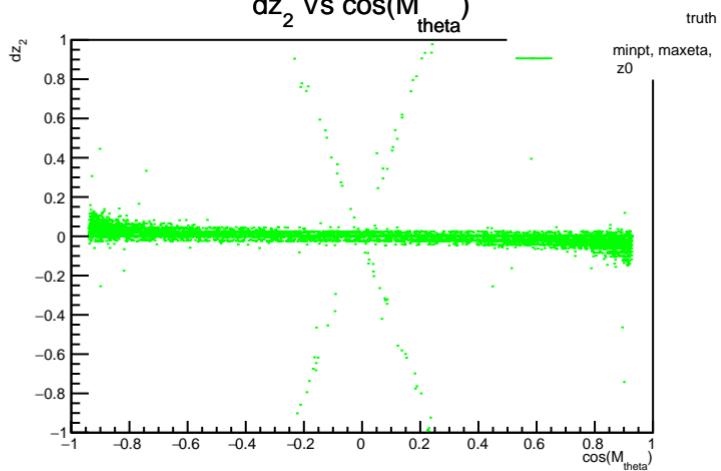
dz_2 Vs $\cos(\Theta_{13})$

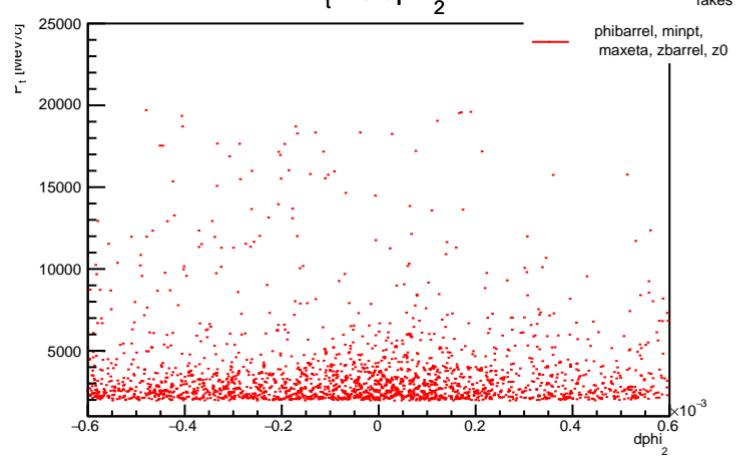
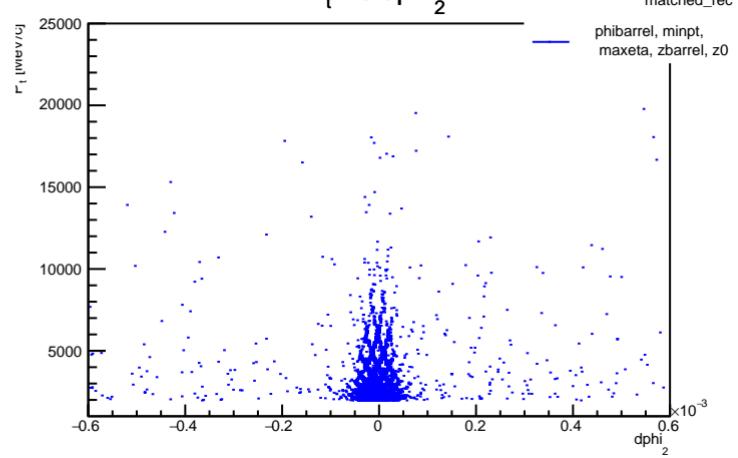
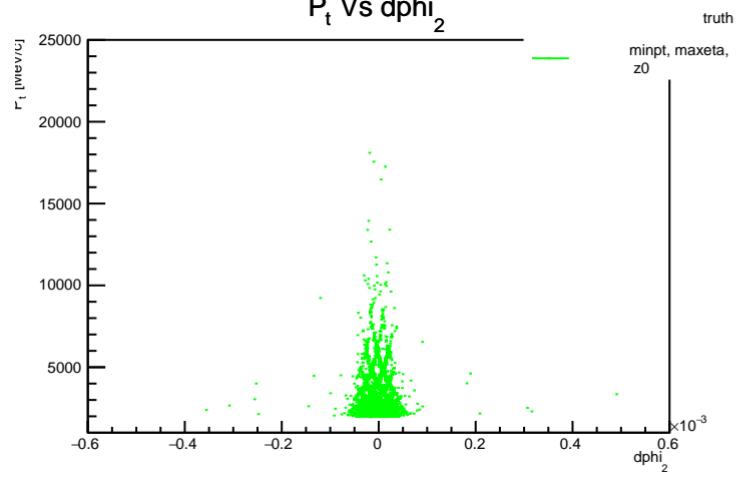
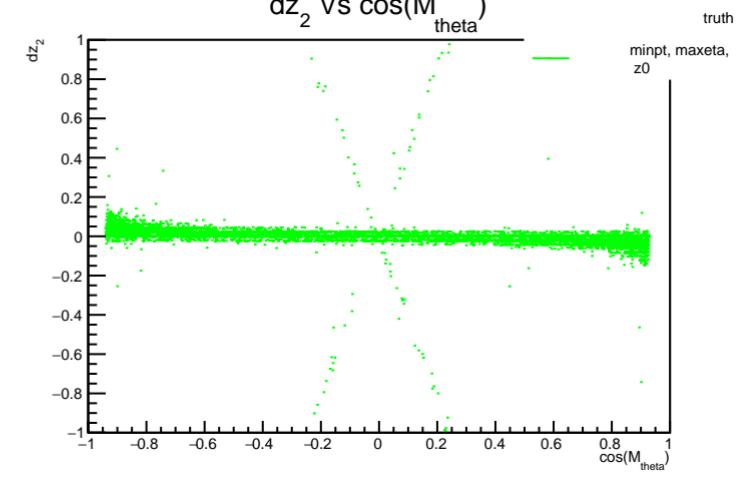


dz_2 Vs $\cos(\Theta_{13})$



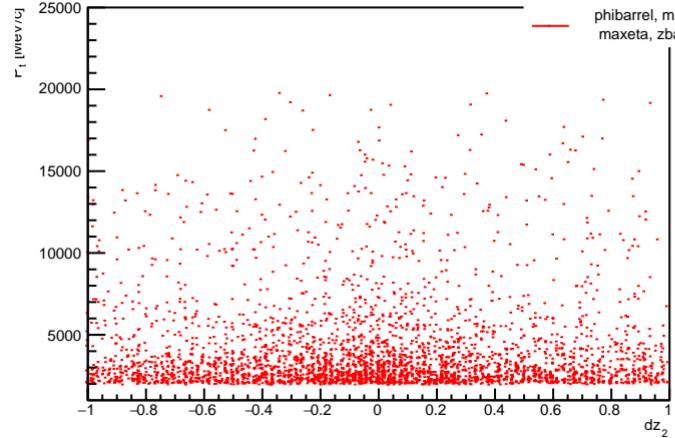
dz_2 Vs $\cos(M_{\theta})$



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

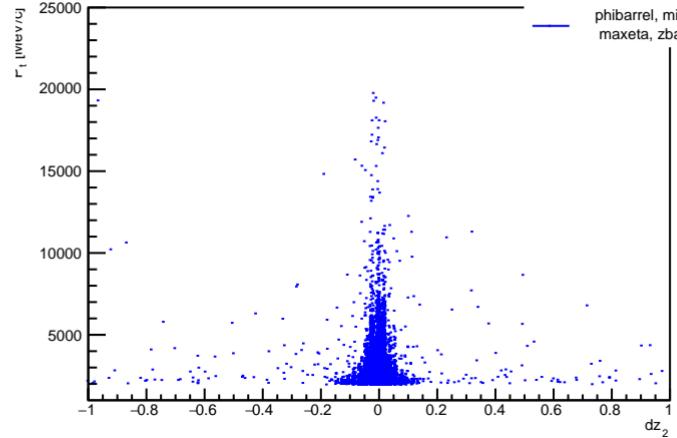
P_t Vs dz_2

fakes



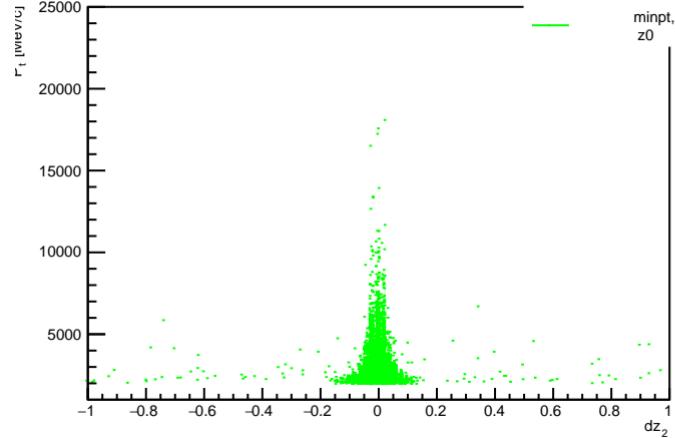
P_t Vs dz_2

matched_rec



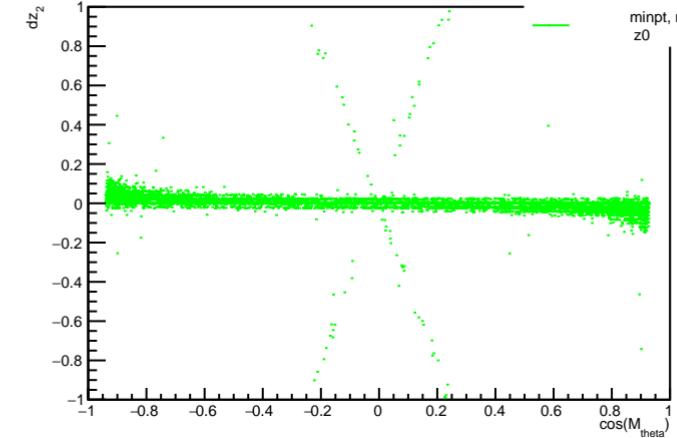
P_t Vs dz_2

truth

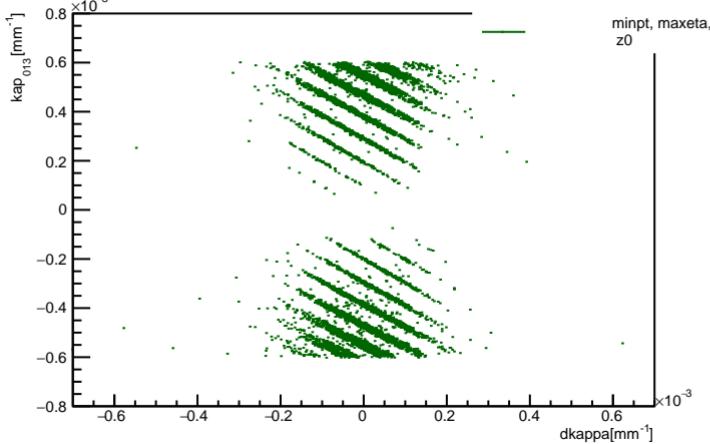


dz_2 Vs $\cos(M_{\theta})$

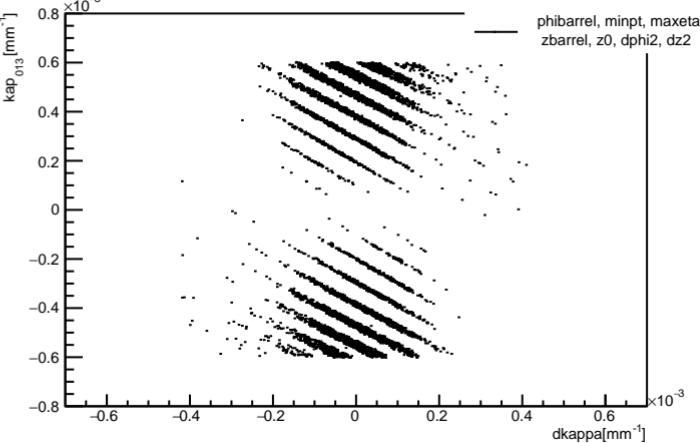
truth



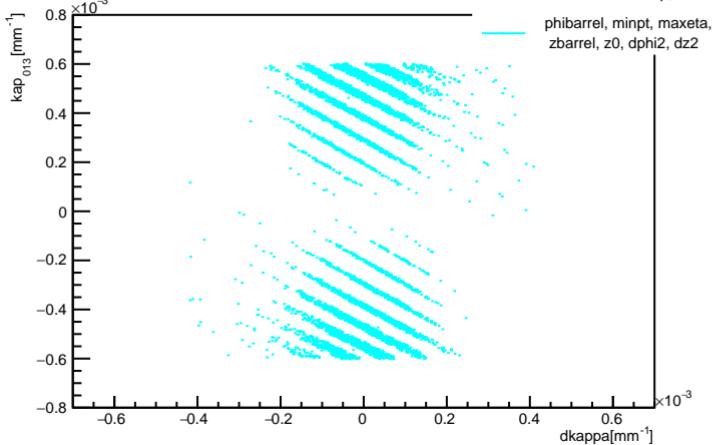
kappa013 Vs dkappa



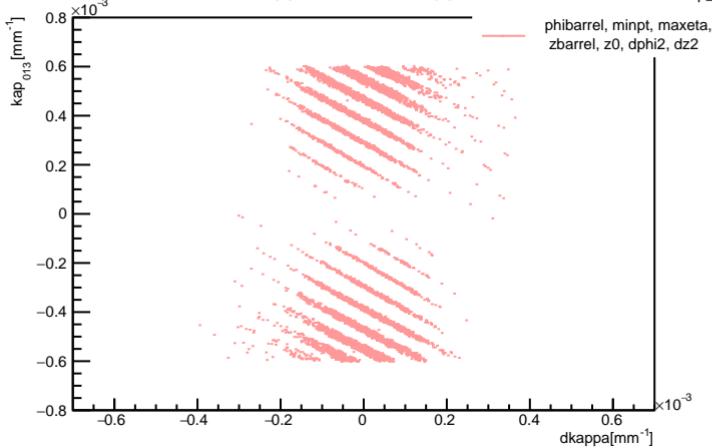
kappa013 Vs dkappa



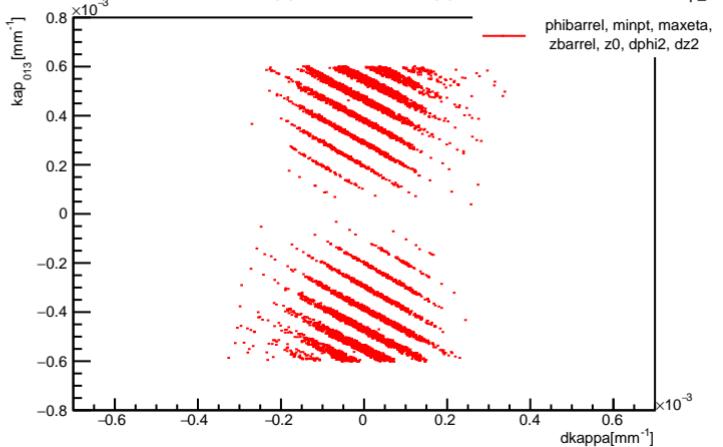
kappa013 Vs dkappa



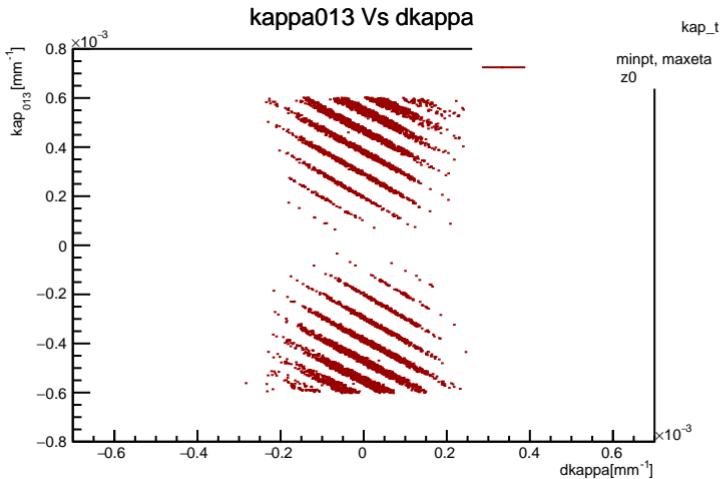
kappa013 Vs dkappa



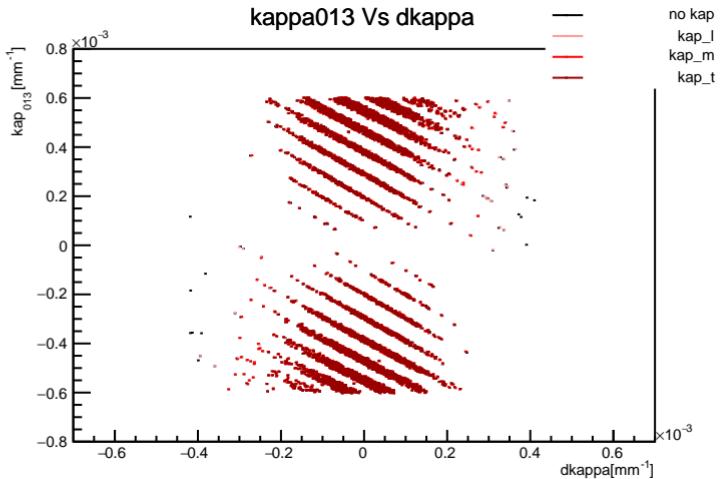
kappa013 Vs dkappa



kappa013 Vs dkappa

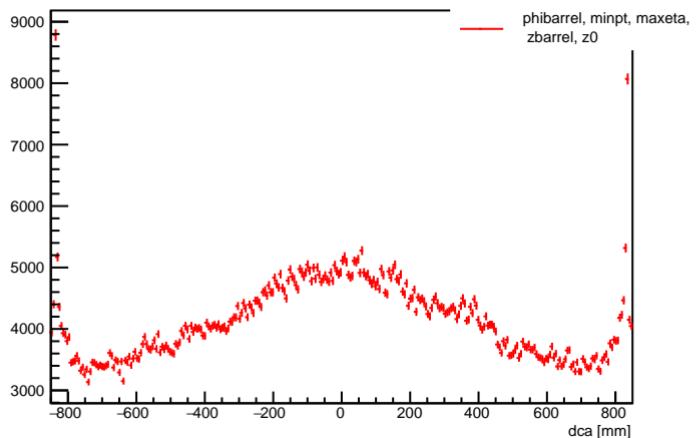


kappa013 Vs dkappa



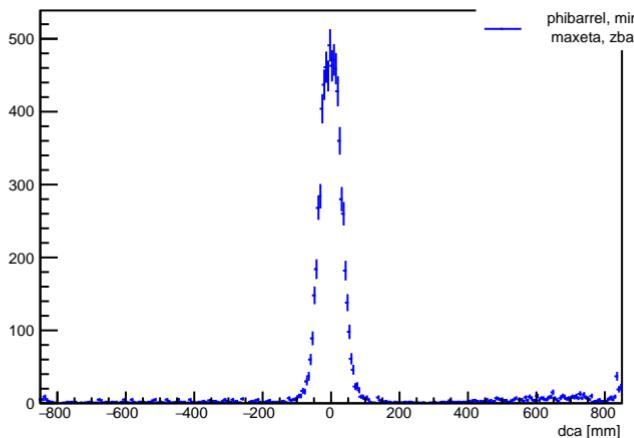
dca

fakes



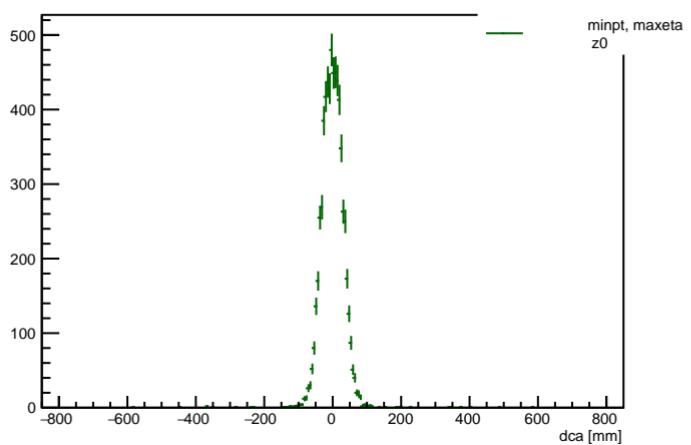
dca

matched_rec



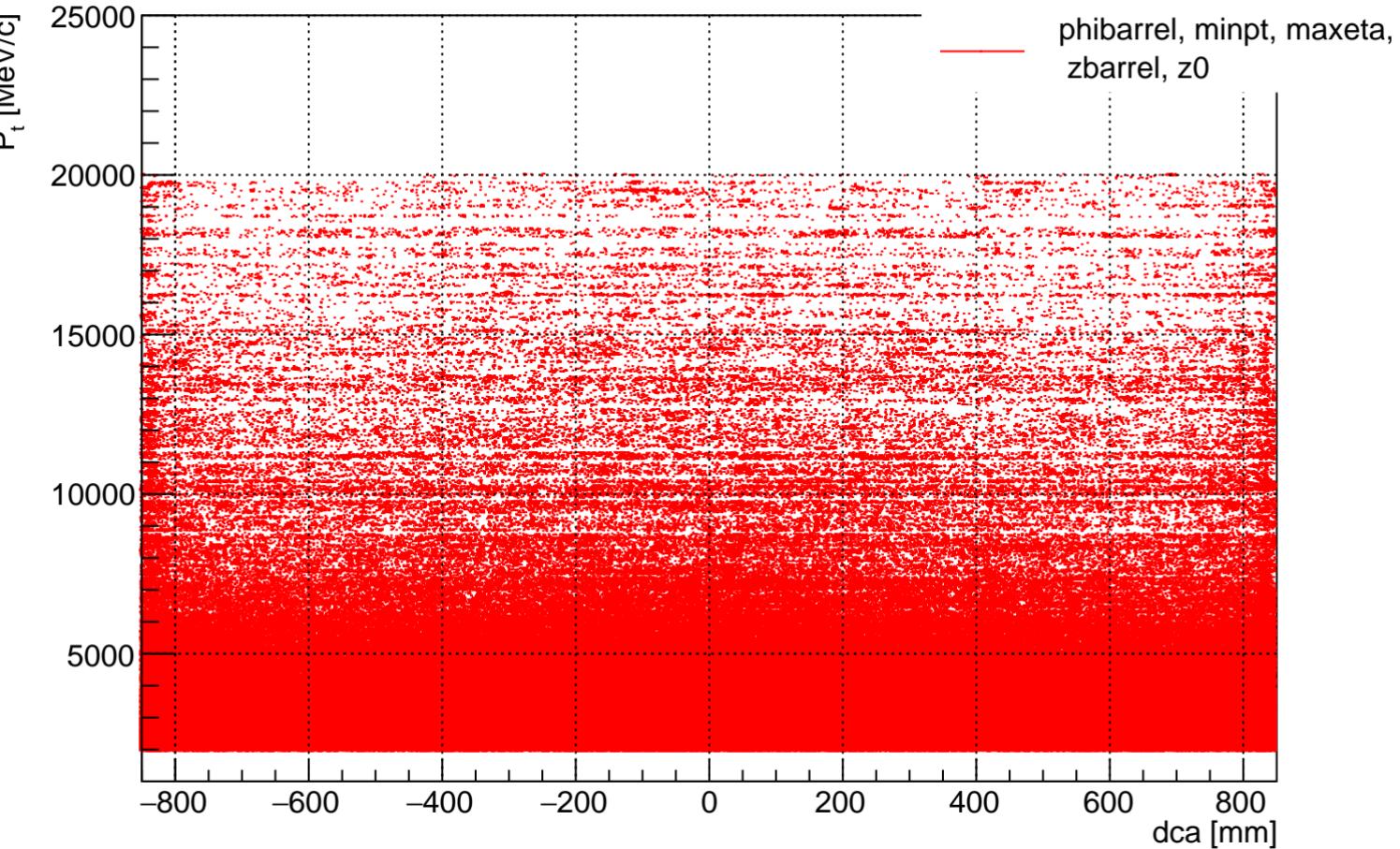
dca

truth

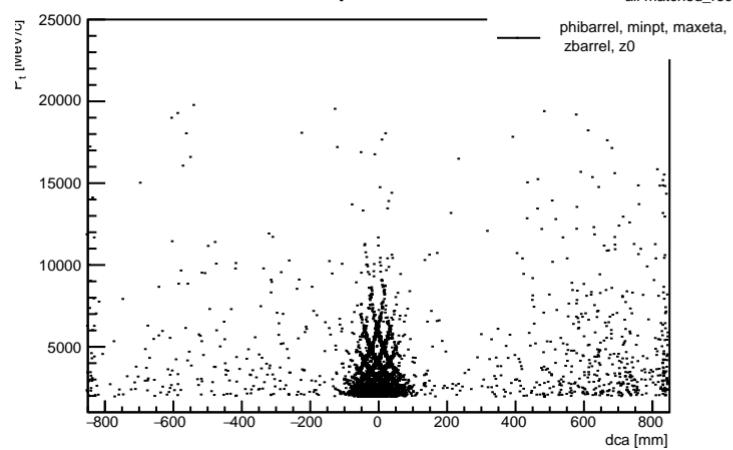


P_t Vs dca

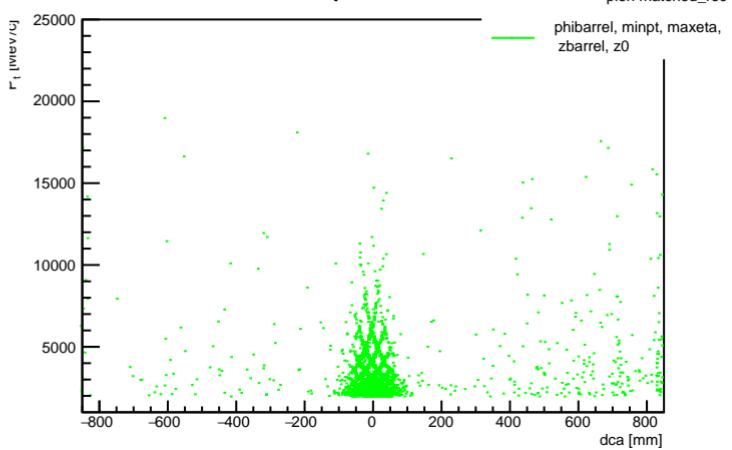
fakes



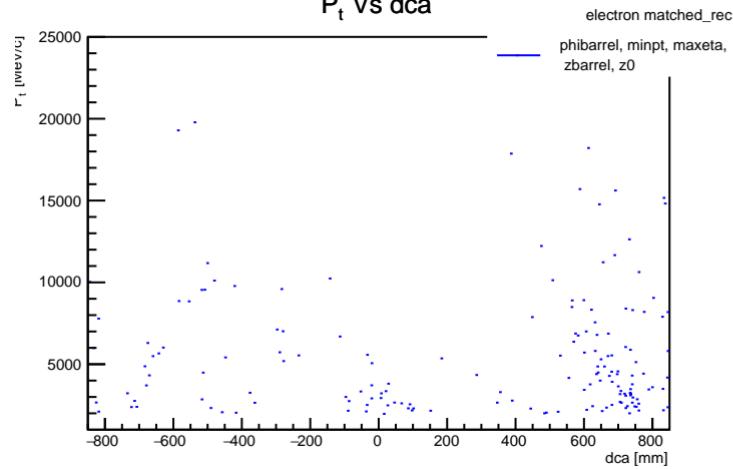
P_t Vs dca



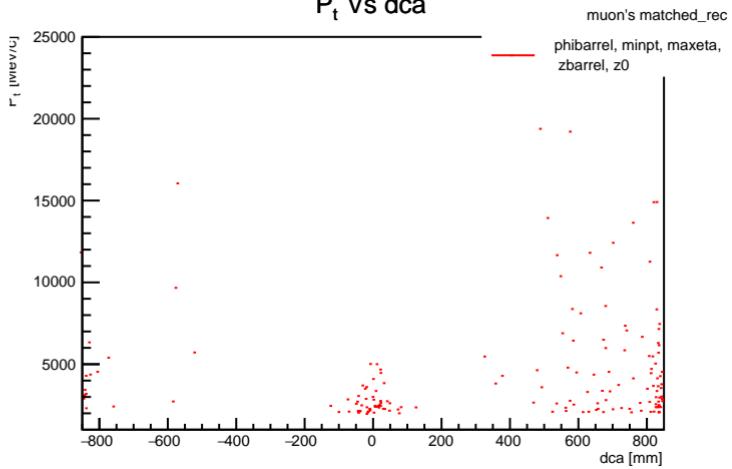
P_t Vs dca



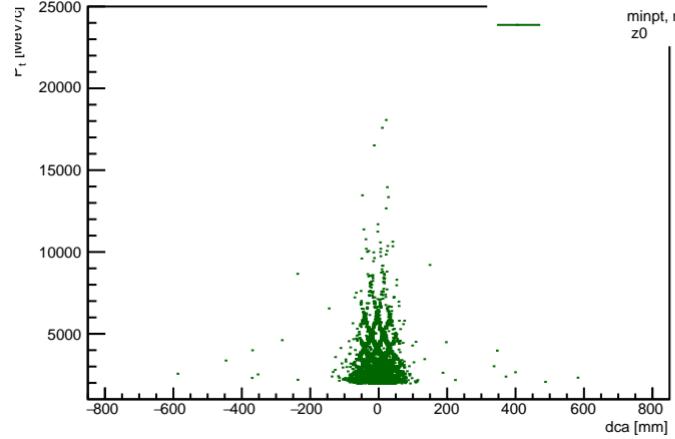
P_t Vs dca



P_t Vs dca



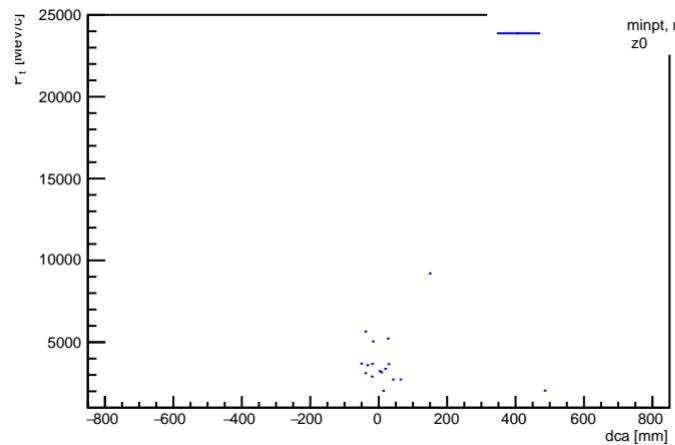
P_t Vs dca



all truth

minpt, maxeta,
z0

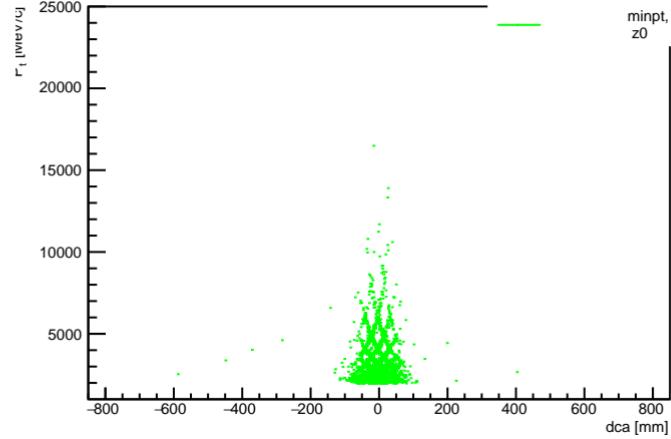
P_t Vs dca



electron truth

minpt, maxeta,
z0

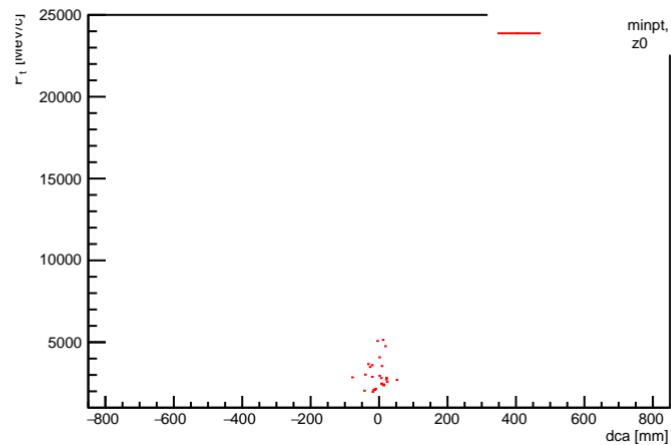
P_t Vs dca



pion truth

minpt, maxeta,
z0

P_t Vs dca

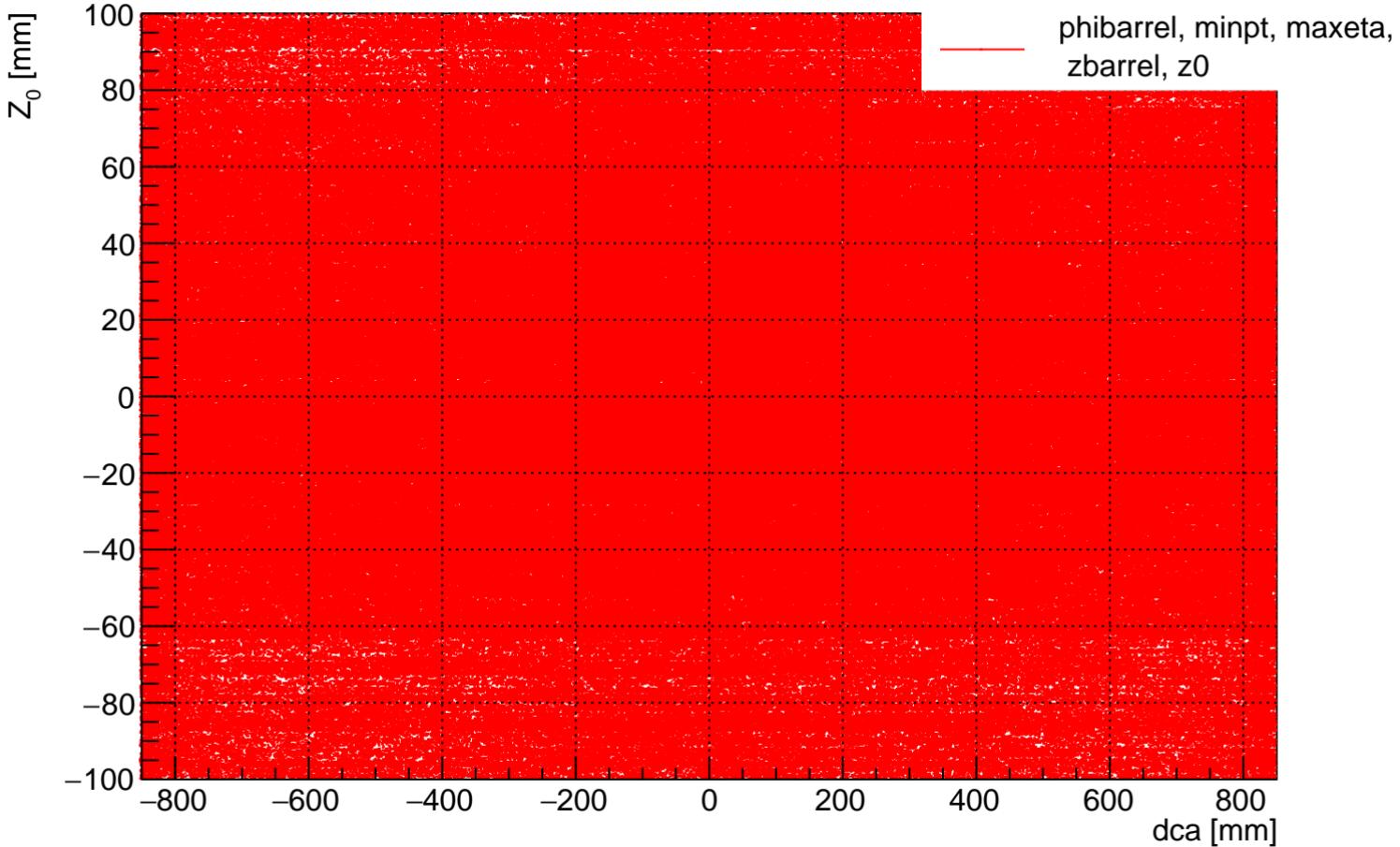


muon's truth

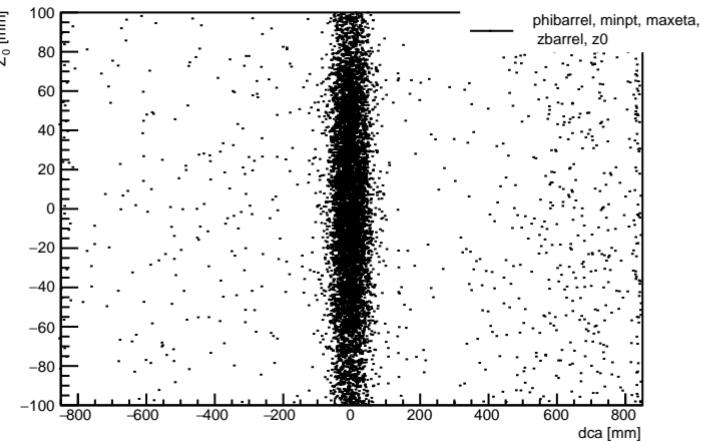
minpt, maxeta,
z0

Z_0 Vs dca

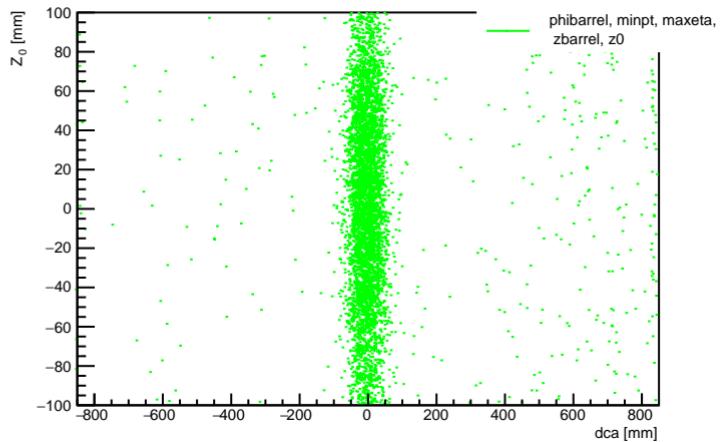
fakes



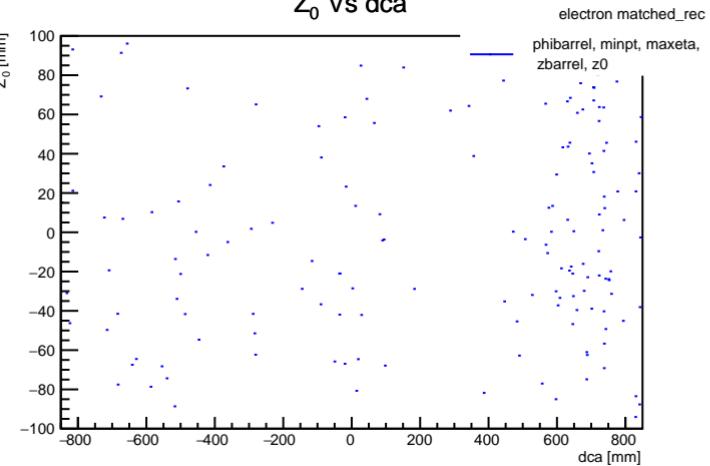
Z_0 Vs dca



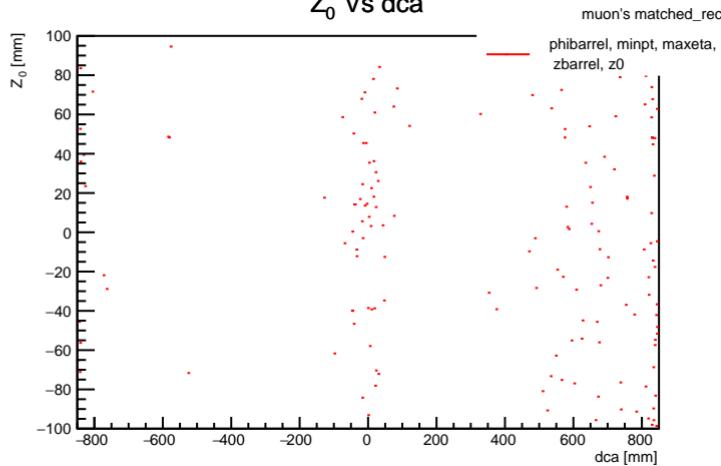
Z_0 Vs dca



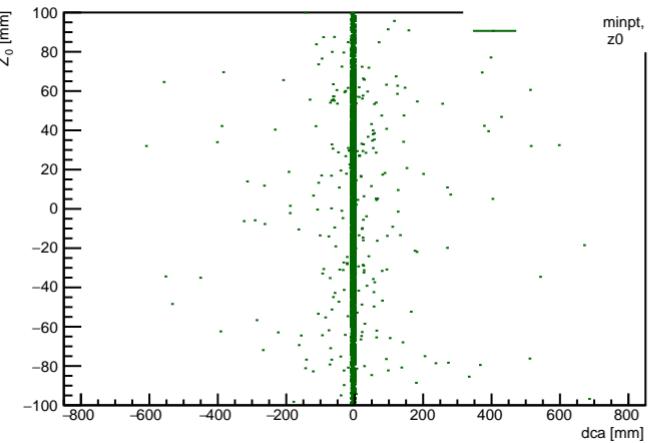
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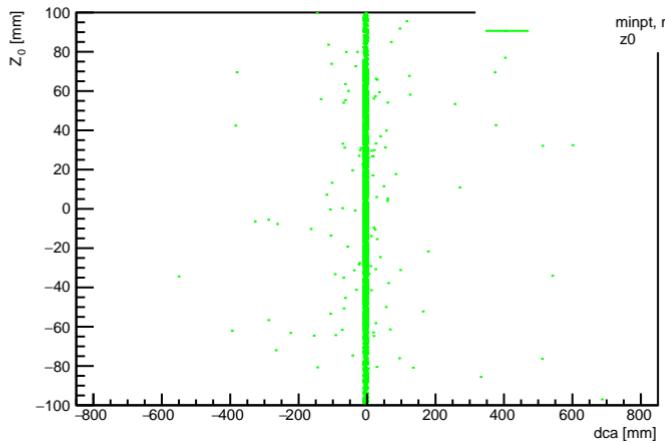
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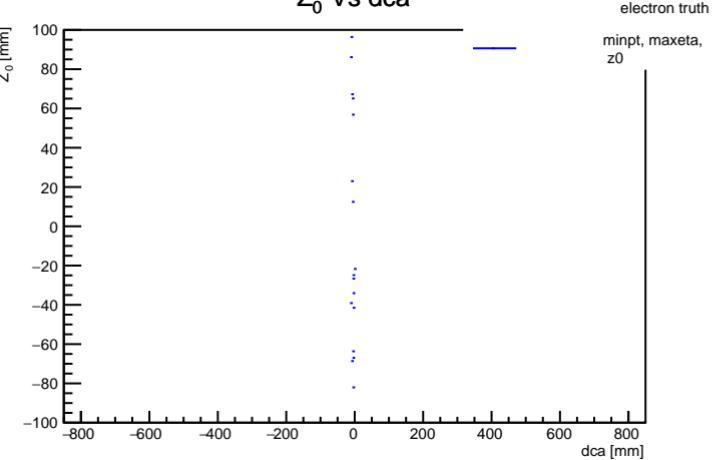
Z_0 Vs dca



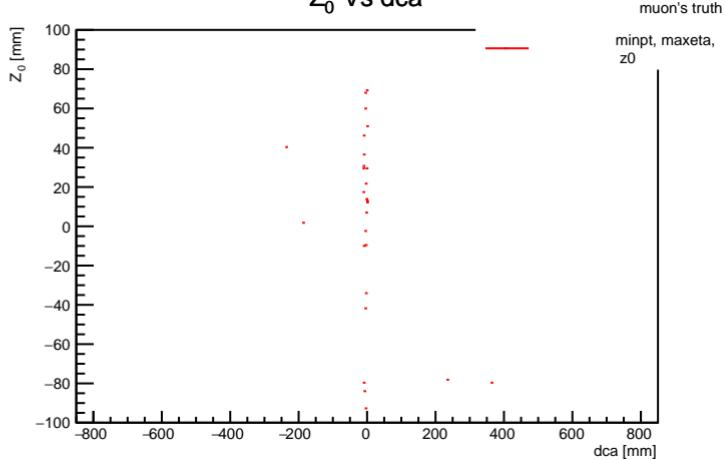
Z_0 Vs dca



Z_0 Vs dca

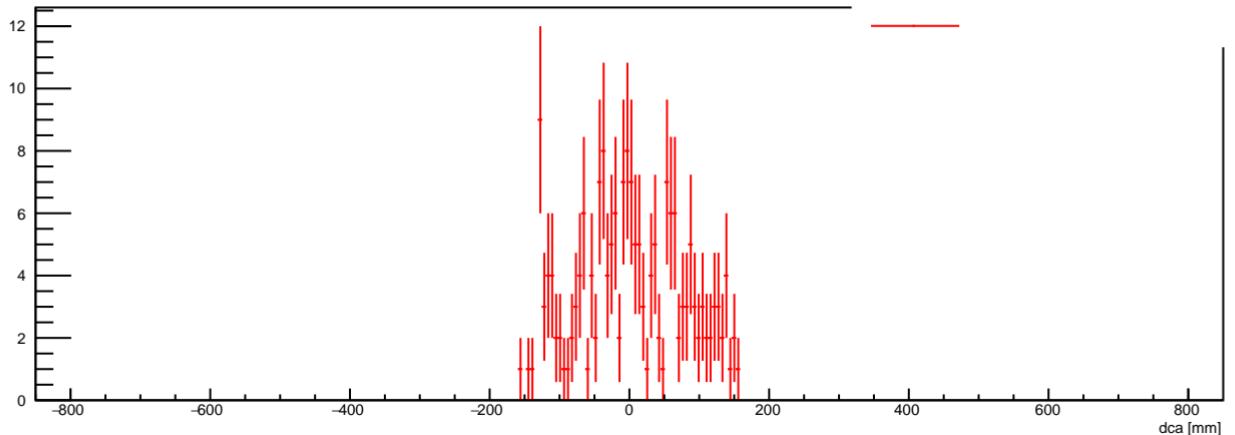


Z_0 Vs dca



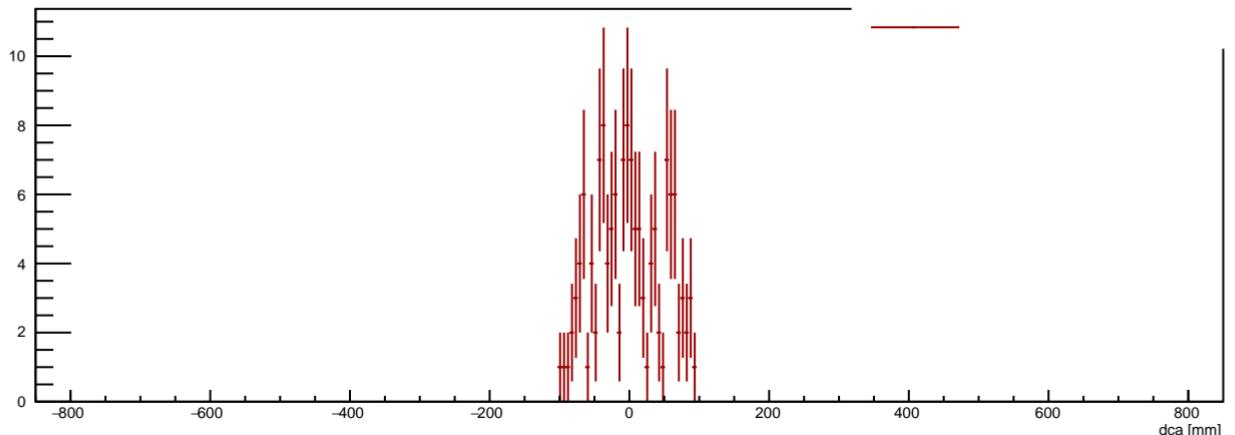
dca

fakes

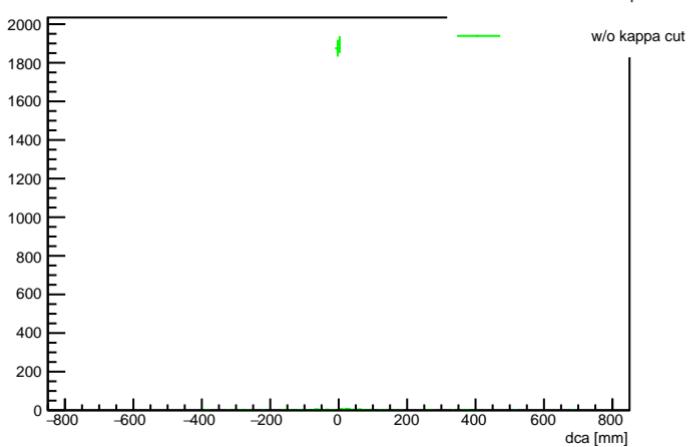


dca

fakes



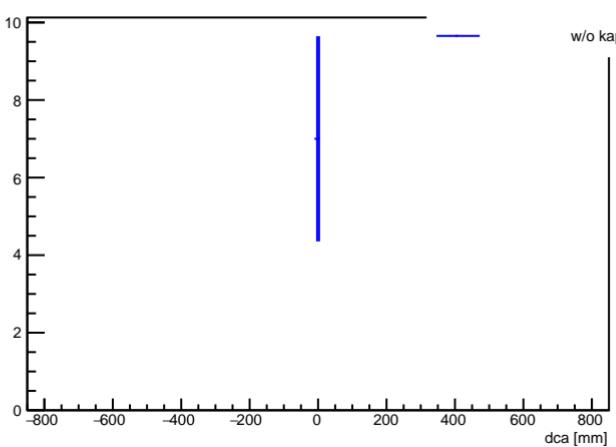
dca



pion truth

w/o kappa cut

dca

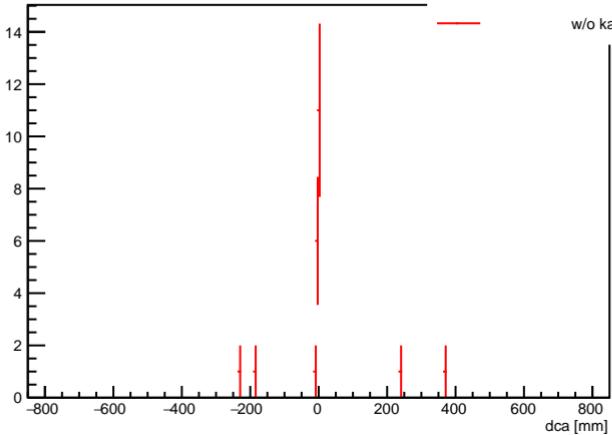


electron truth

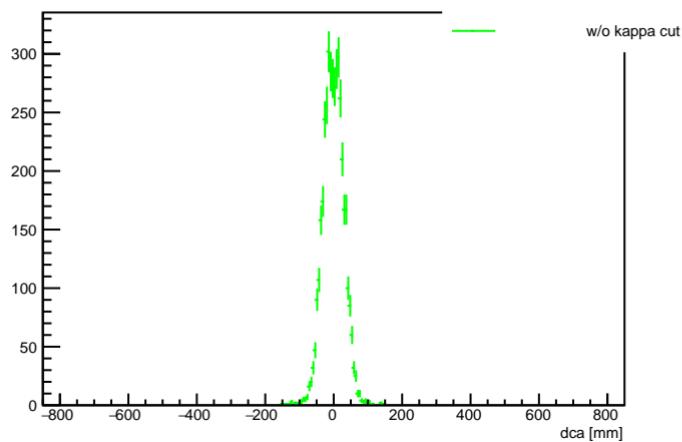
muon truth

w/o kappa cut

dca



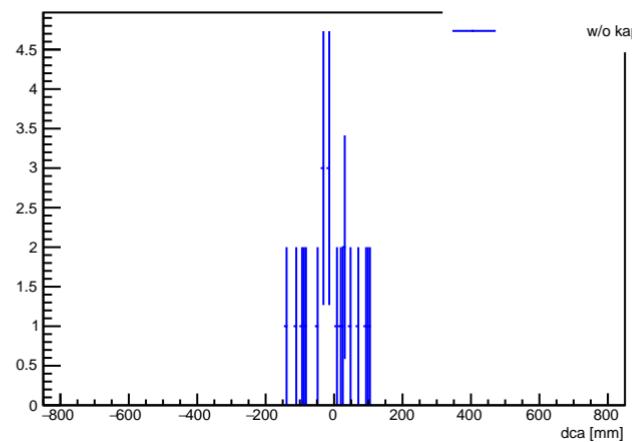
dca



pion matched_rec

w/o kappa cut

dca



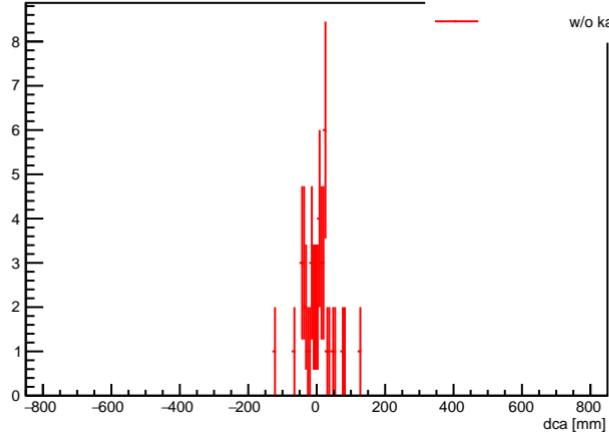
electron matched_rec

w/o kappa cut

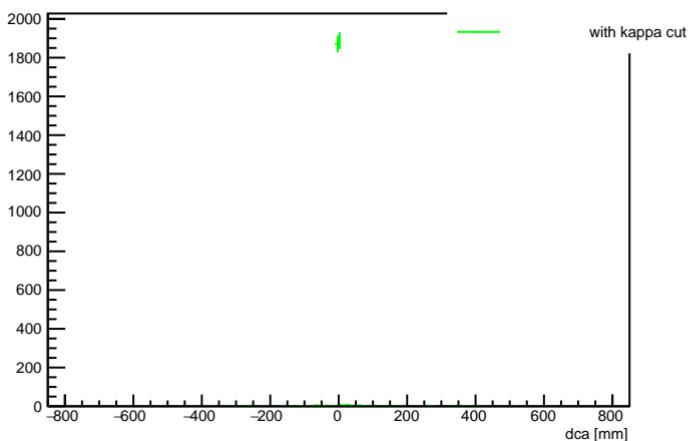
dca

muon matched_rec

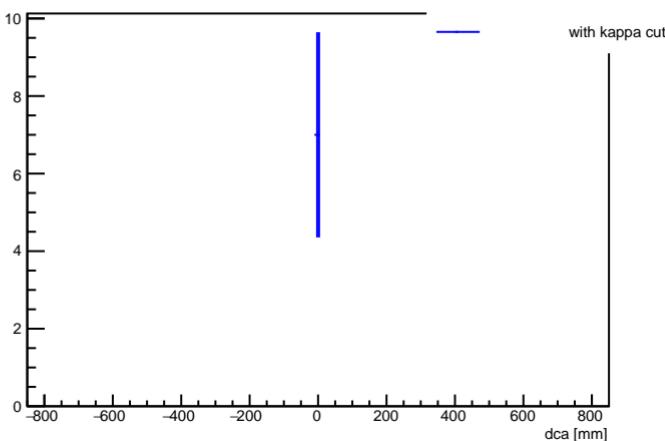
w/o kappa cut



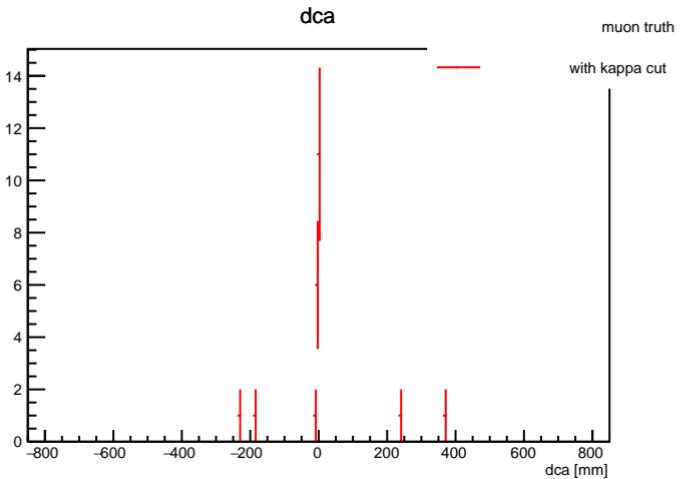
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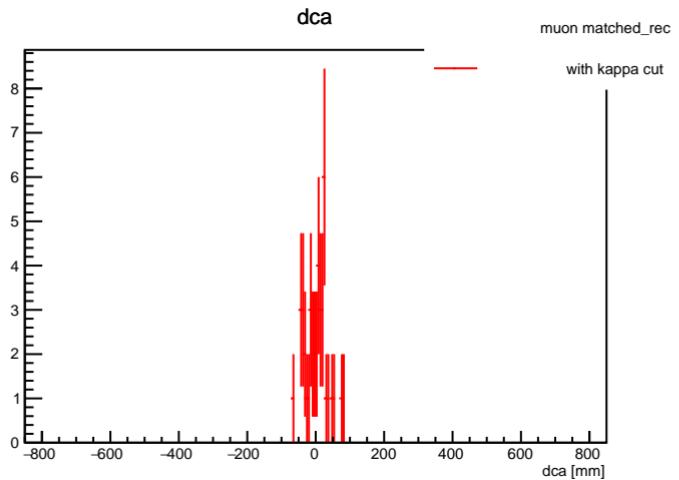
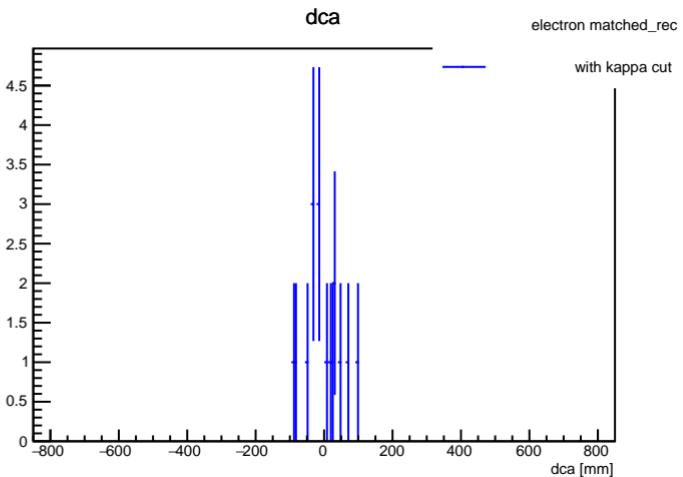
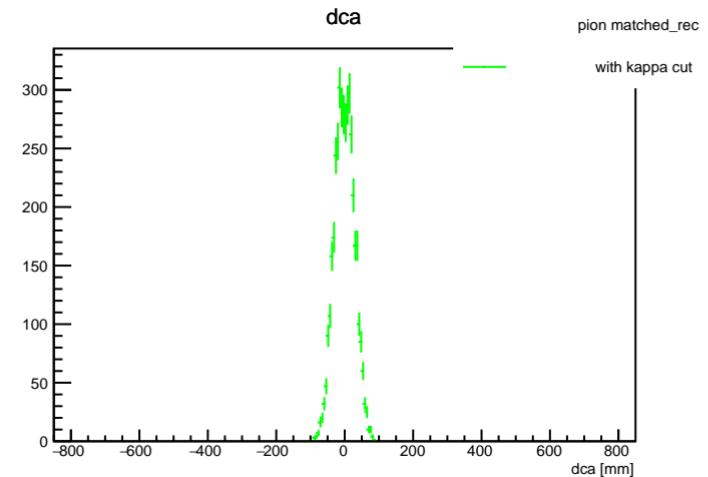


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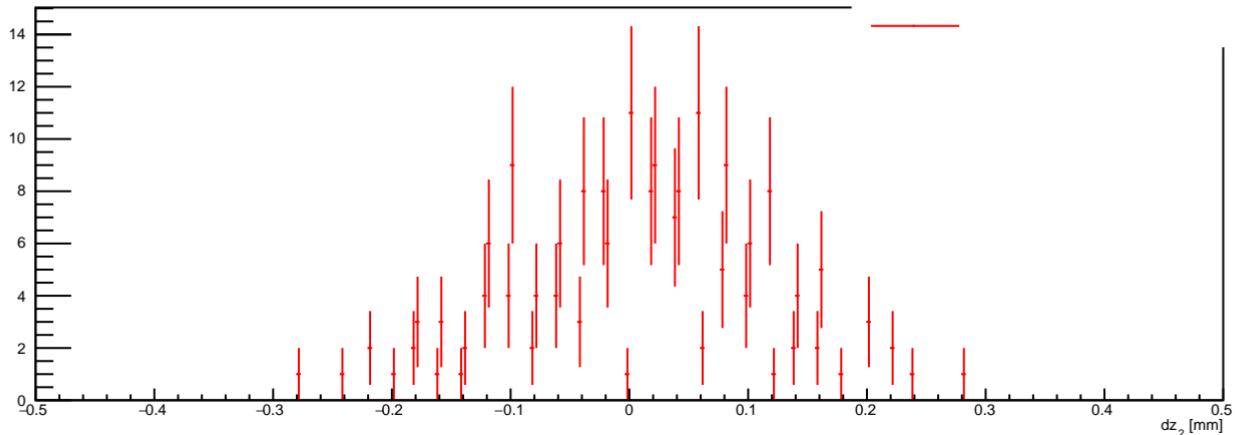
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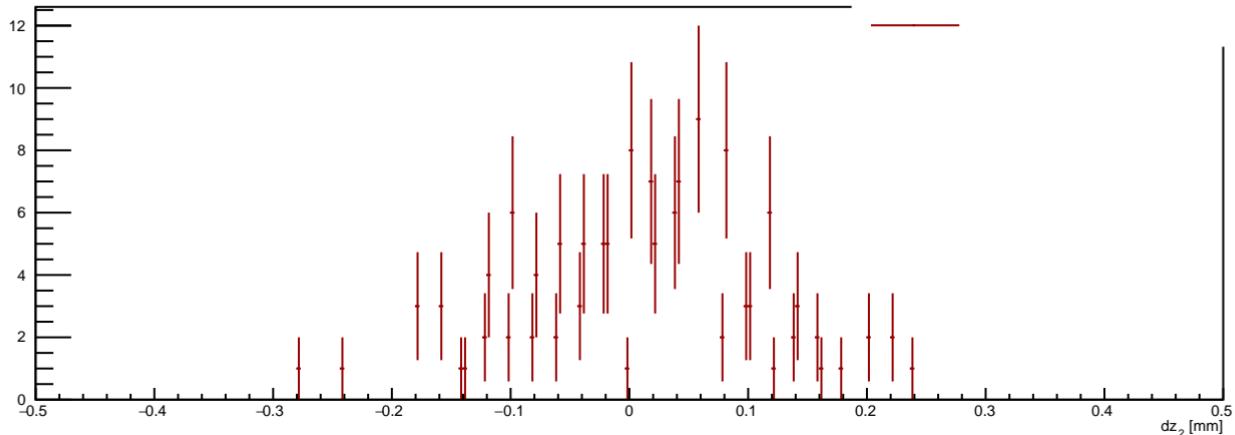


dz_2

fakes

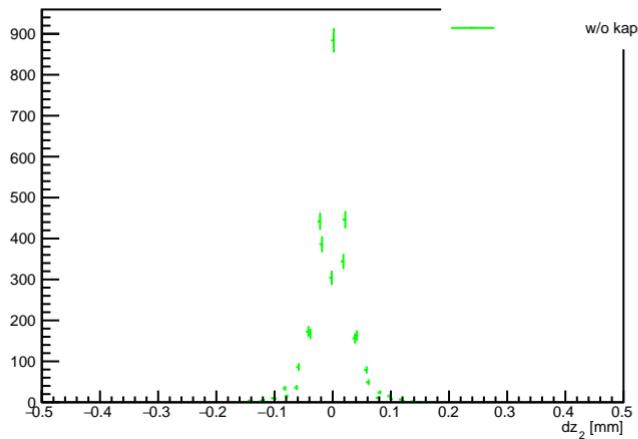
 dz_2

fakes

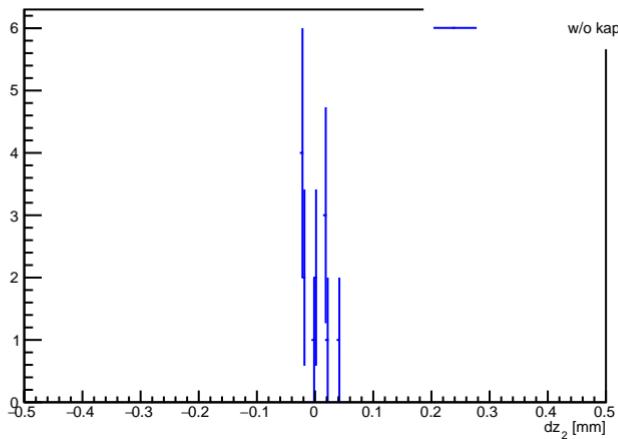


dz_2

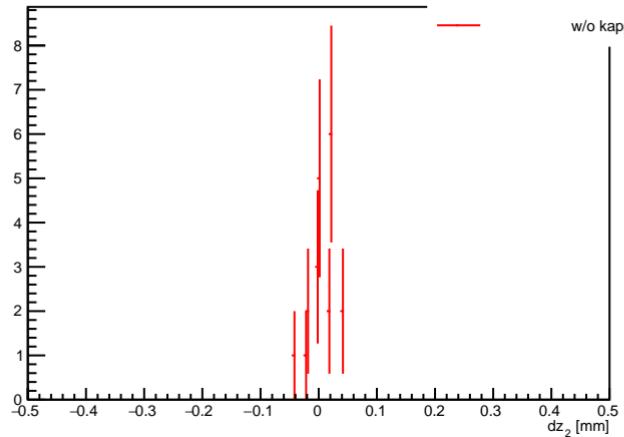
pion truth

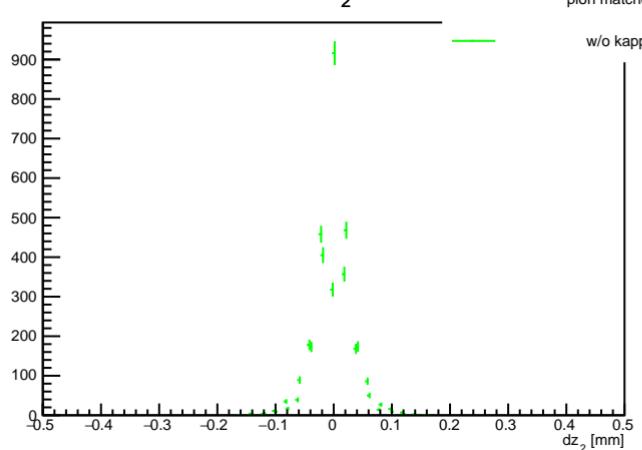
 dz_2

electron truth

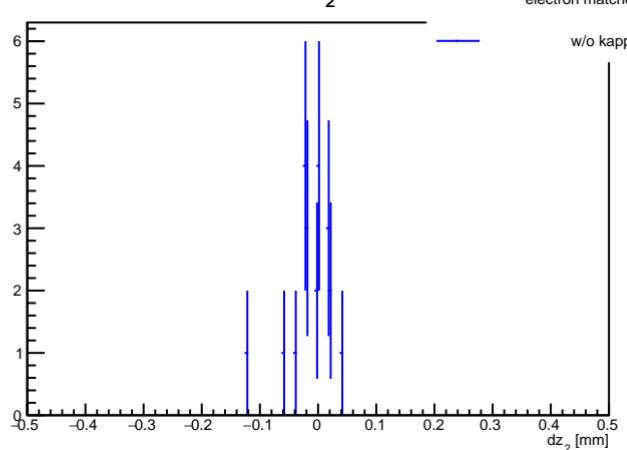
 dz_2

muon truth

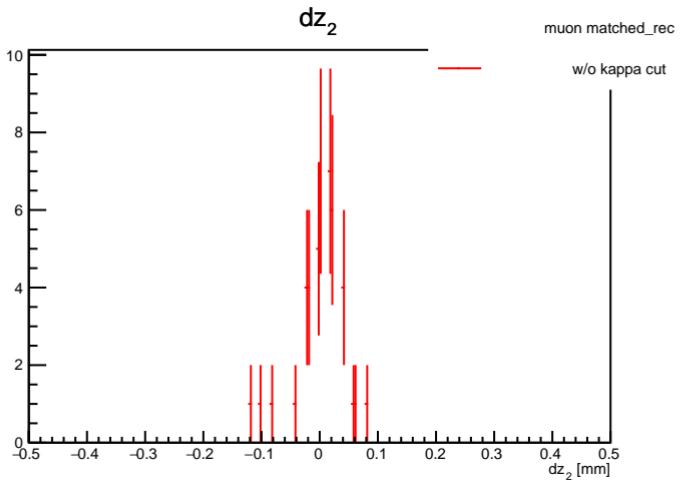


dz_2 

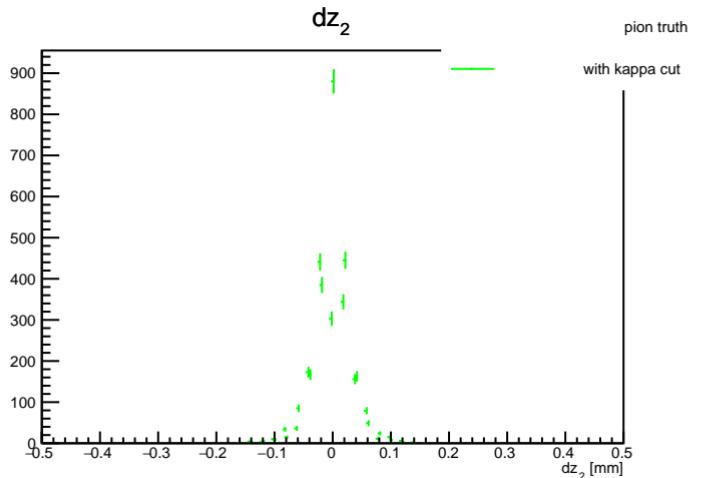
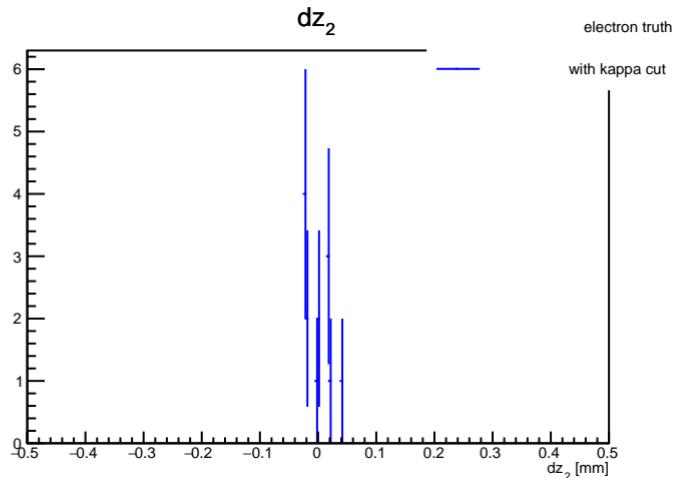
pion matched_rec

 dz_2 

electron matched_rec

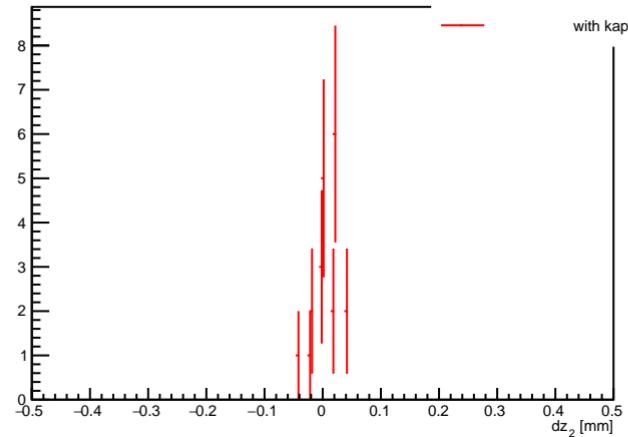
 dz_2 

muon matched_rec

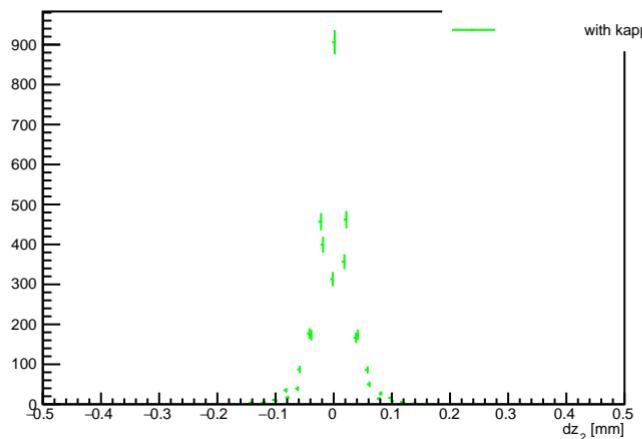
dz_2  dz_2  dz_2

muon truth

with kappa cut



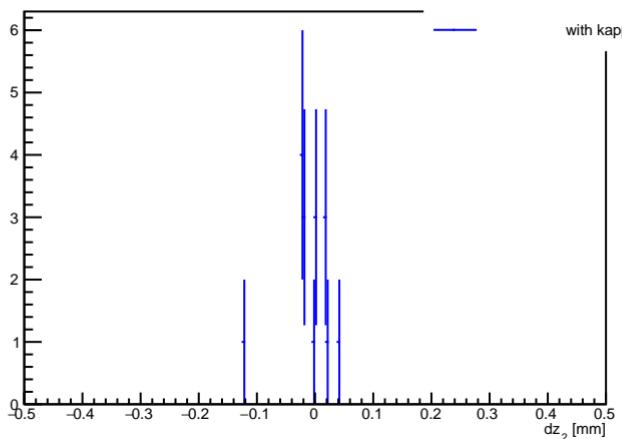
dz_2



pion matched_rec

with kappa cut

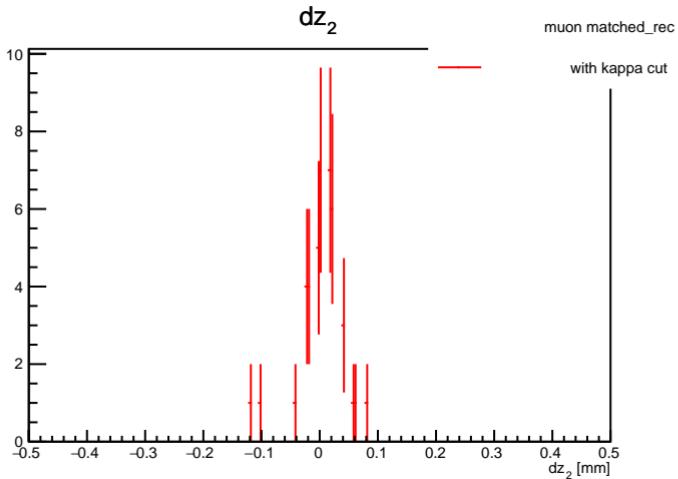
dz_2



electron matched_rec

with kappa cut

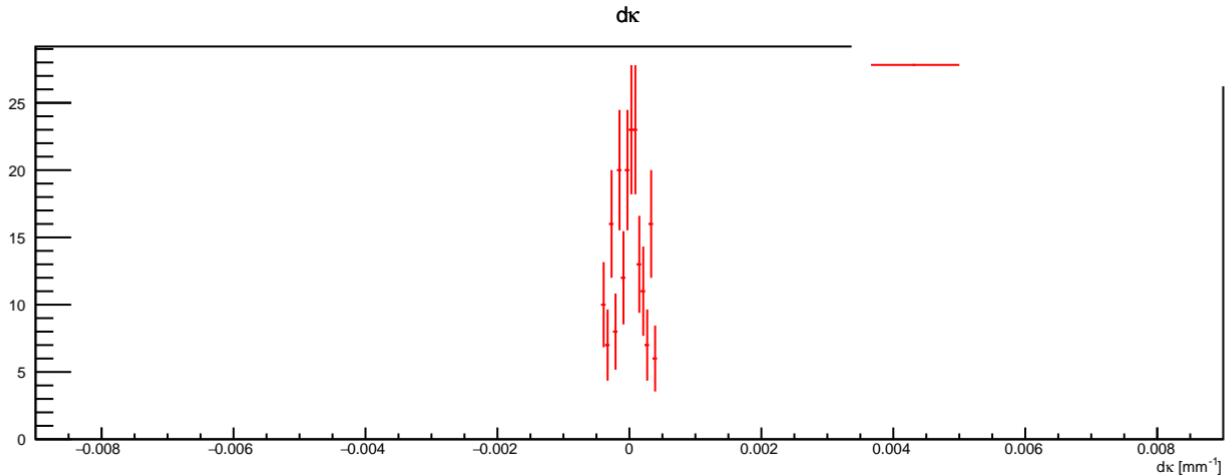
dz_2



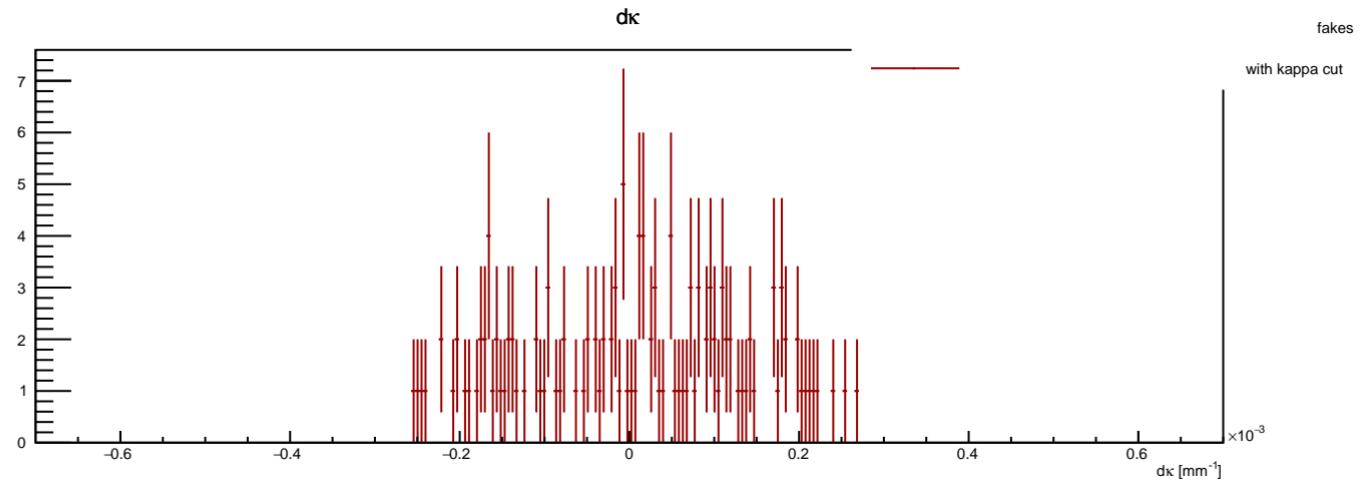
muon matched_rec

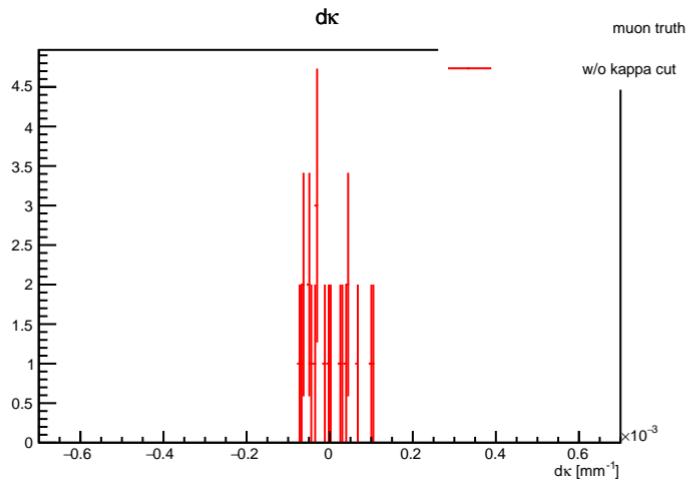
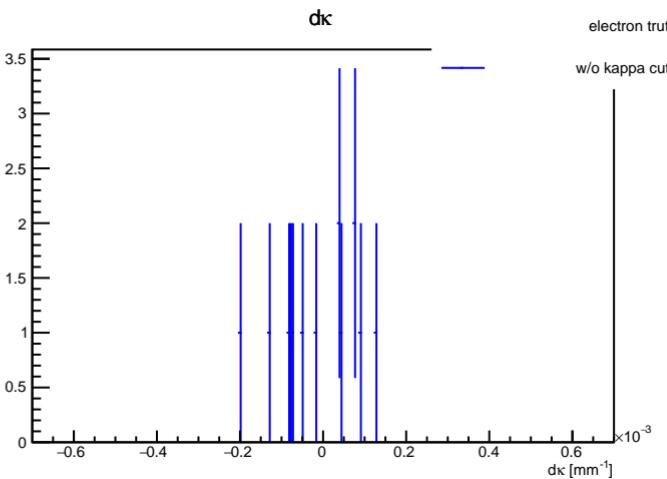
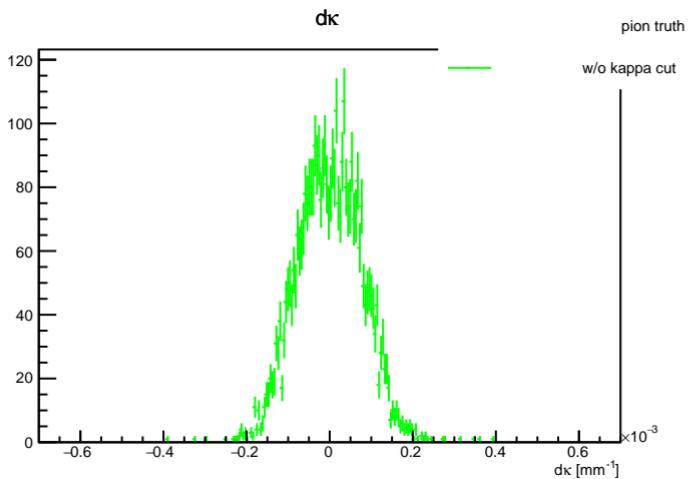
with kappa cut

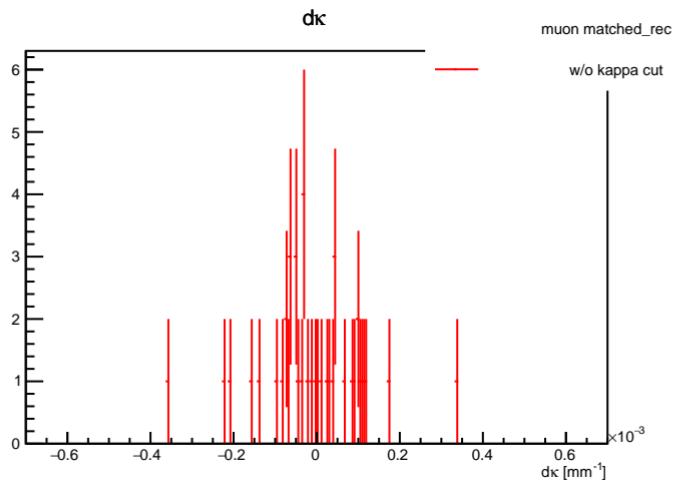
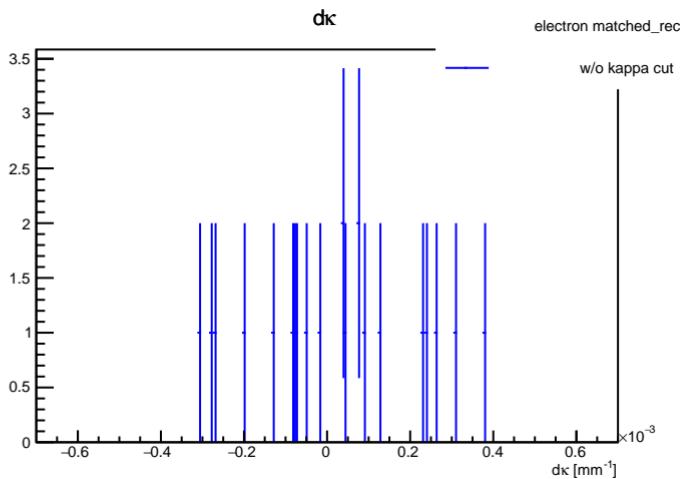
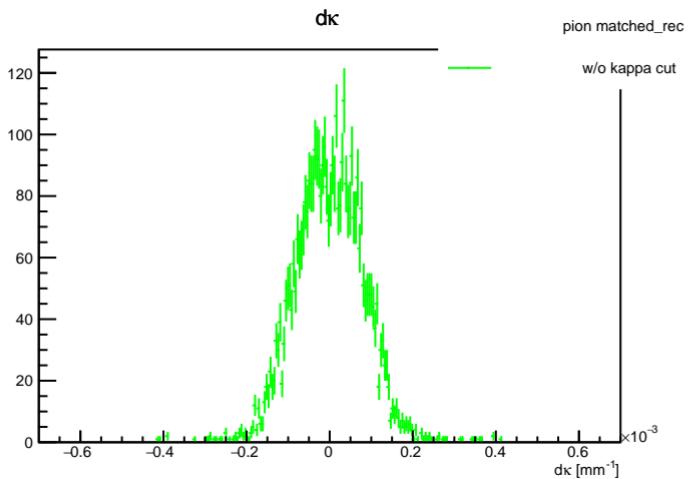
fakes

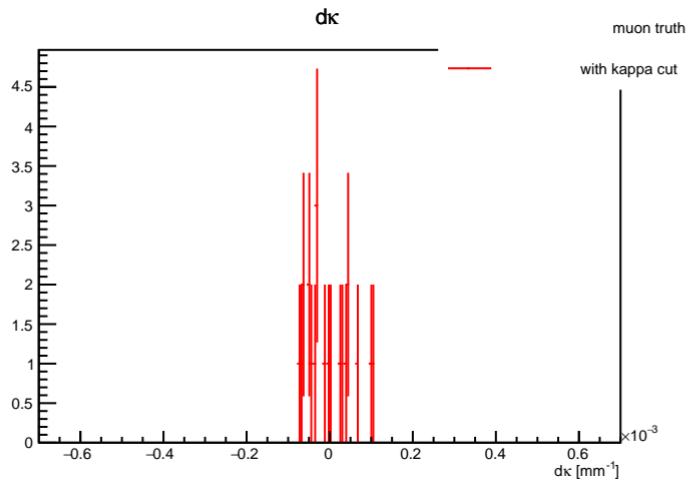
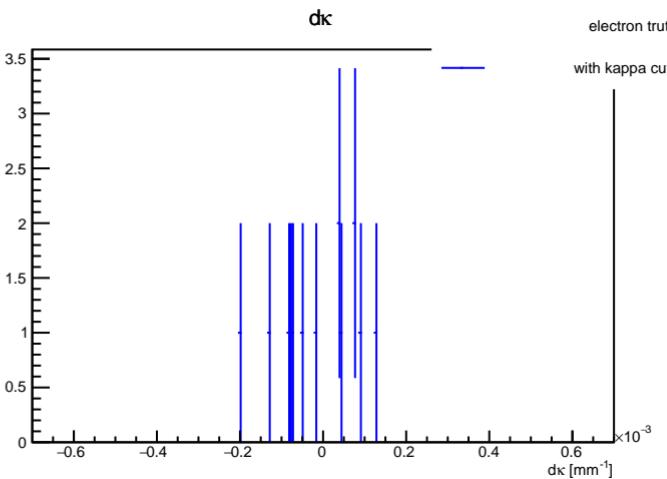
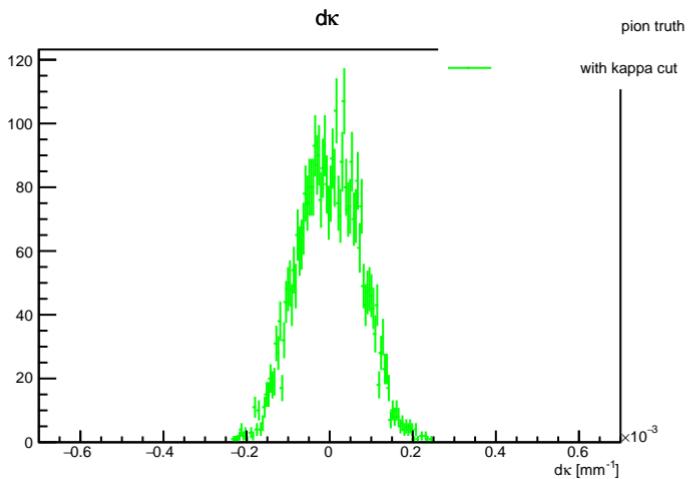


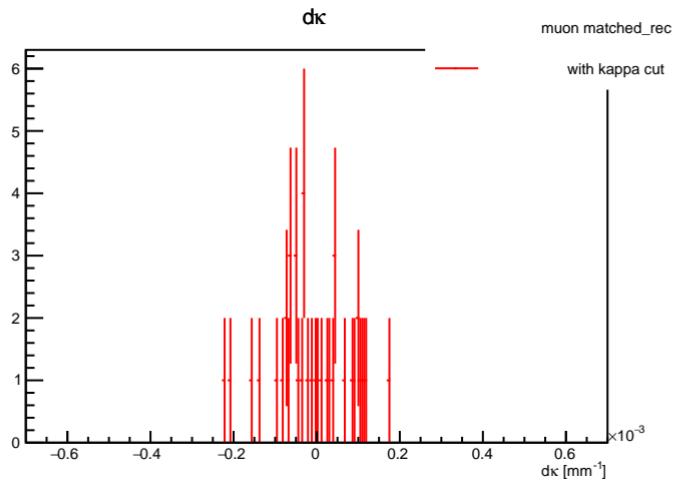
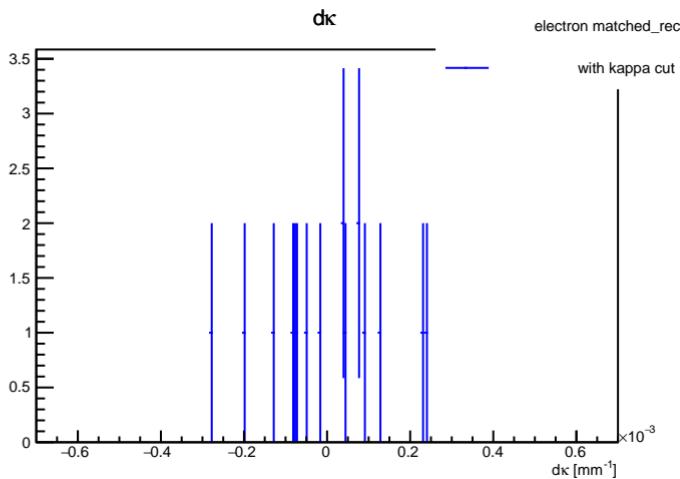
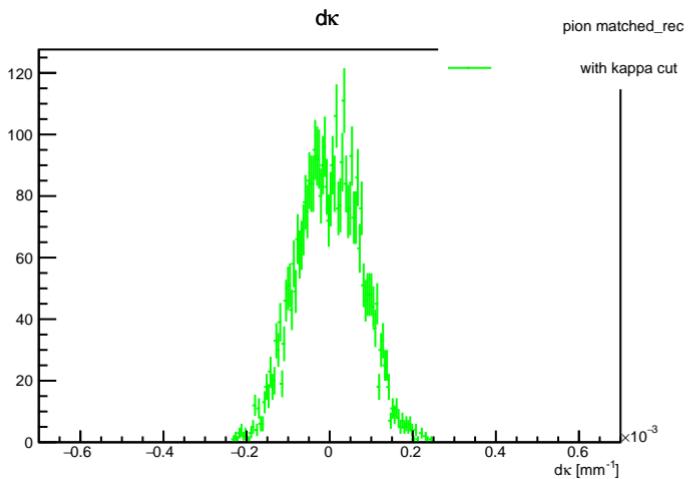
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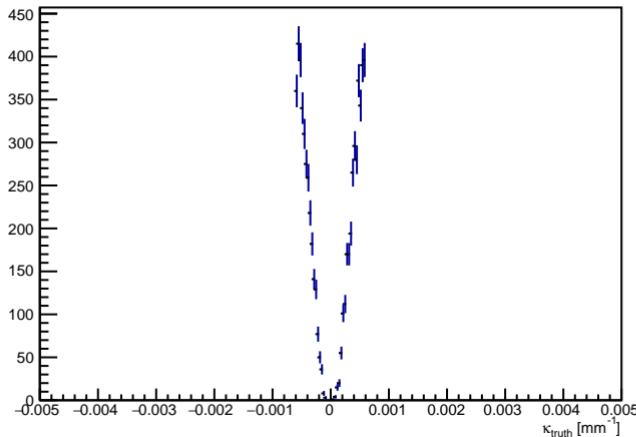




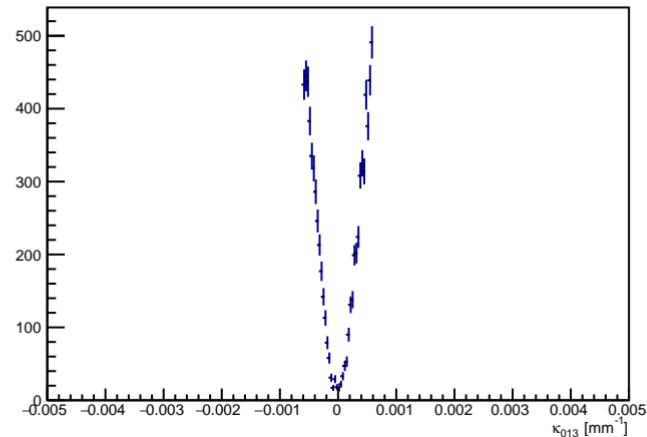




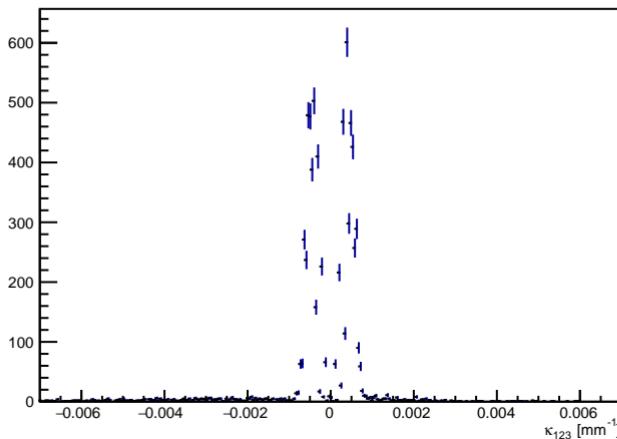
kappa truth

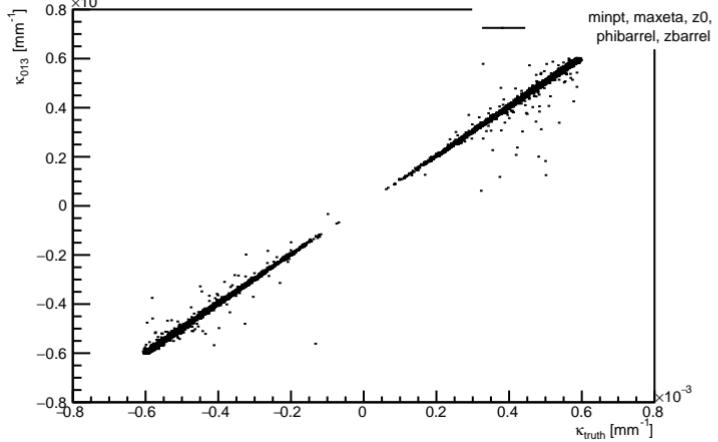
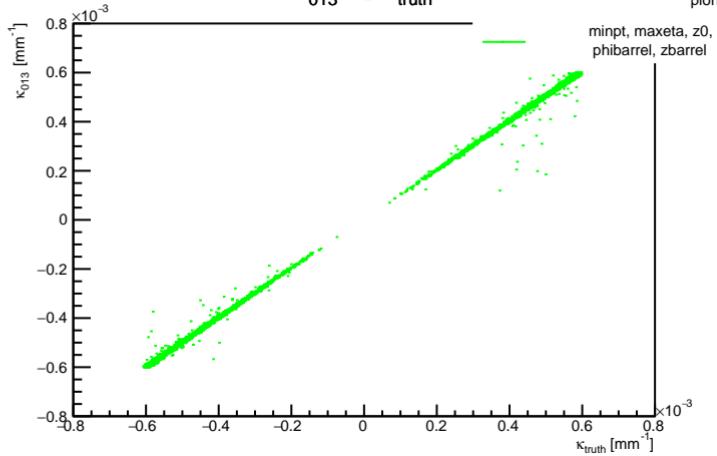
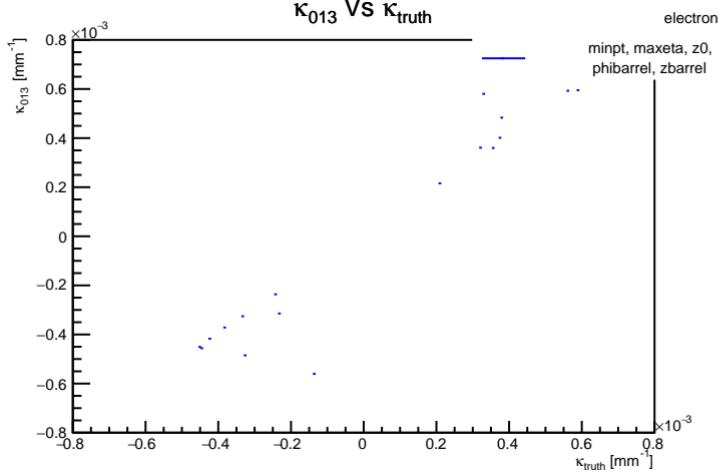
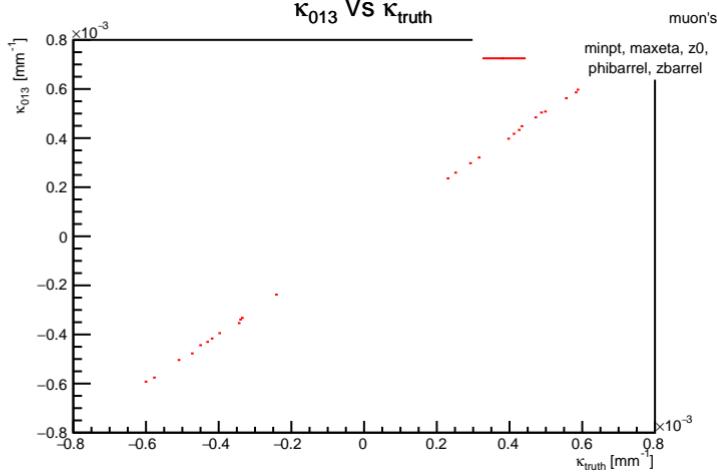


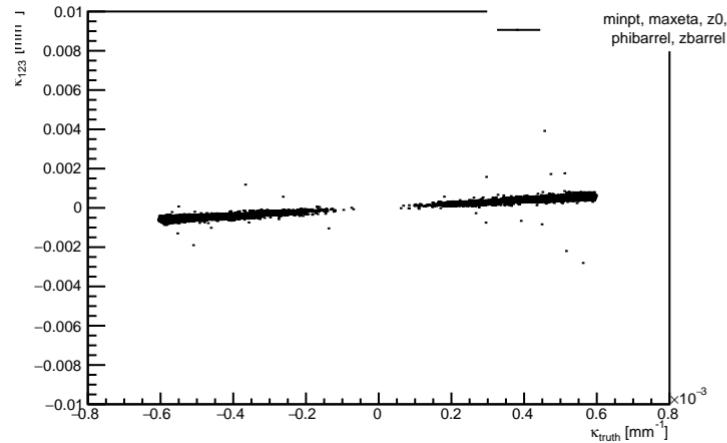
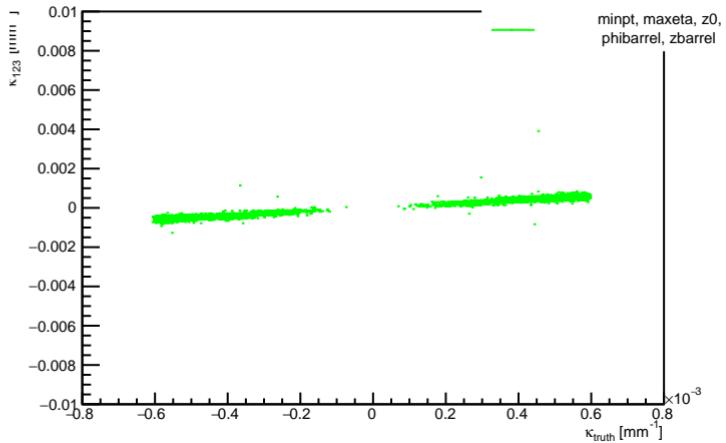
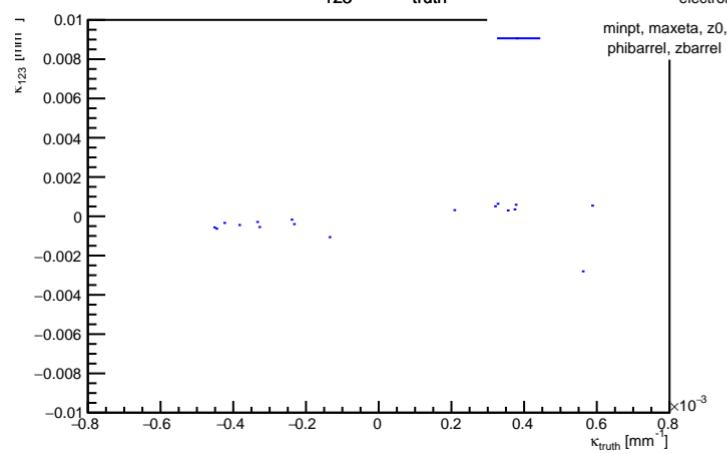
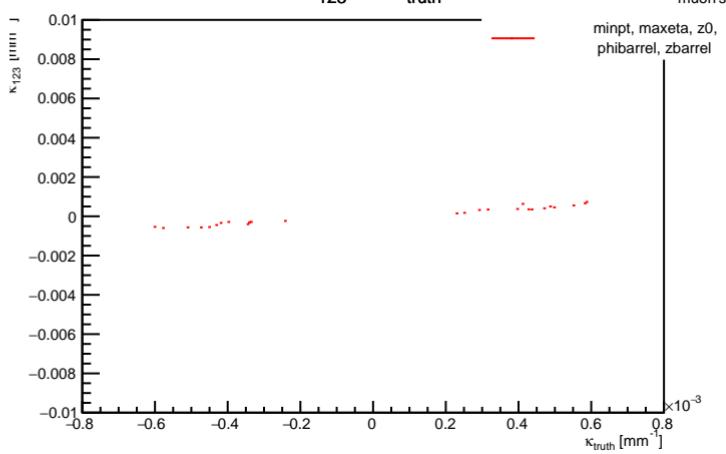
kappa rec with bml constraint

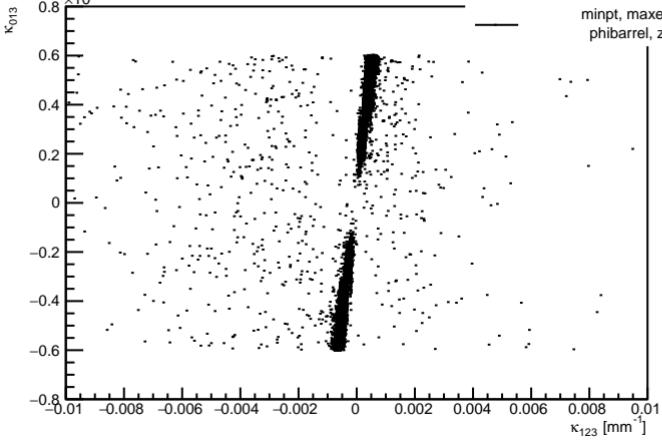
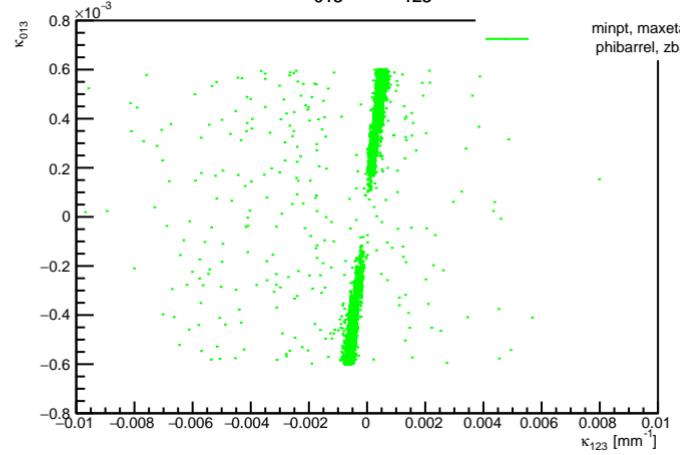
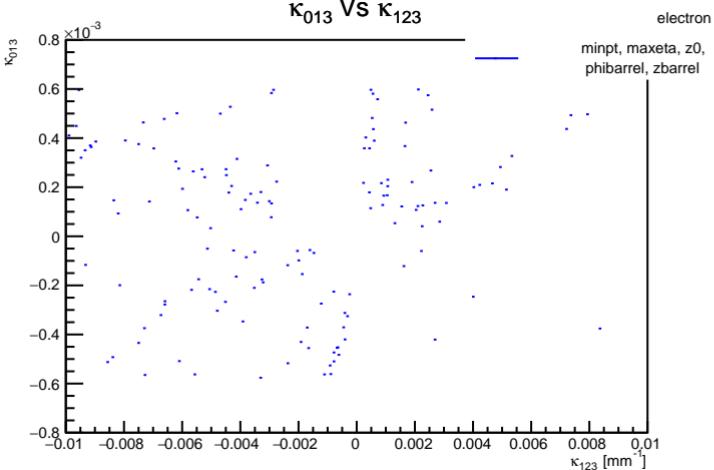
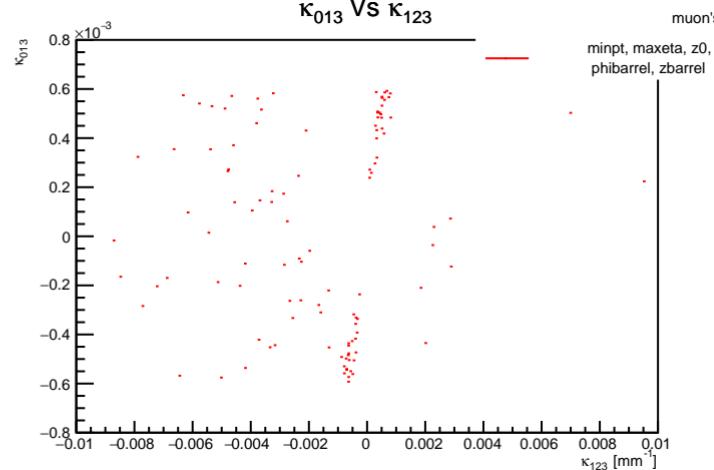


kappa rec w/o bml constraint



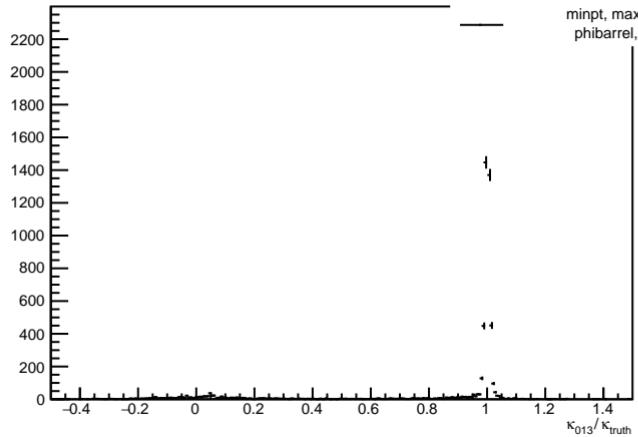
κ_{013} Vs κ_{truth}  κ_{013} Vs κ_{truth}  κ_{013} Vs κ_{truth}  κ_{013} Vs κ_{truth} 

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

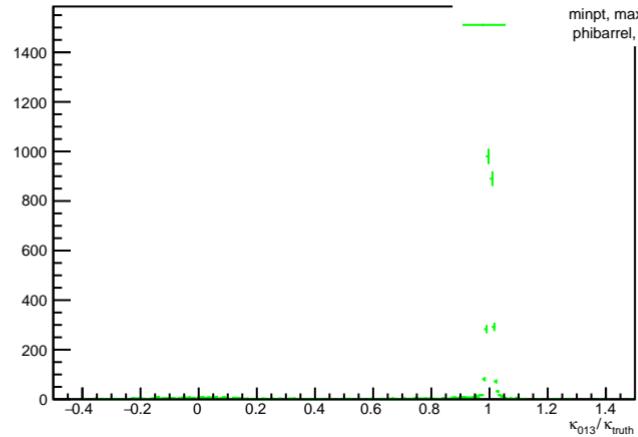
κ_{013} Vs κ_{123}  κ_{013} Vs κ_{123}  κ_{013} Vs κ_{123}  κ_{013} Vs κ_{123} 

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

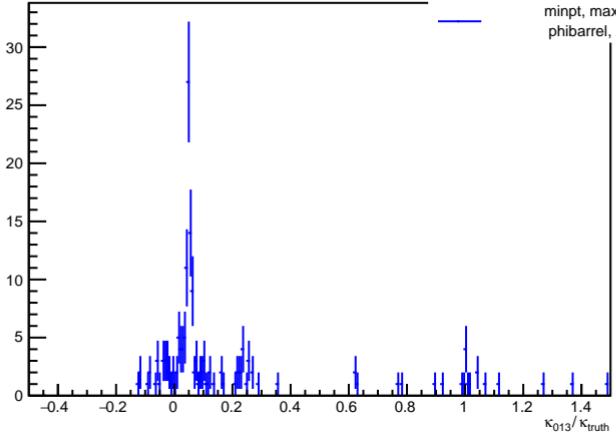
all

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

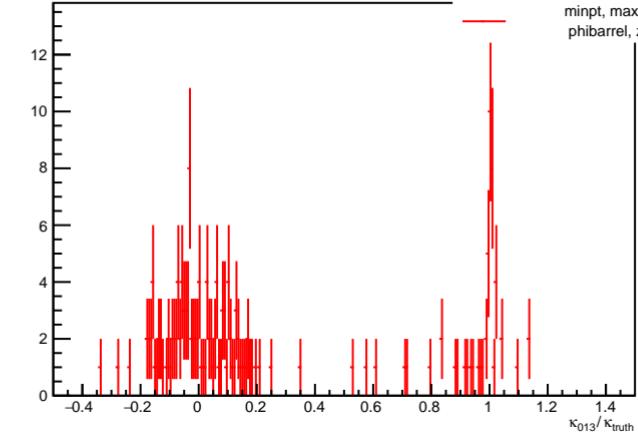
pion

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

electron

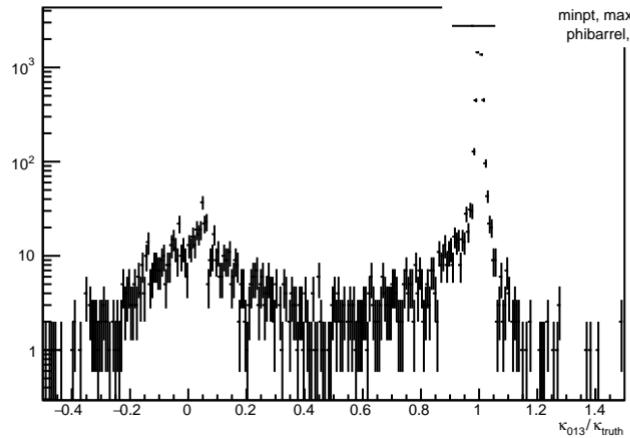
 $\kappa_{013}/\kappa_{\text{truth}}$

muon's

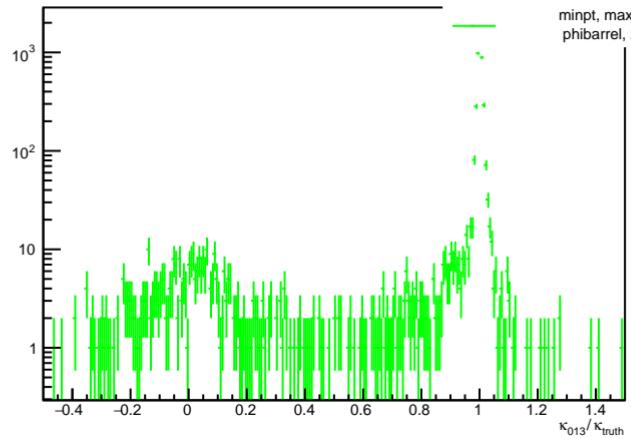


$\kappa_{013}/\kappa_{\text{truth}}$

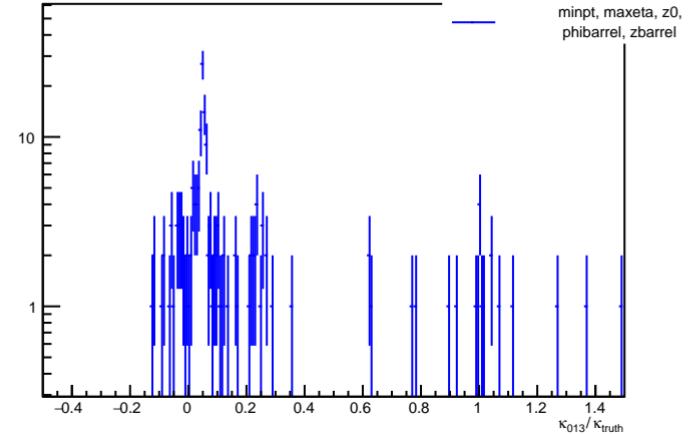
all

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

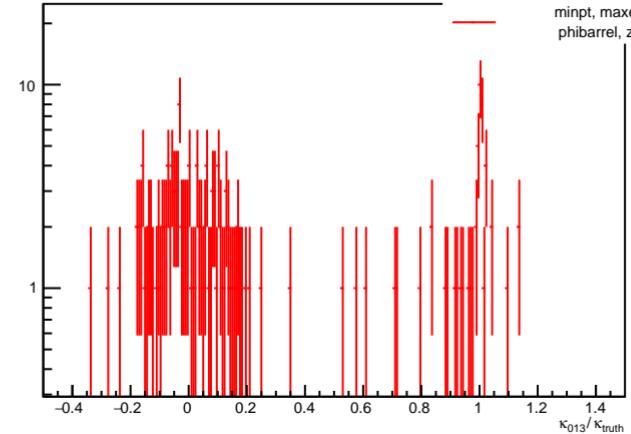
pion

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

electron

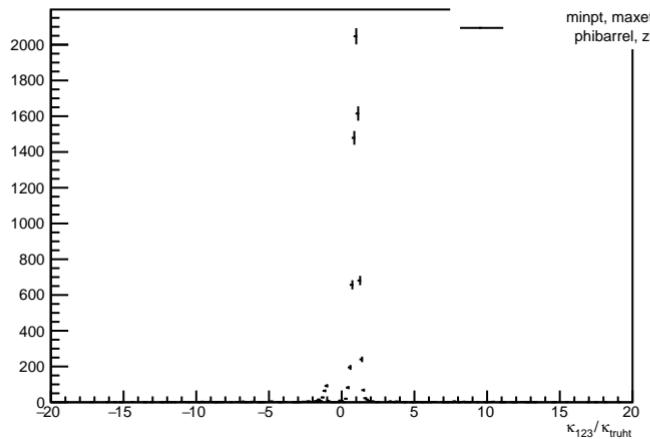
 $\kappa_{013}/\kappa_{\text{truth}}$

muon's

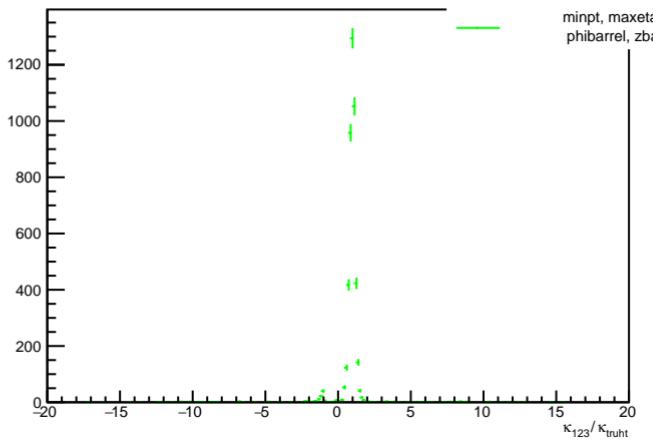


$\kappa_{123}/\kappa_{\text{truth}}$

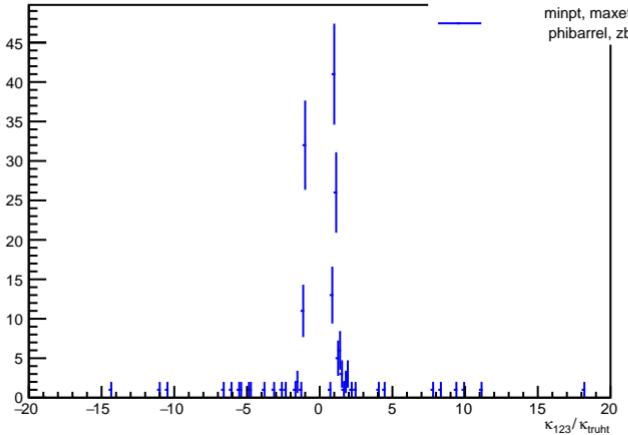
all

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

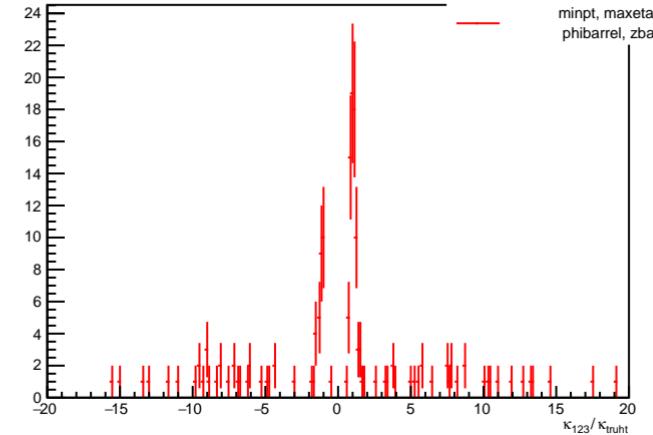
pion

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

electron

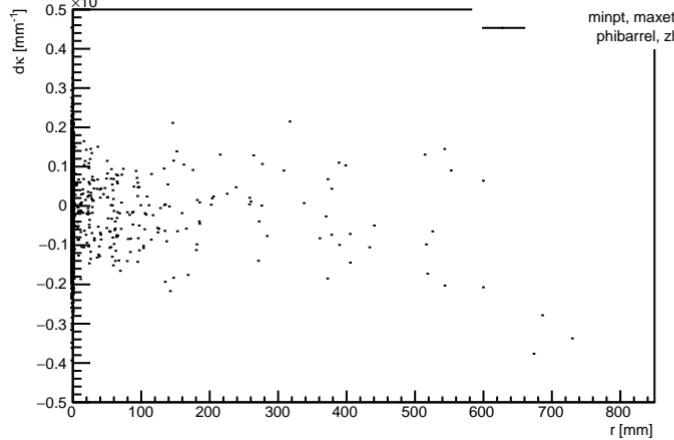
 $\kappa_{123}/\kappa_{\text{truth}}$

muon's



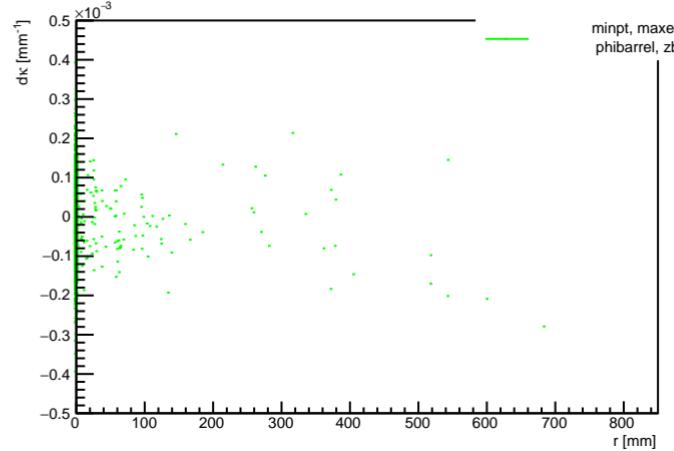
dk Vs r

all



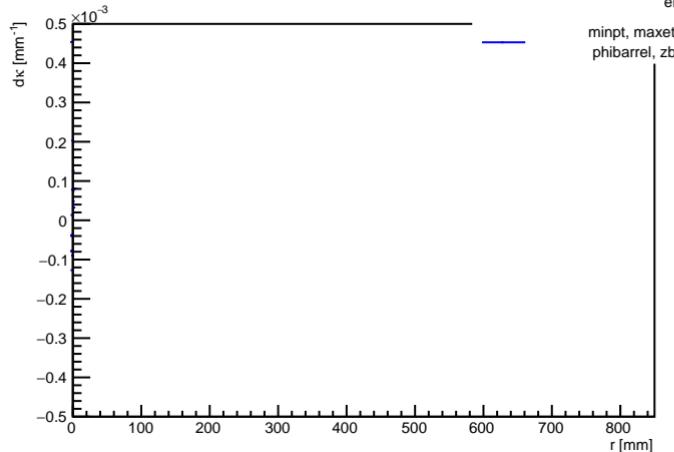
dk Vs r

pion



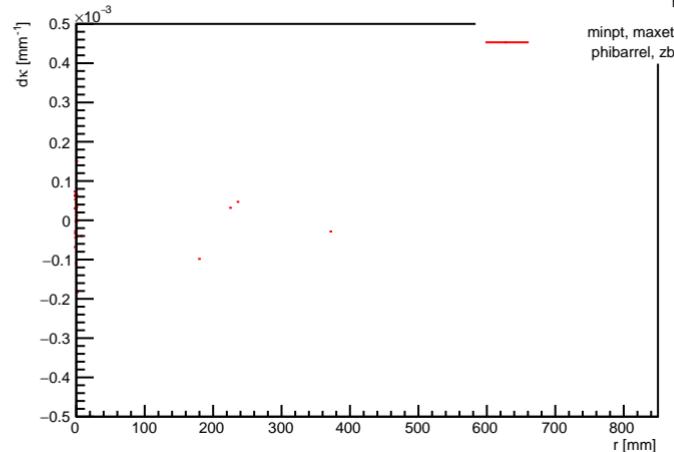
dk Vs r

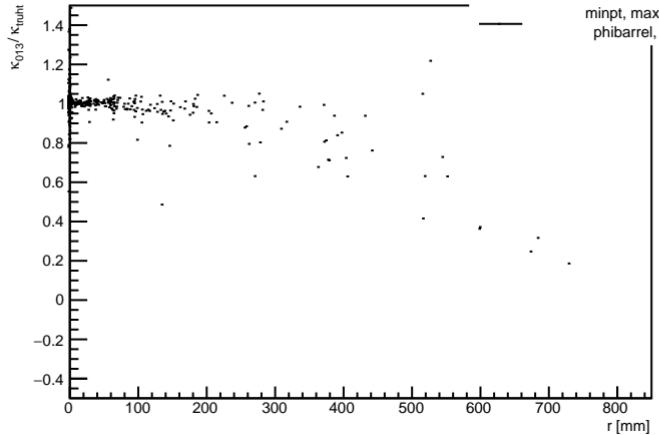
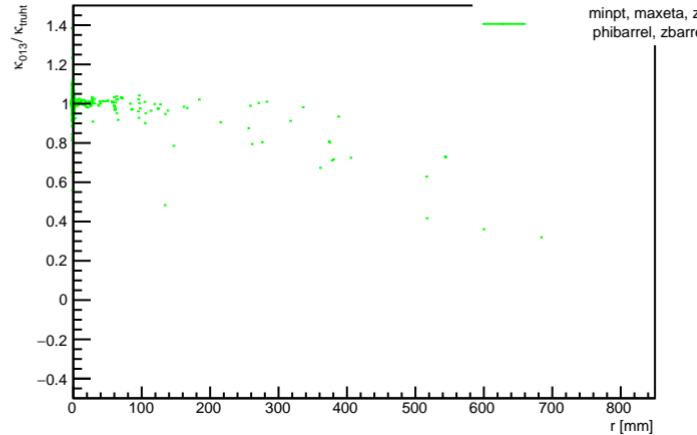
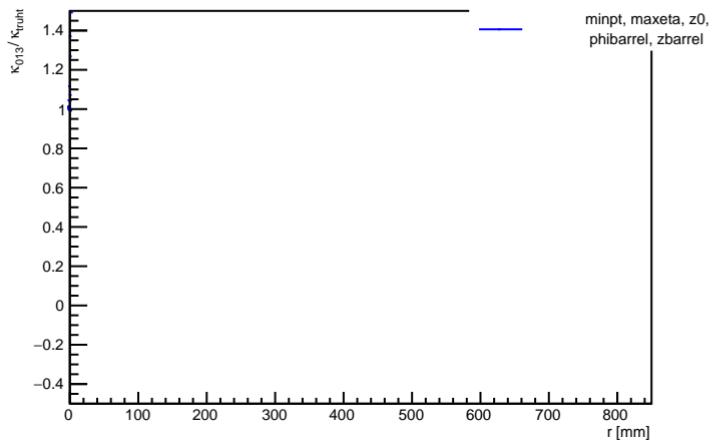
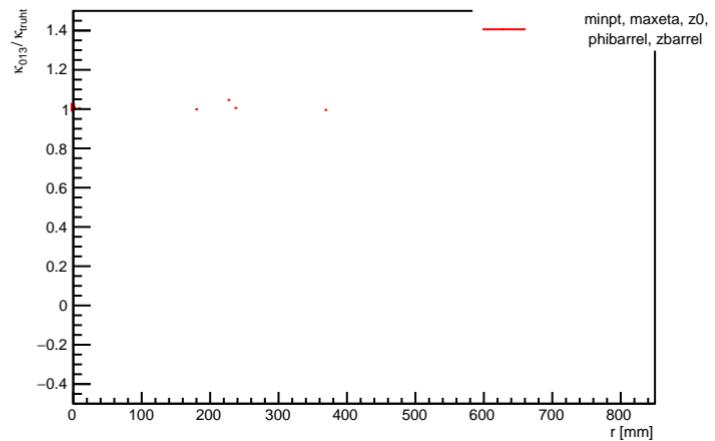
electron



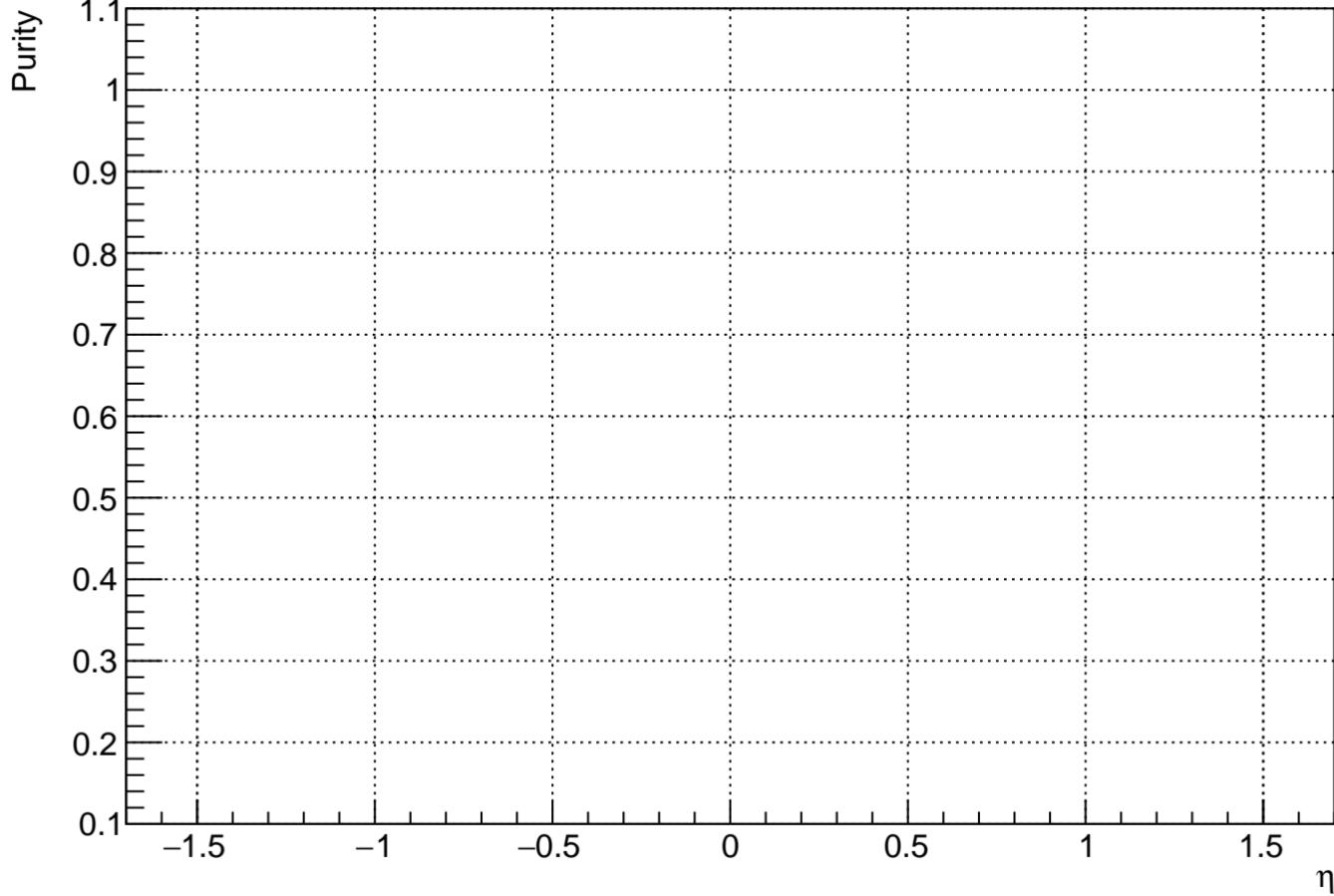
dk Vs r

muon's

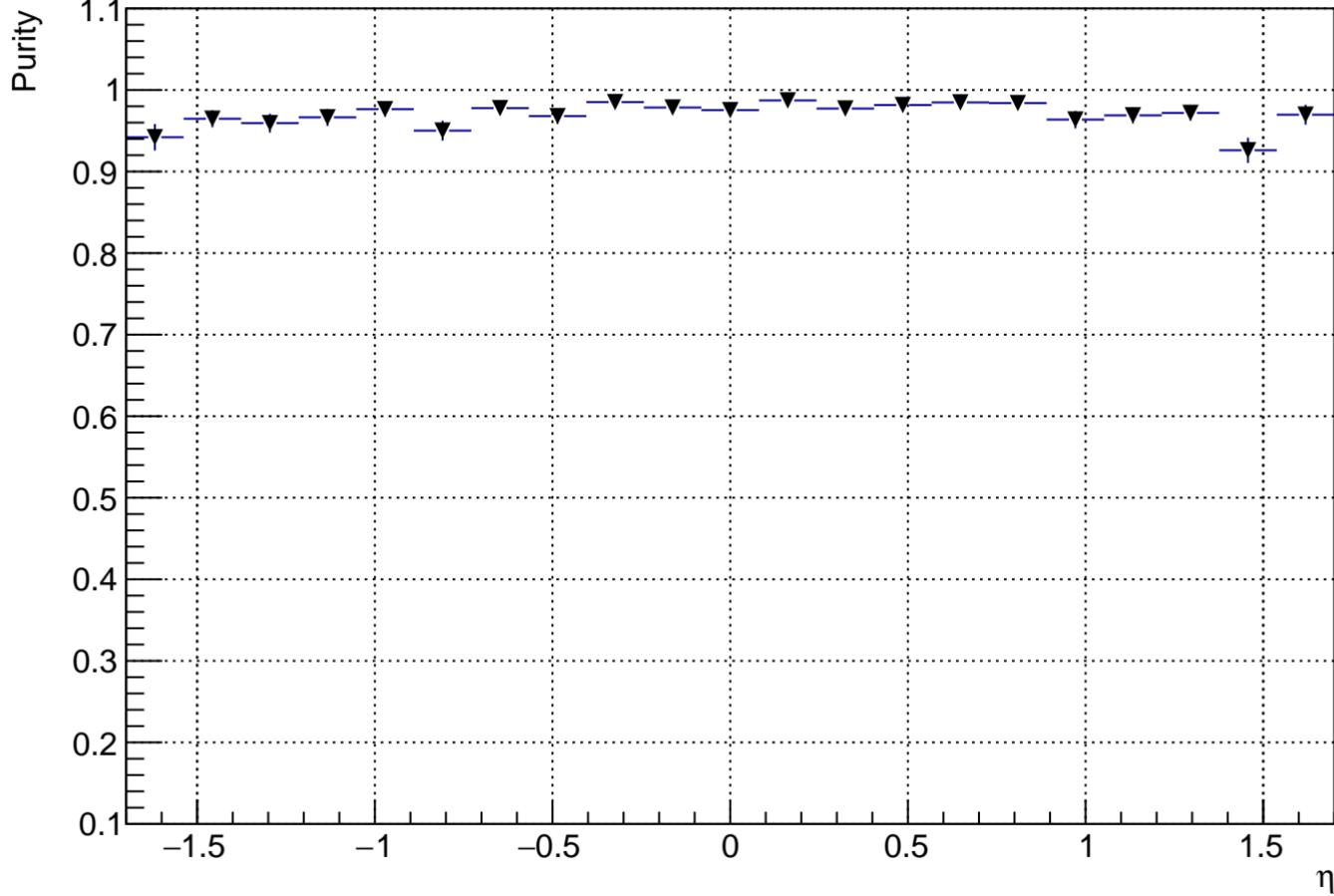


$\kappa_{013}/\kappa_{\text{truth}}$ Vs r  $\kappa_{013}/\kappa_{\text{truth}}$ Vs r  $\kappa_{013}/\kappa_{\text{truth}}$ Vs r  $\kappa_{013}/\kappa_{\text{truth}}$ Vs r 

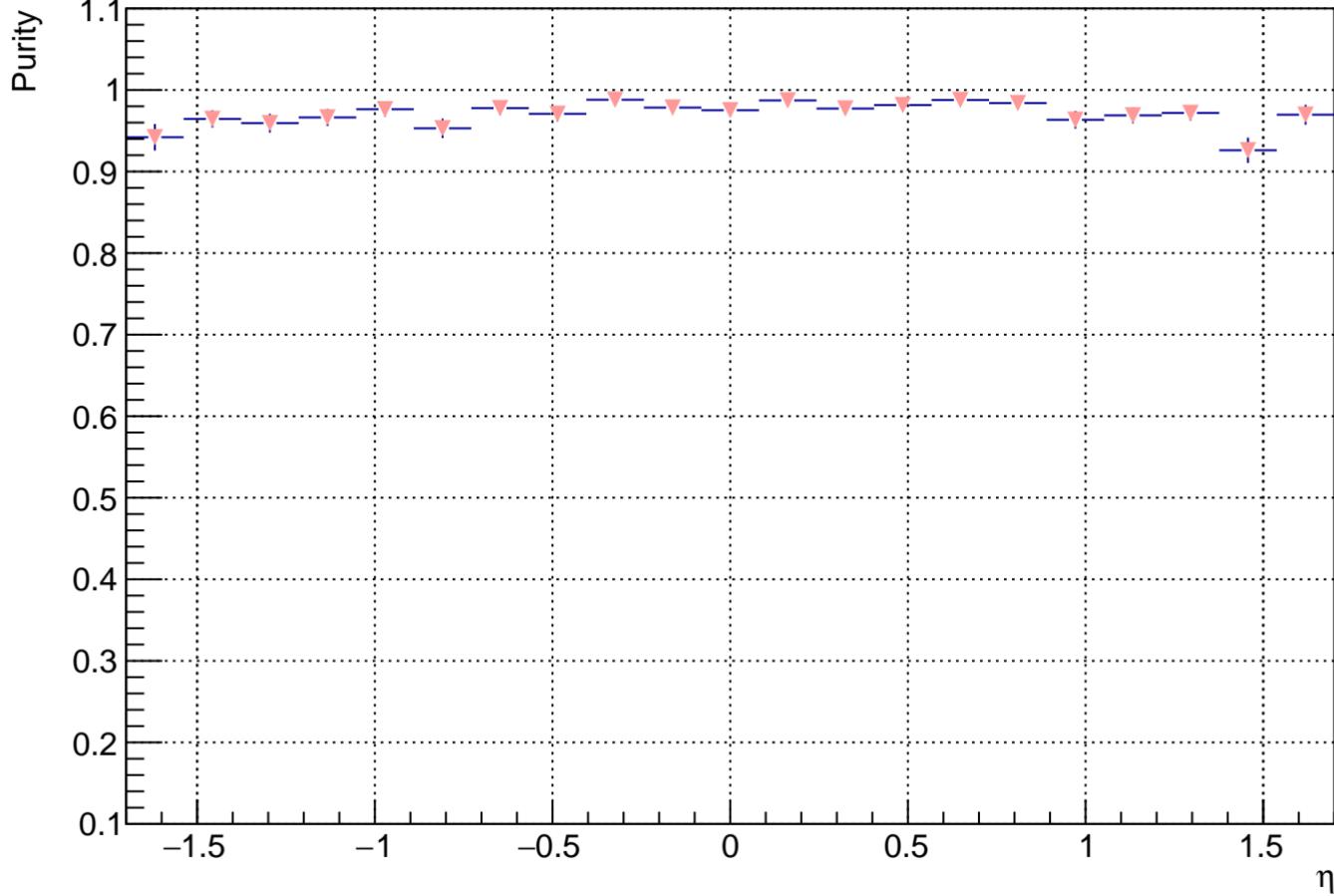
Purity vs η



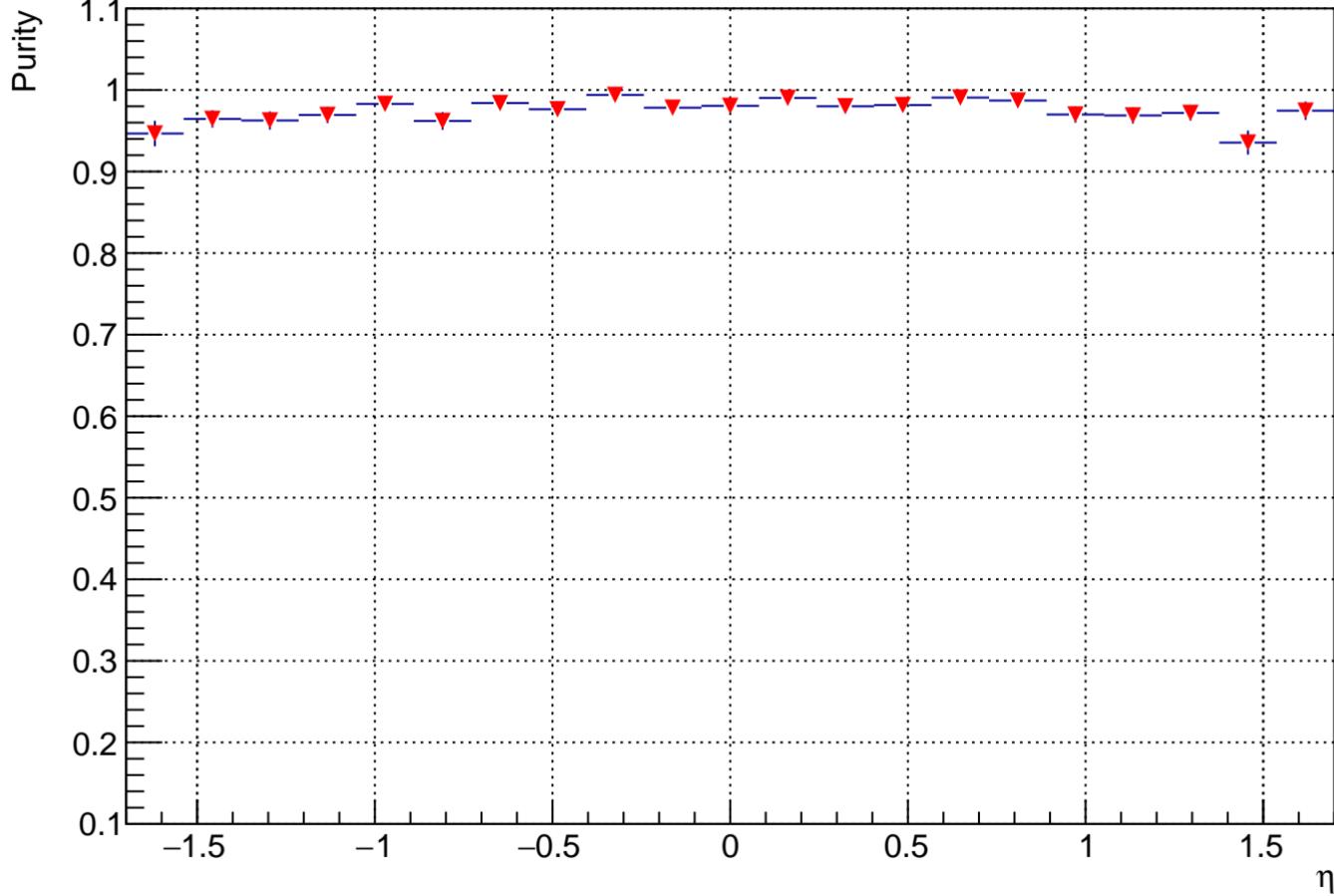
Purity vs η



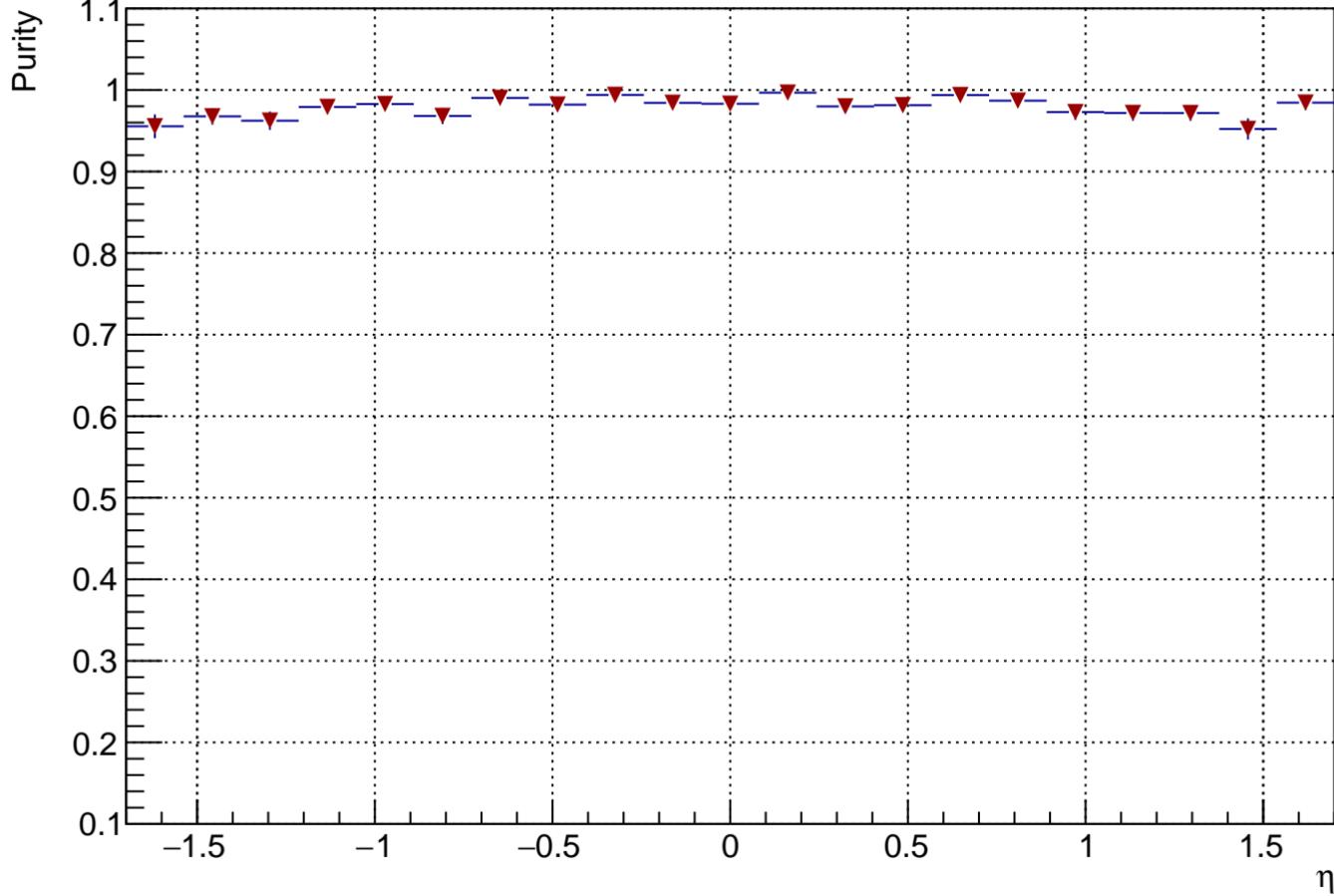
Purity vs η



Purity vs η

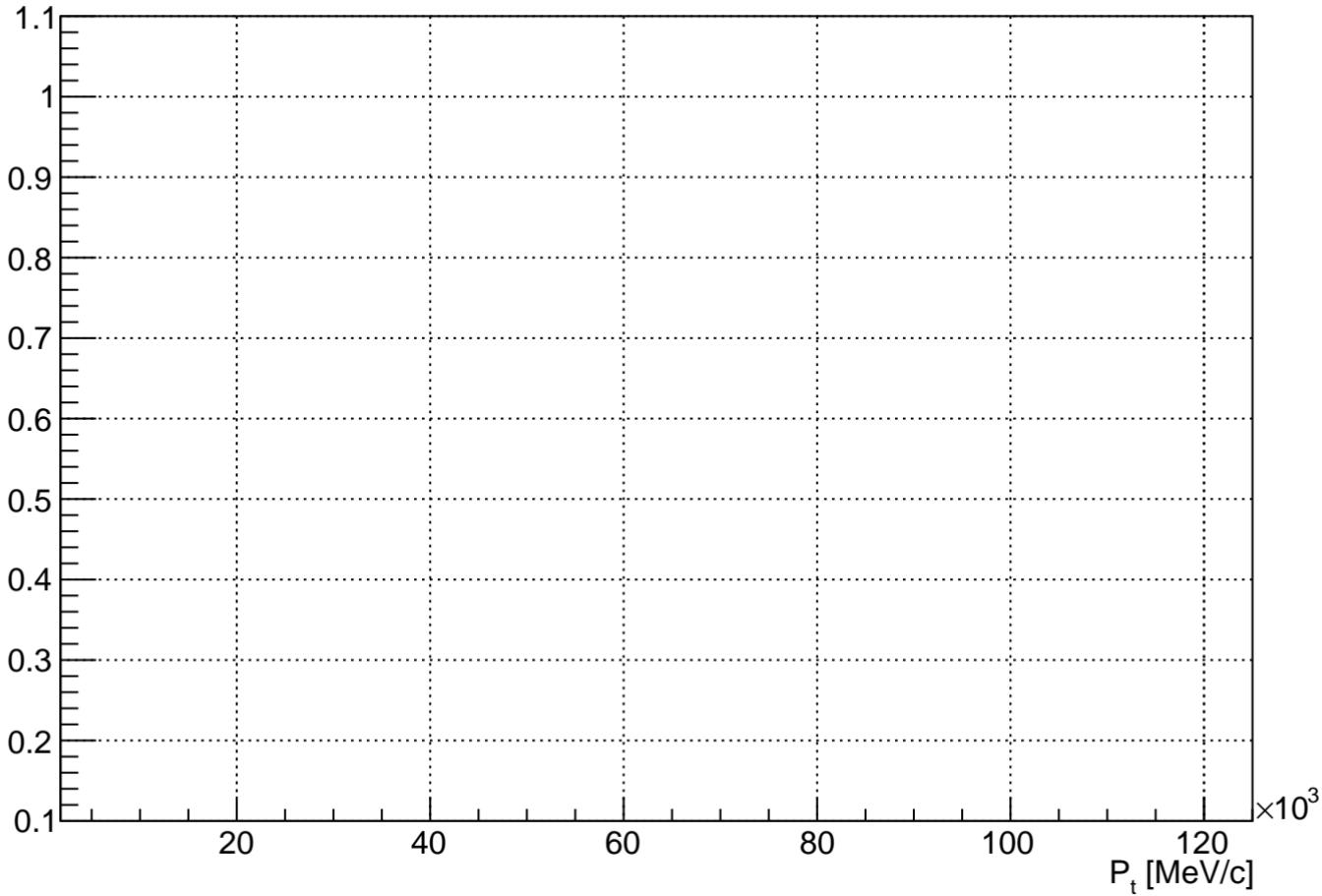


Purity vs η

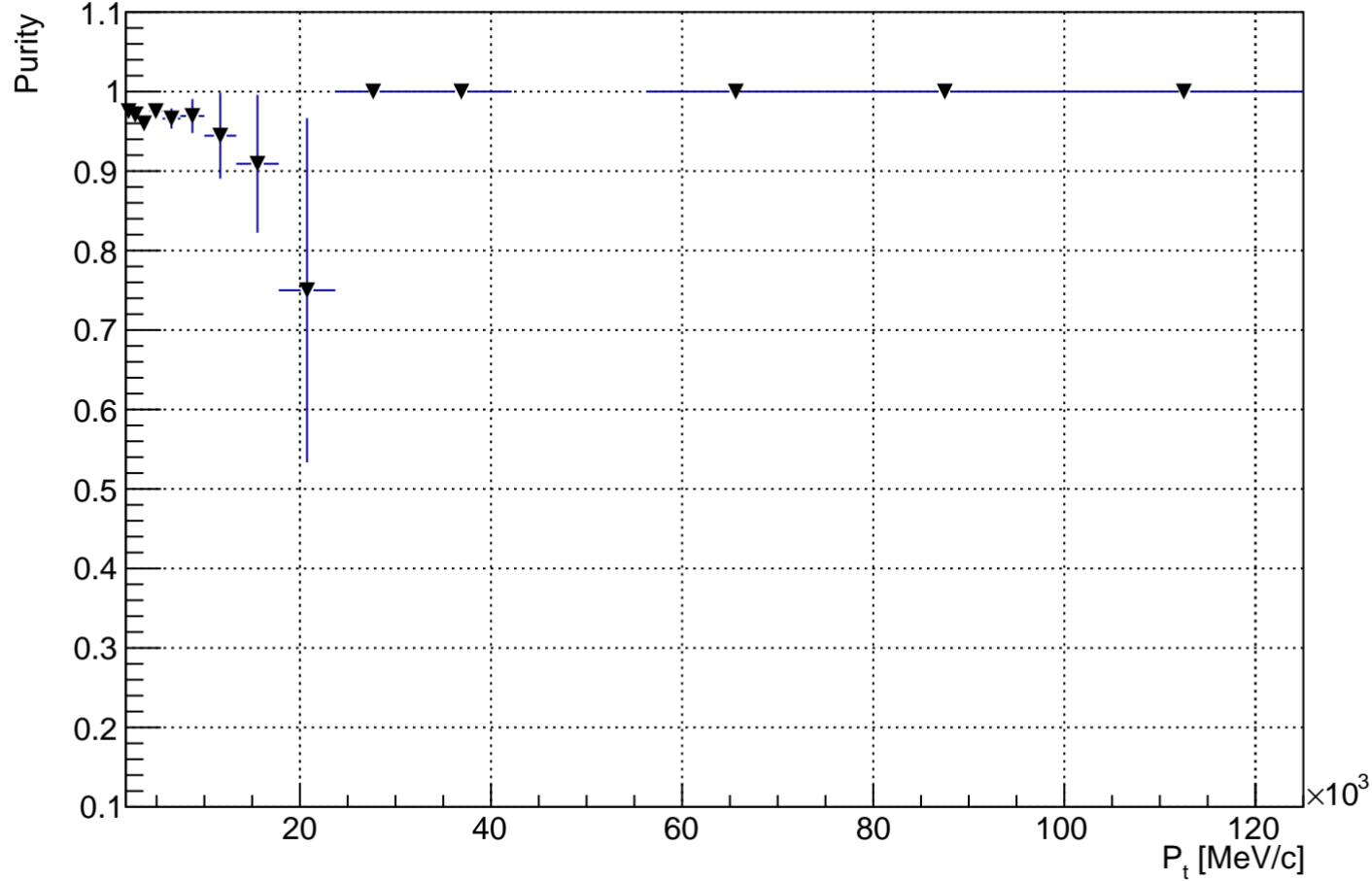


Purity vs P_t

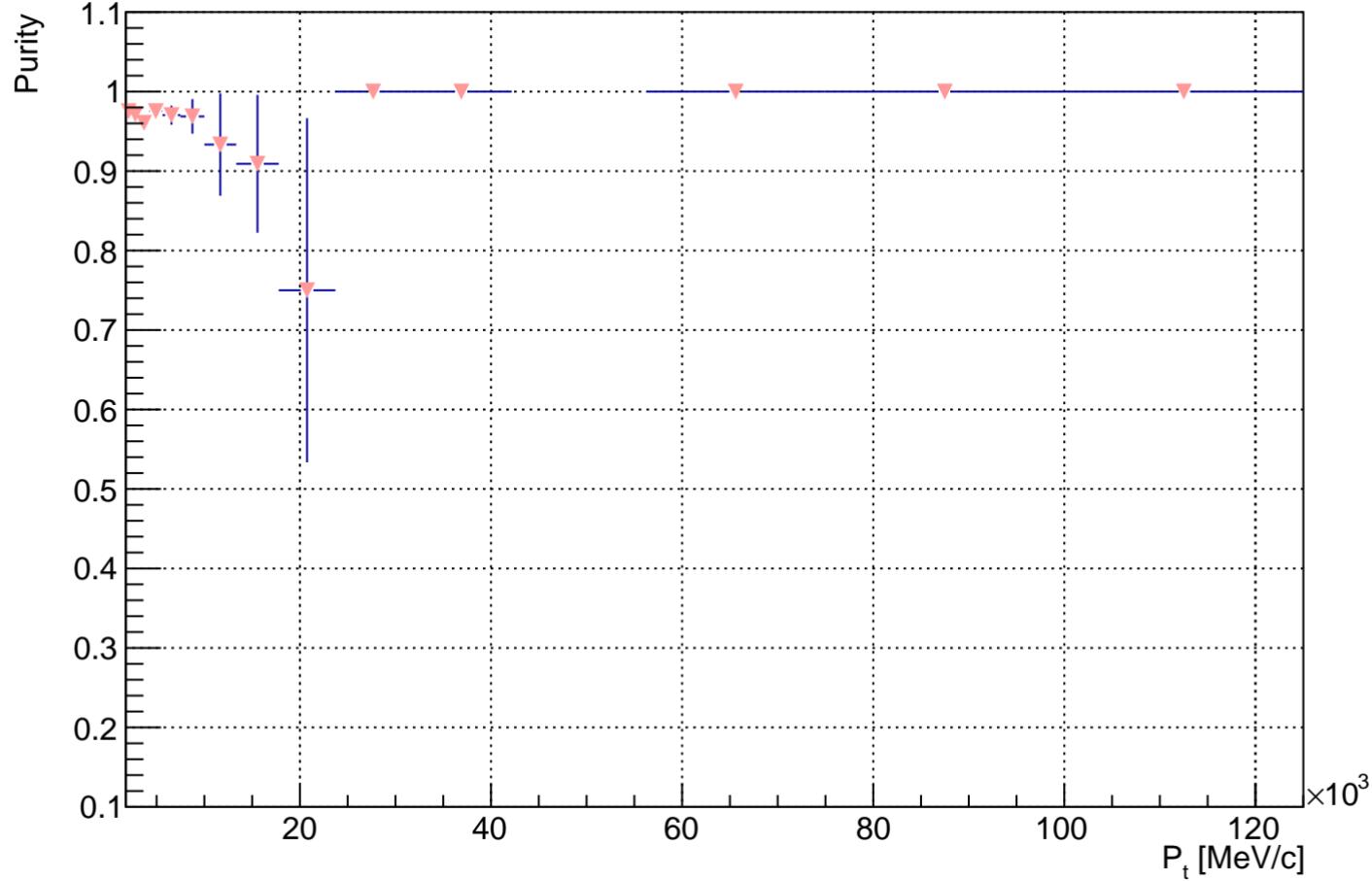
Purity



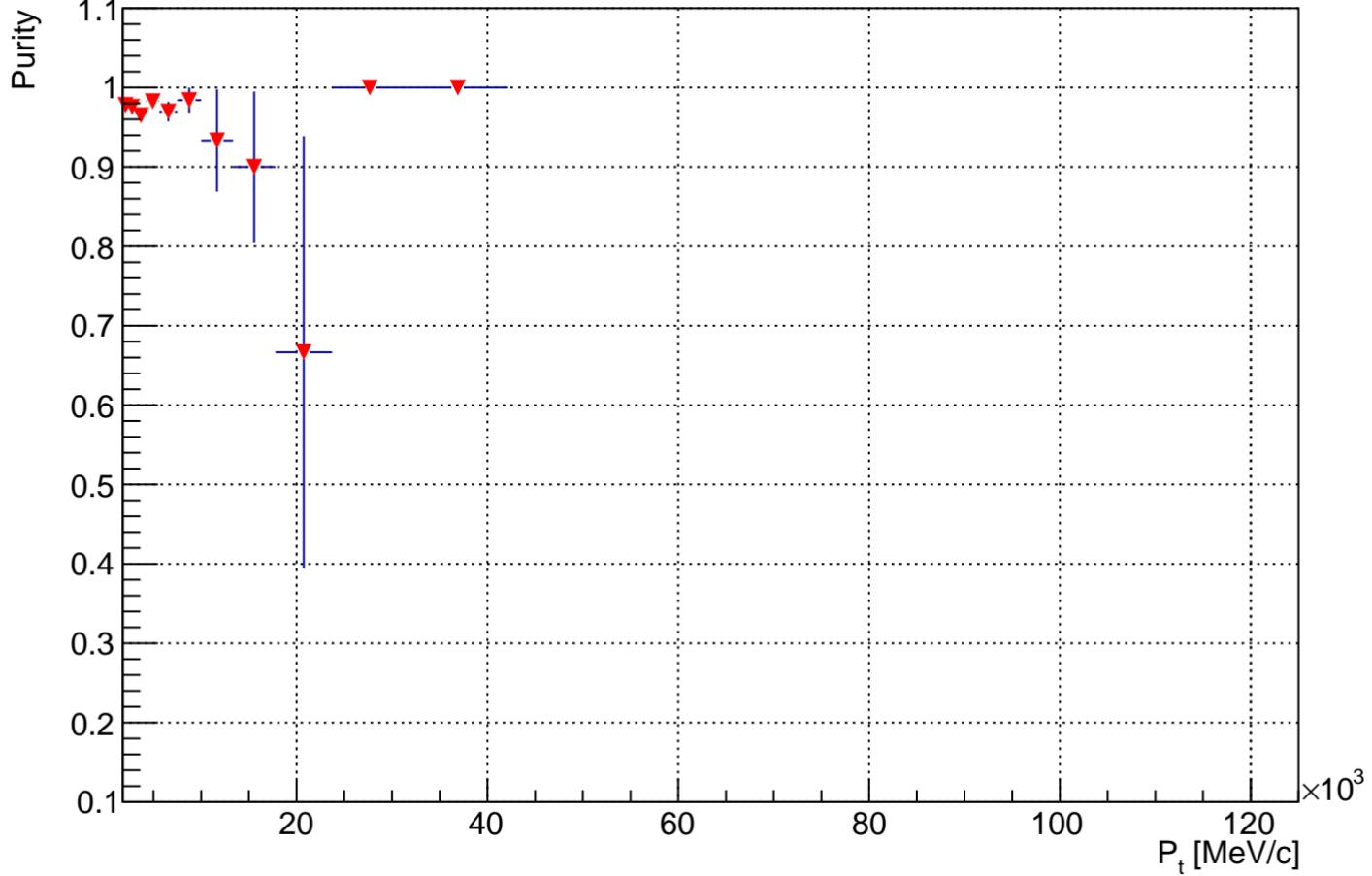
Purity vs P_t



Purity vs P_t

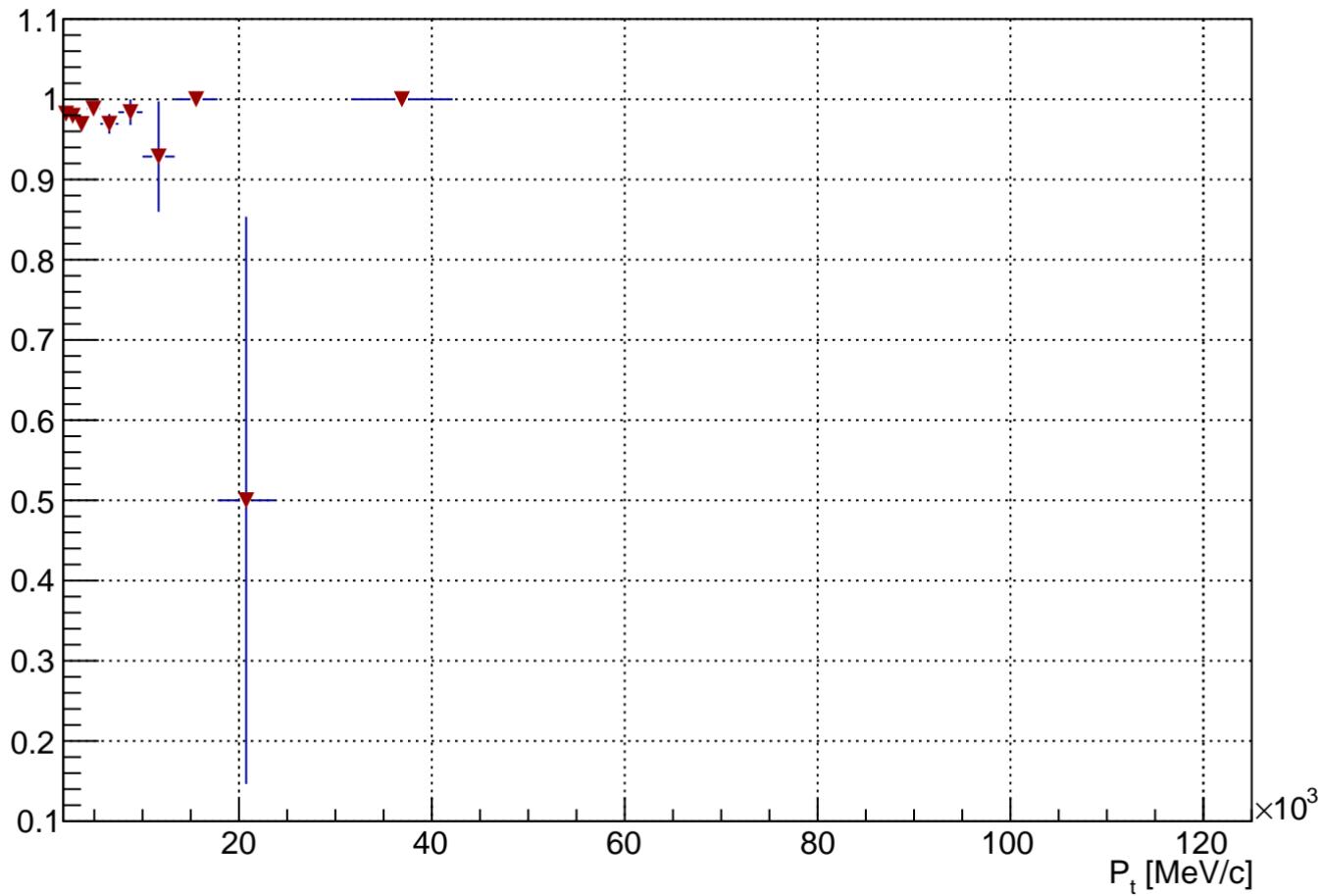


Purity vs P_t



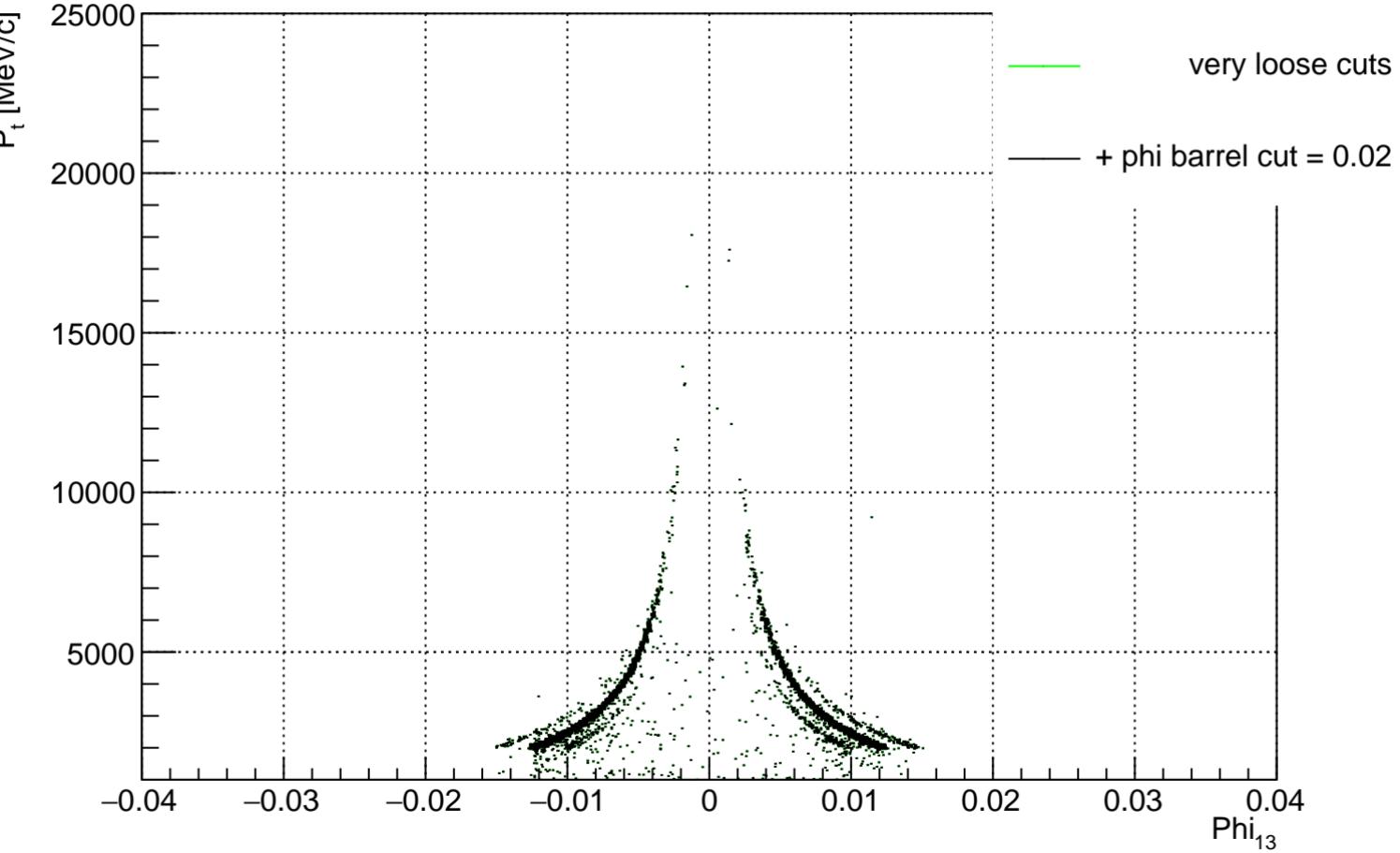
Purity vs P_t

Purity

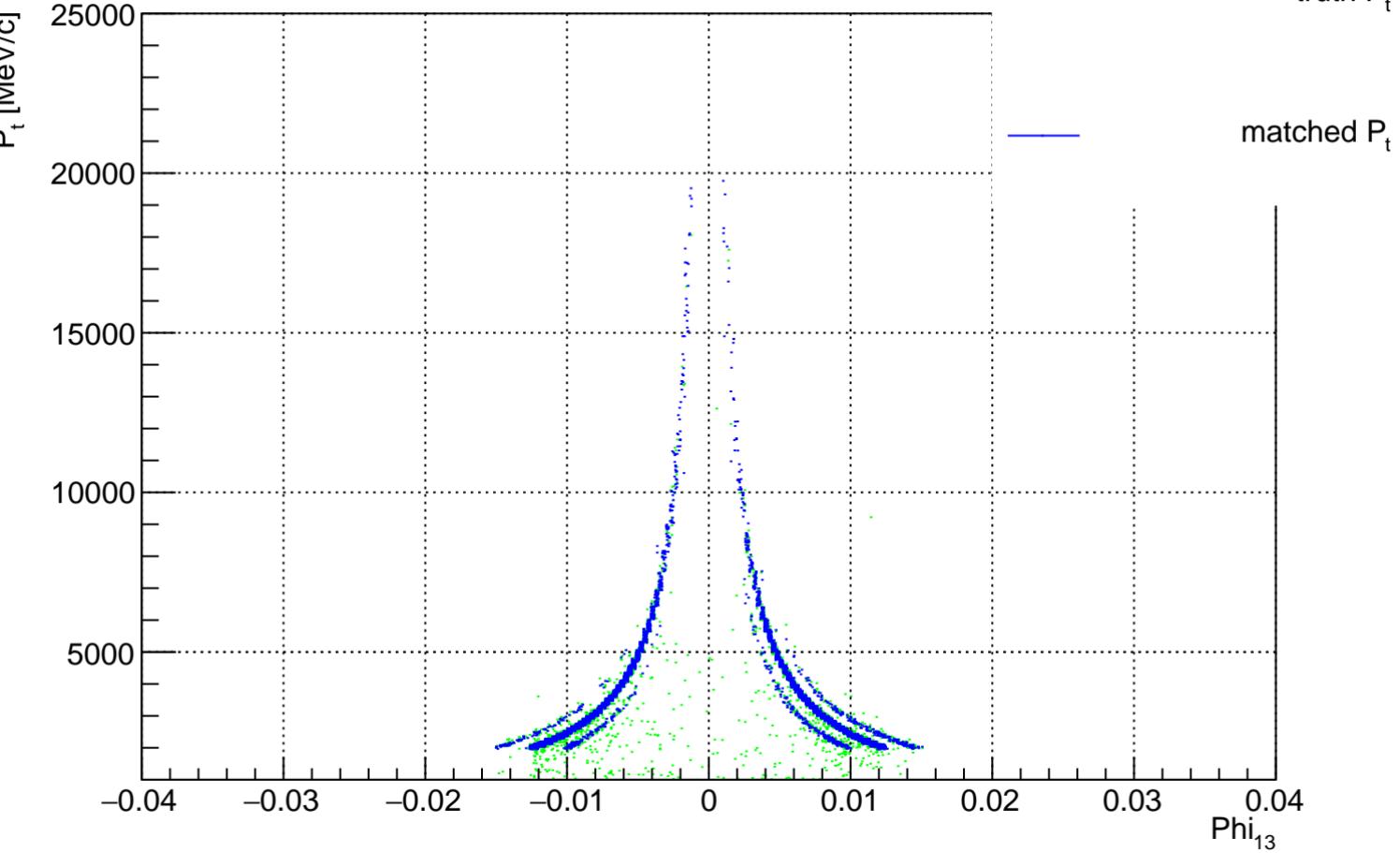


P_t Vs Φ_{13}

truth P_t

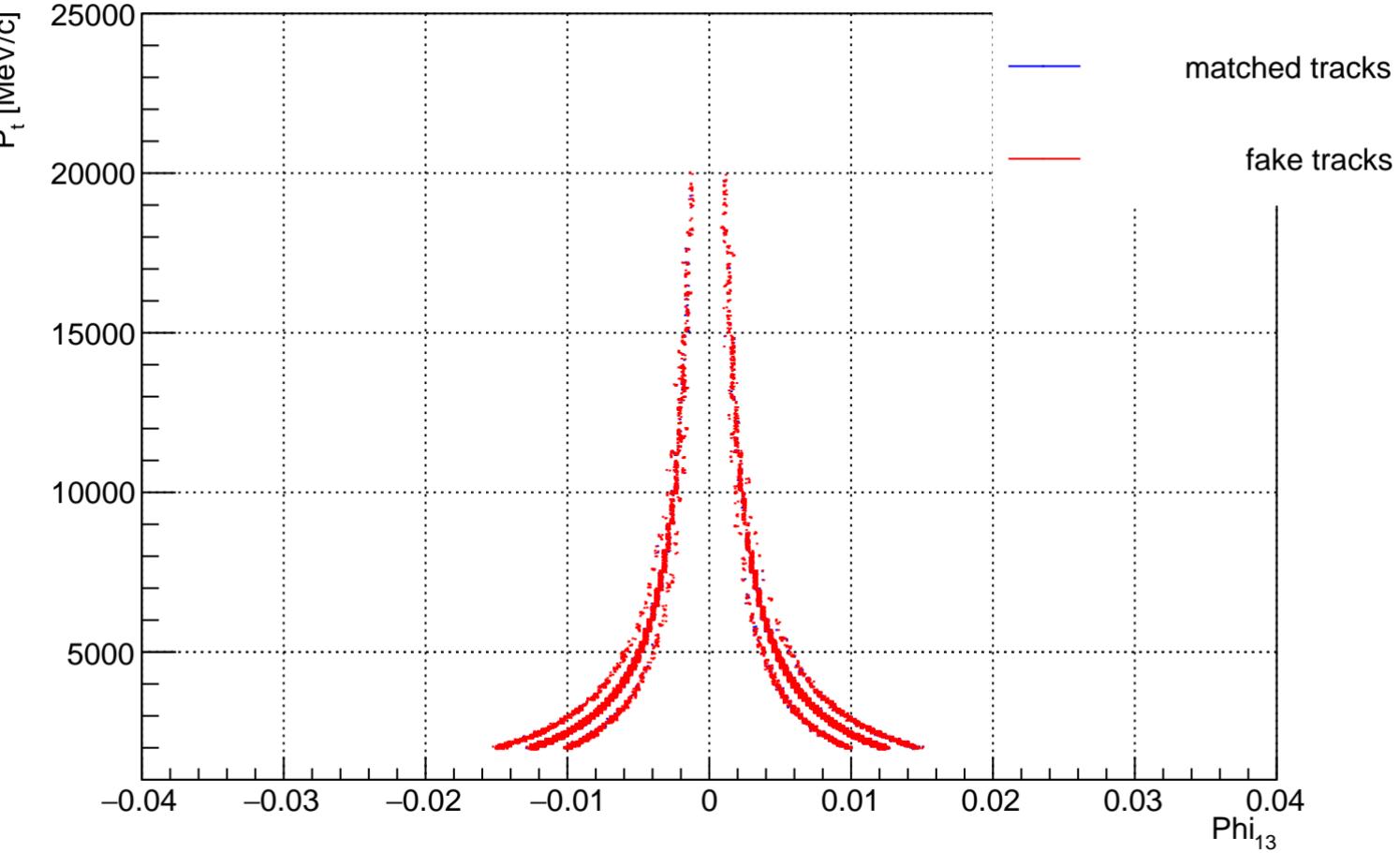


P_t Vs Φ_{13}

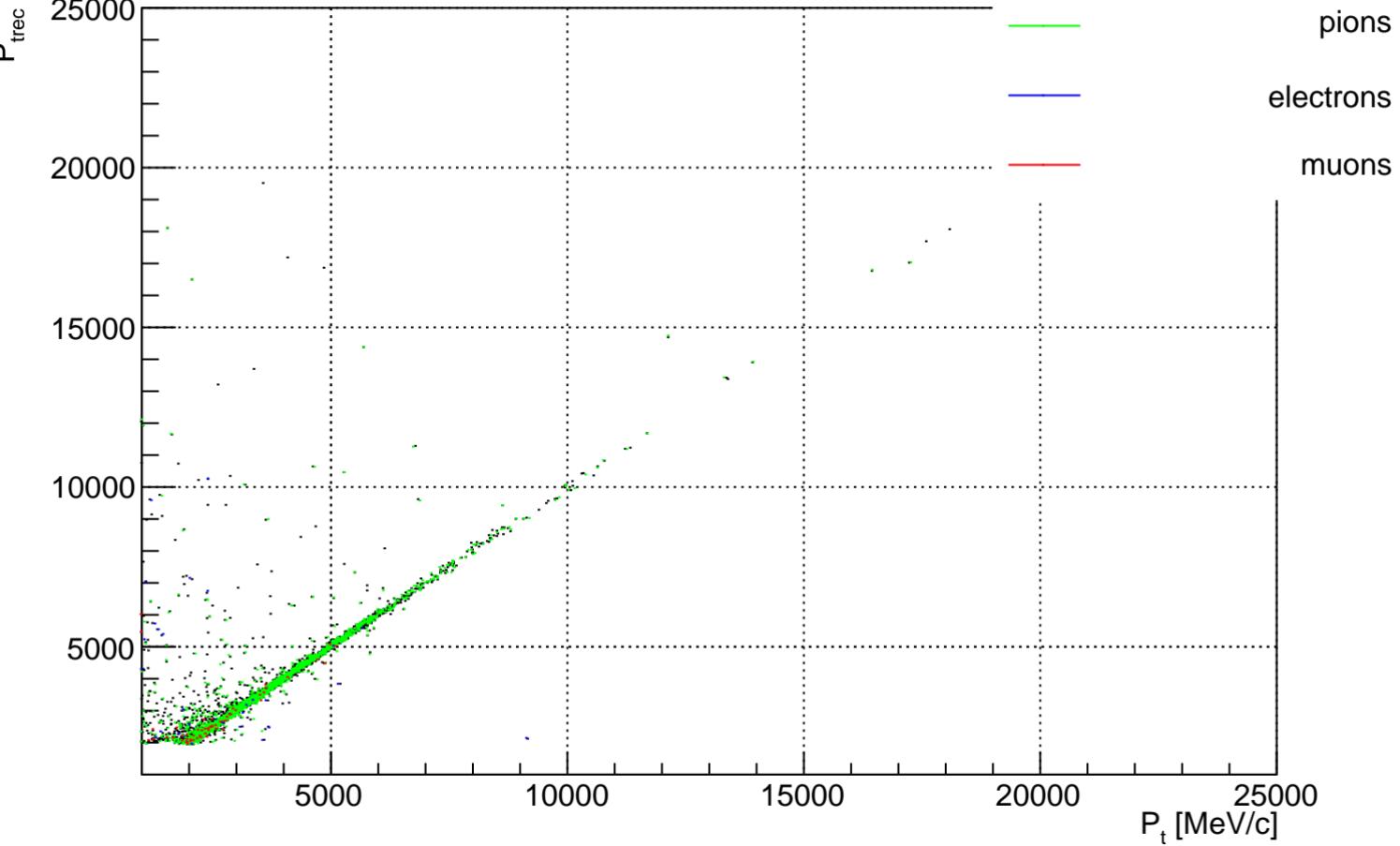


P_t Vs Φ_{13}

rec P_t

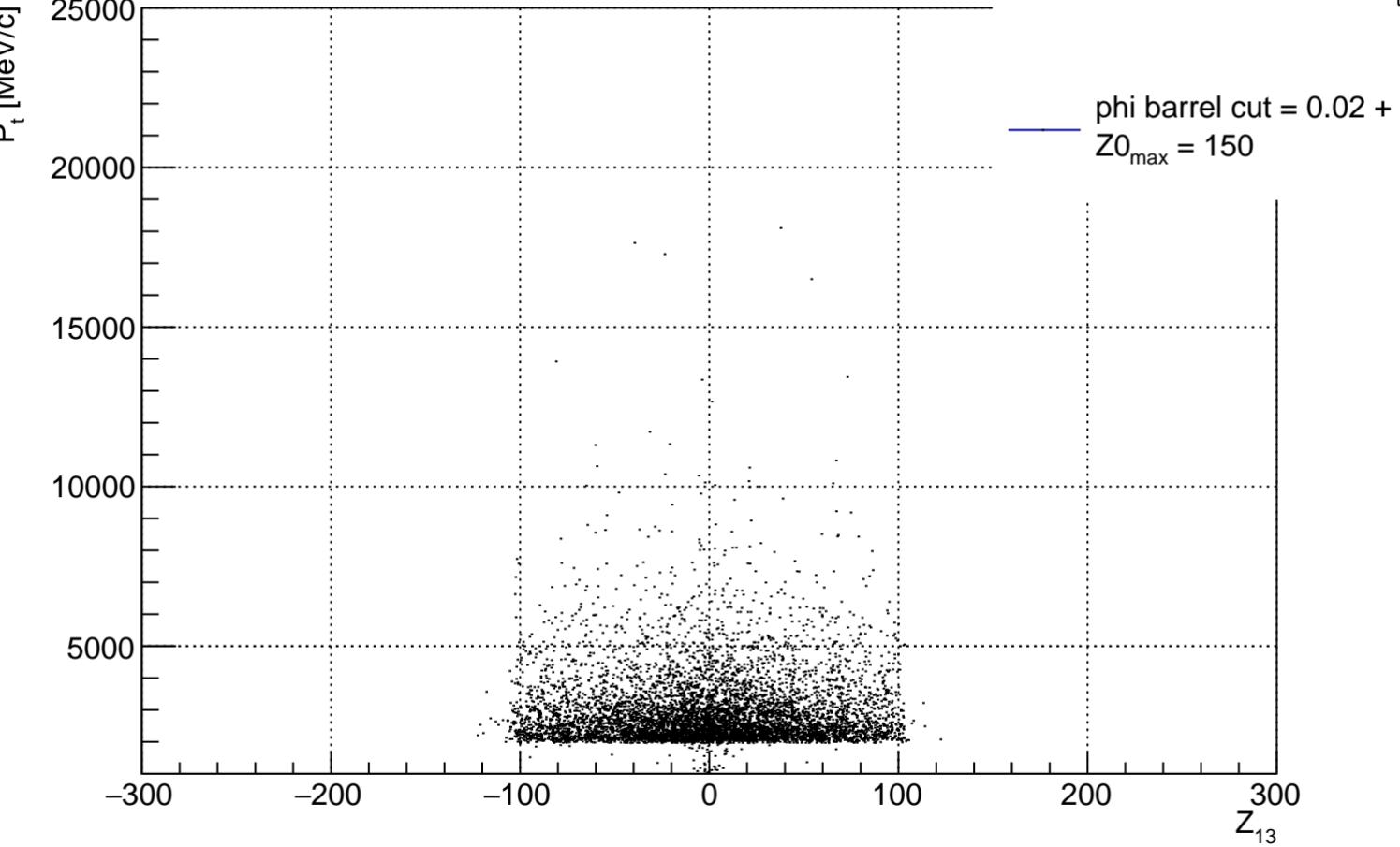


P_{trec} Vs P_t



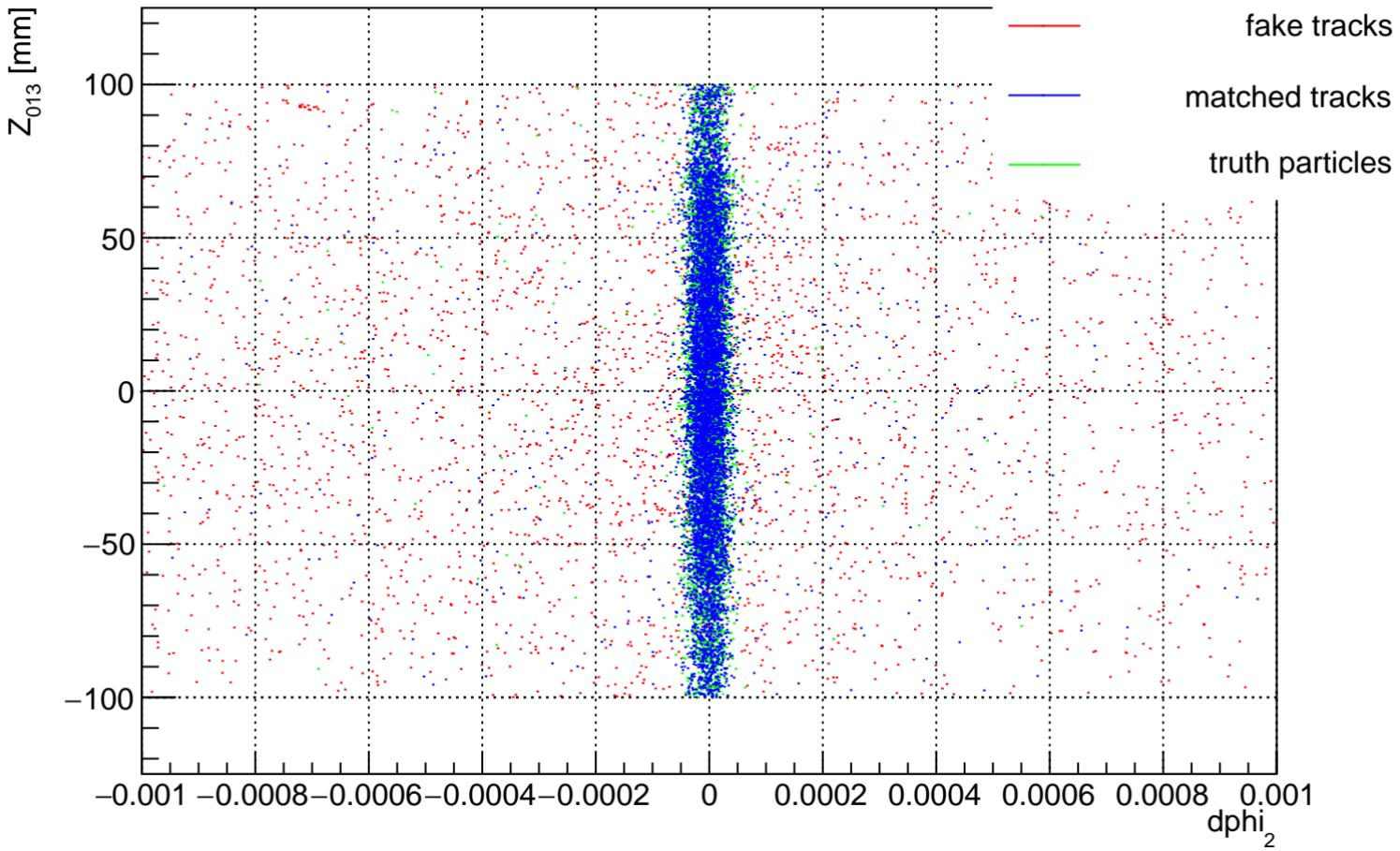
P_t Vs Z_{13}

truth P_t



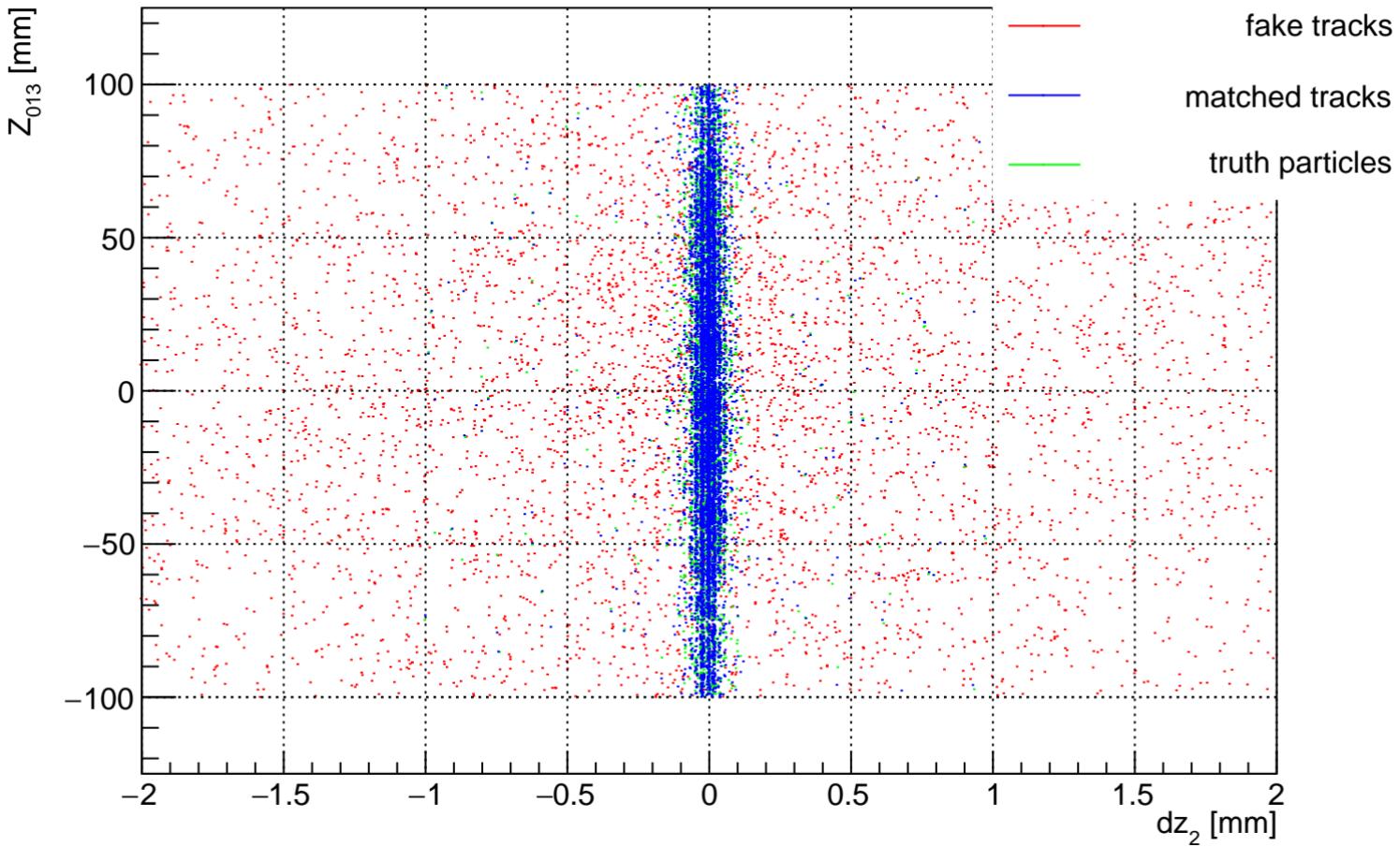
Z_{013} Vs $d\phi_i$

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



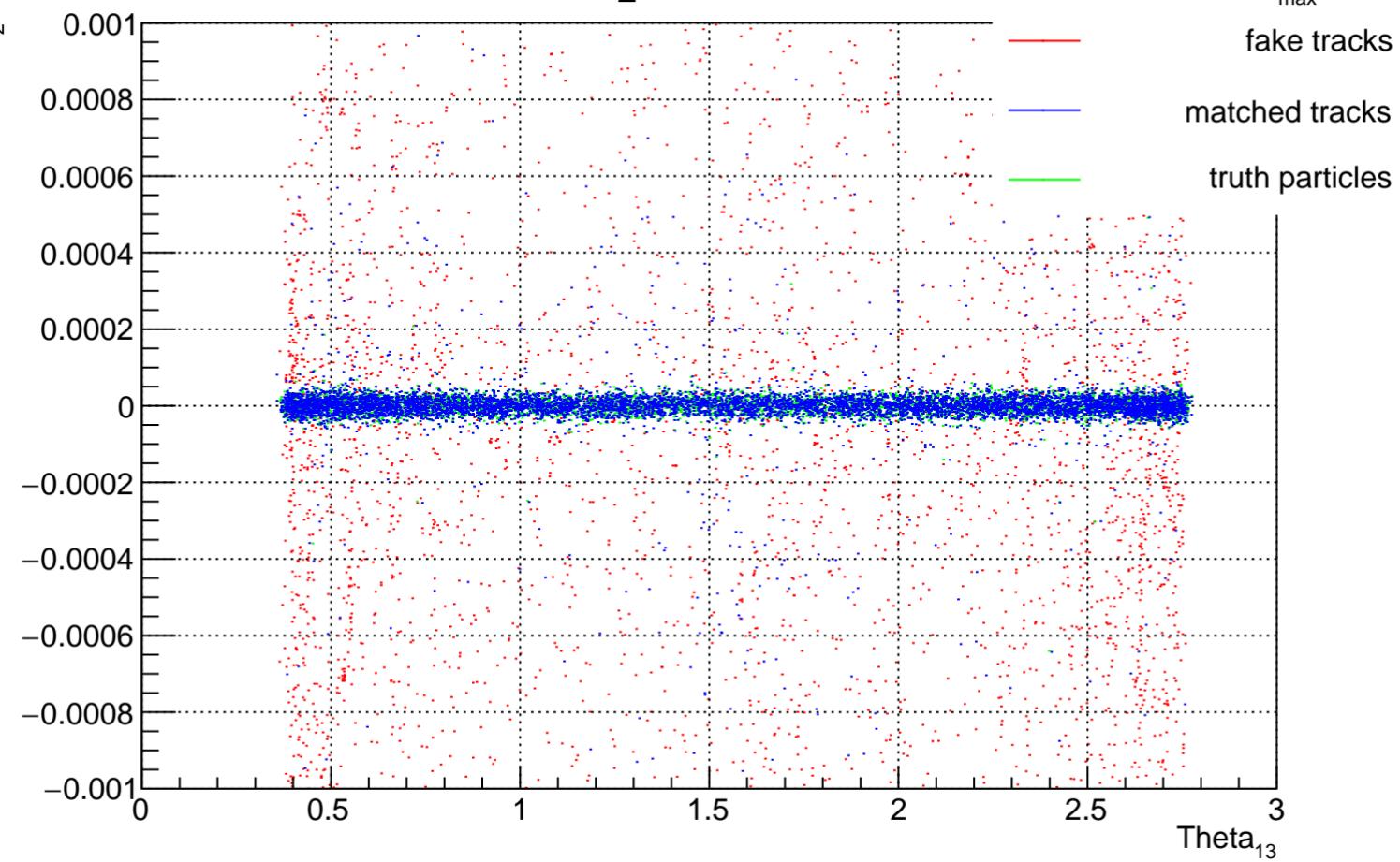
Z_{013} Vs dz_2

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



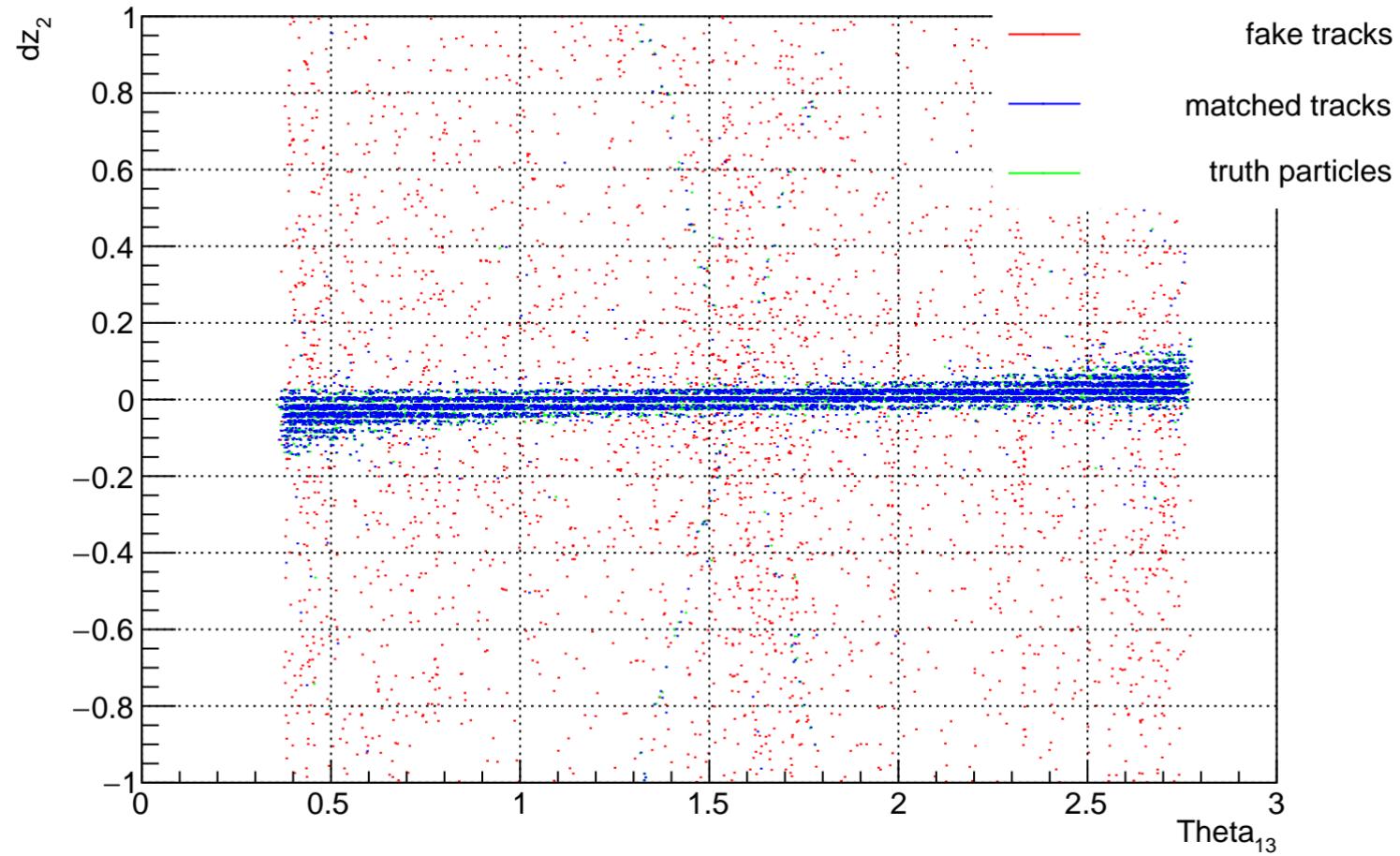
$d\phi_{2}$ Vs Θ_{13}

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



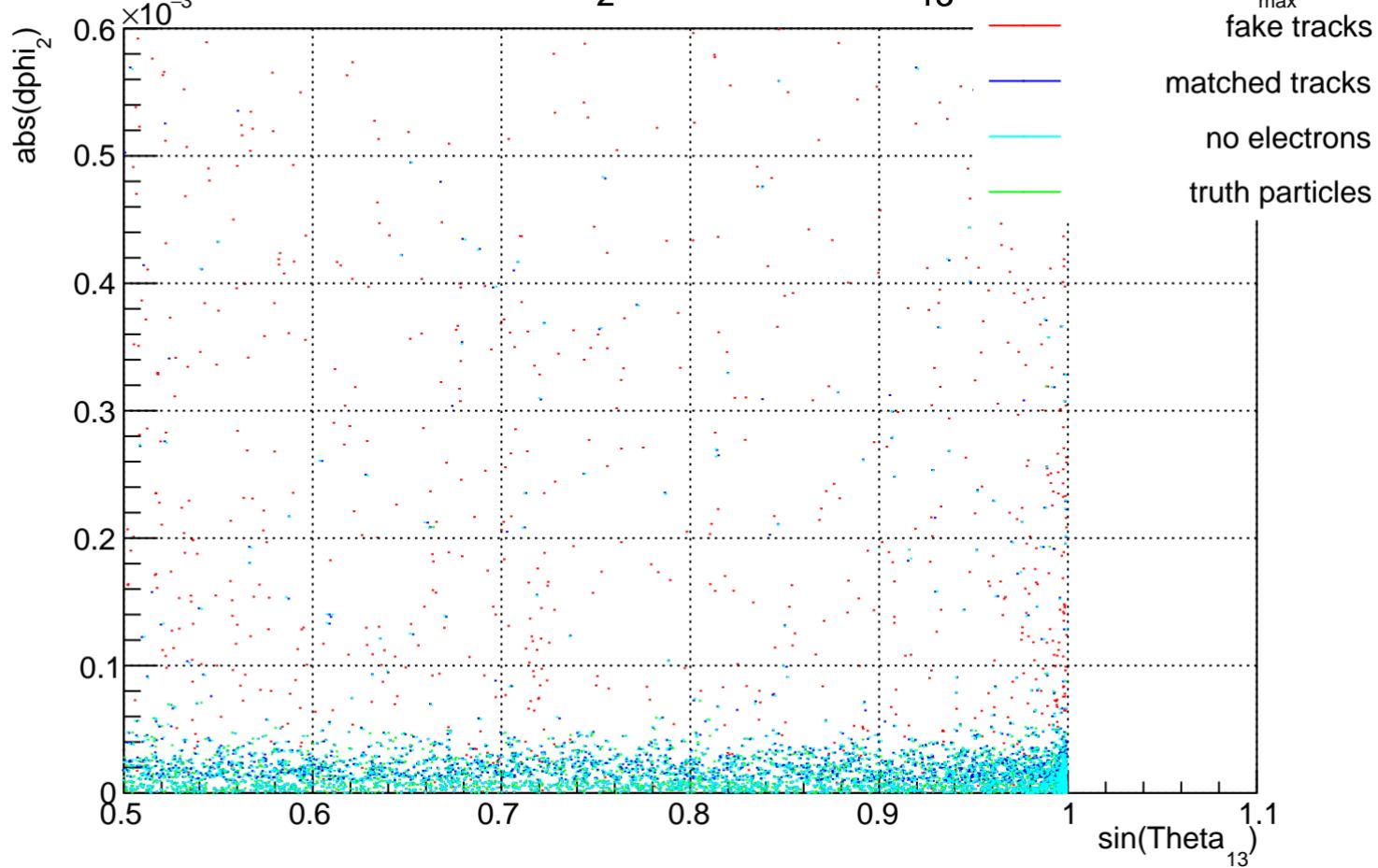
dz_2 Vs Θ_{13}

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

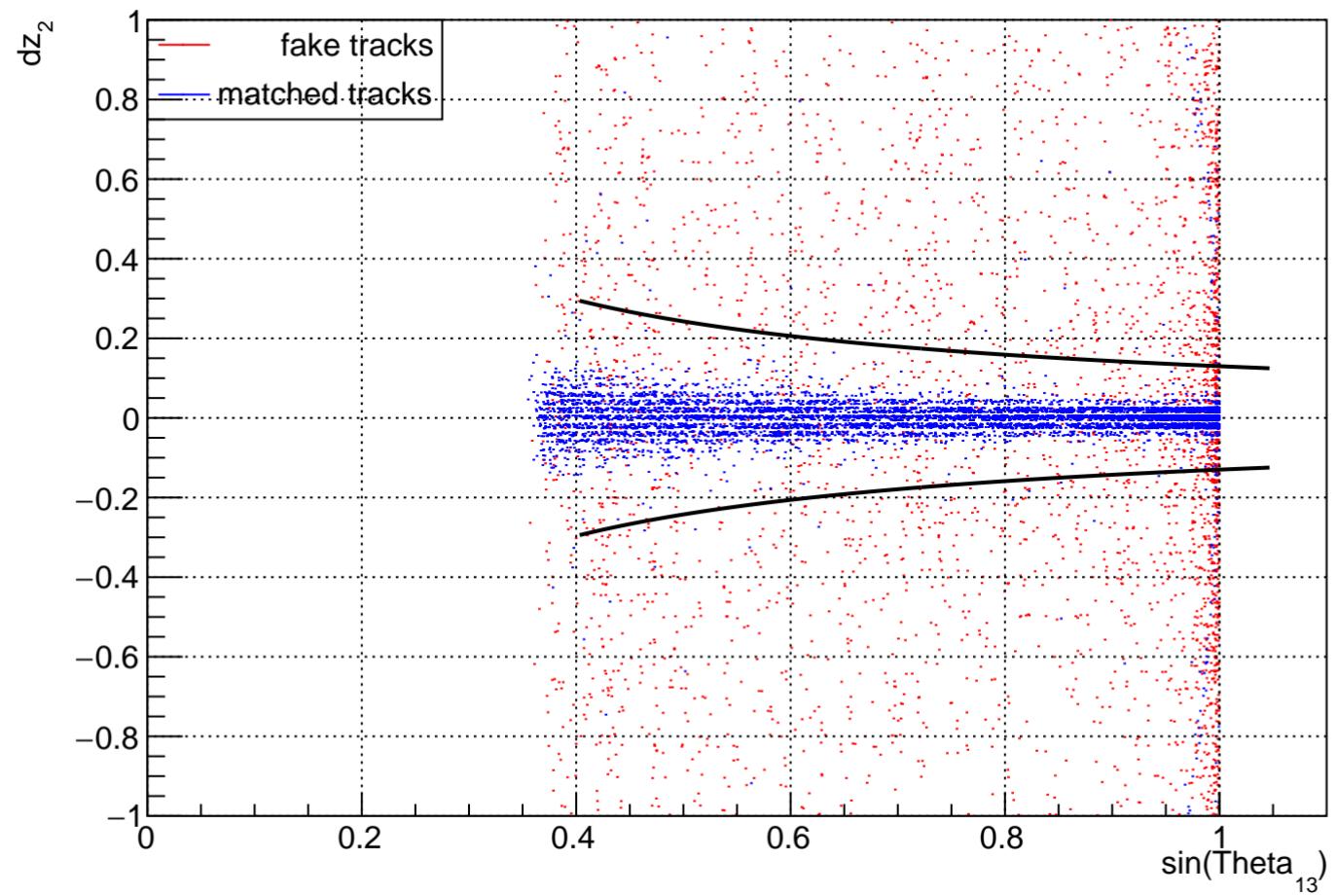


$\text{abs}(\text{dphi}_2)$ Vs $\sin(\text{Theta}_{13})$

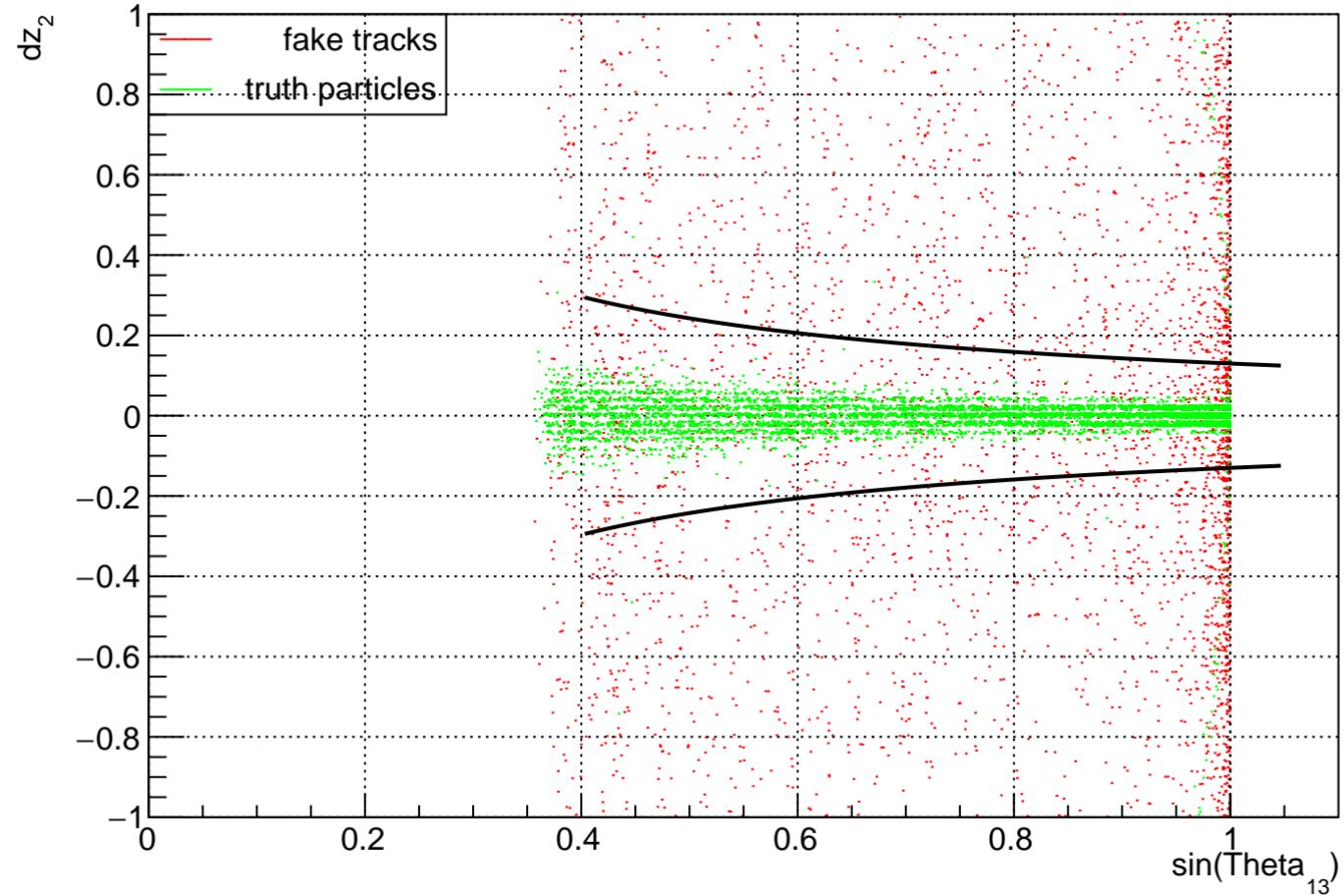
$\text{phi Barrel} = 0.02 +$
 $Z_{\text{barrel}} = 160 + Z_{0,\text{max}} = 150$
fake tracks



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

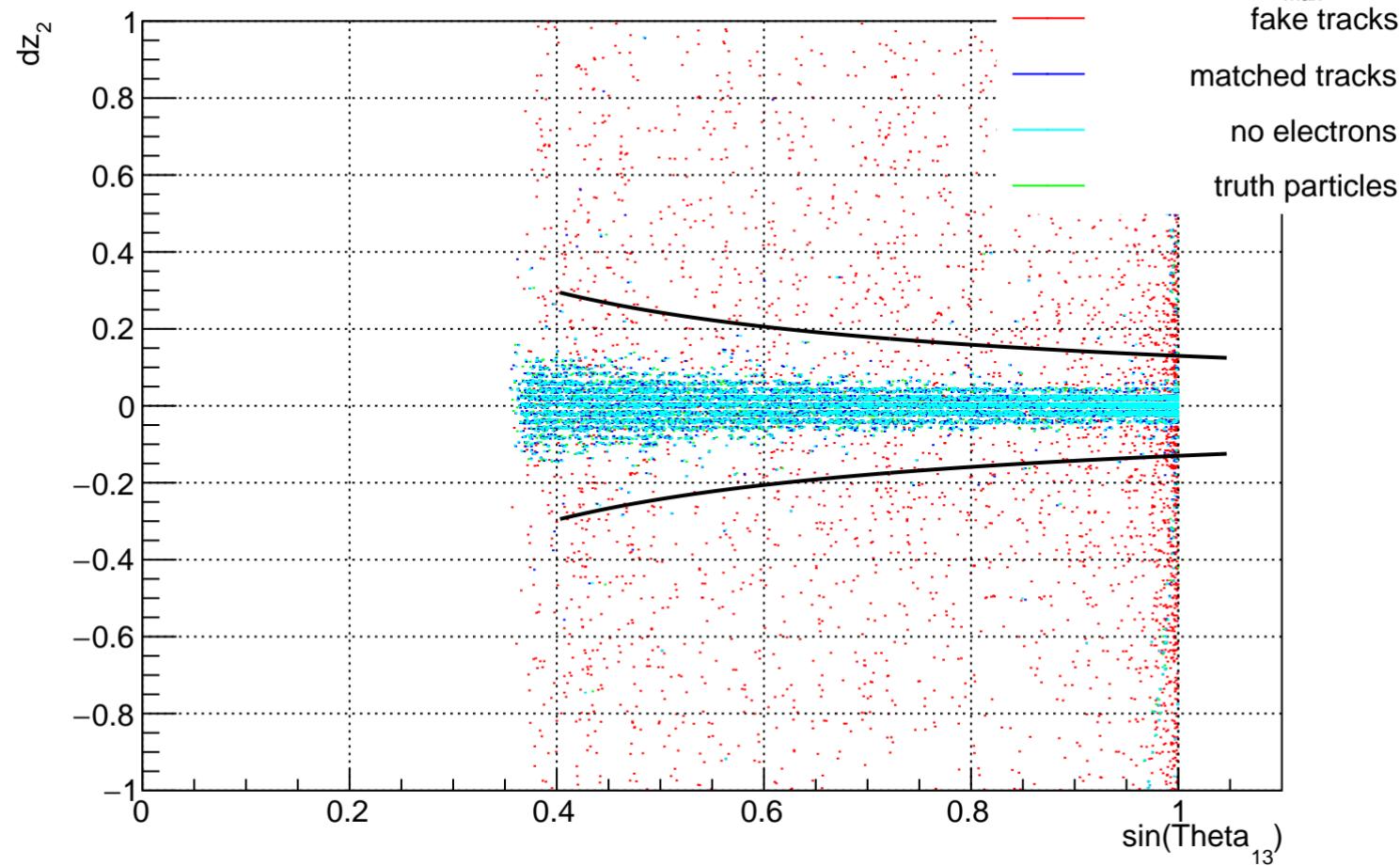


dz_2 Vs $\sin(\Theta_{13})$



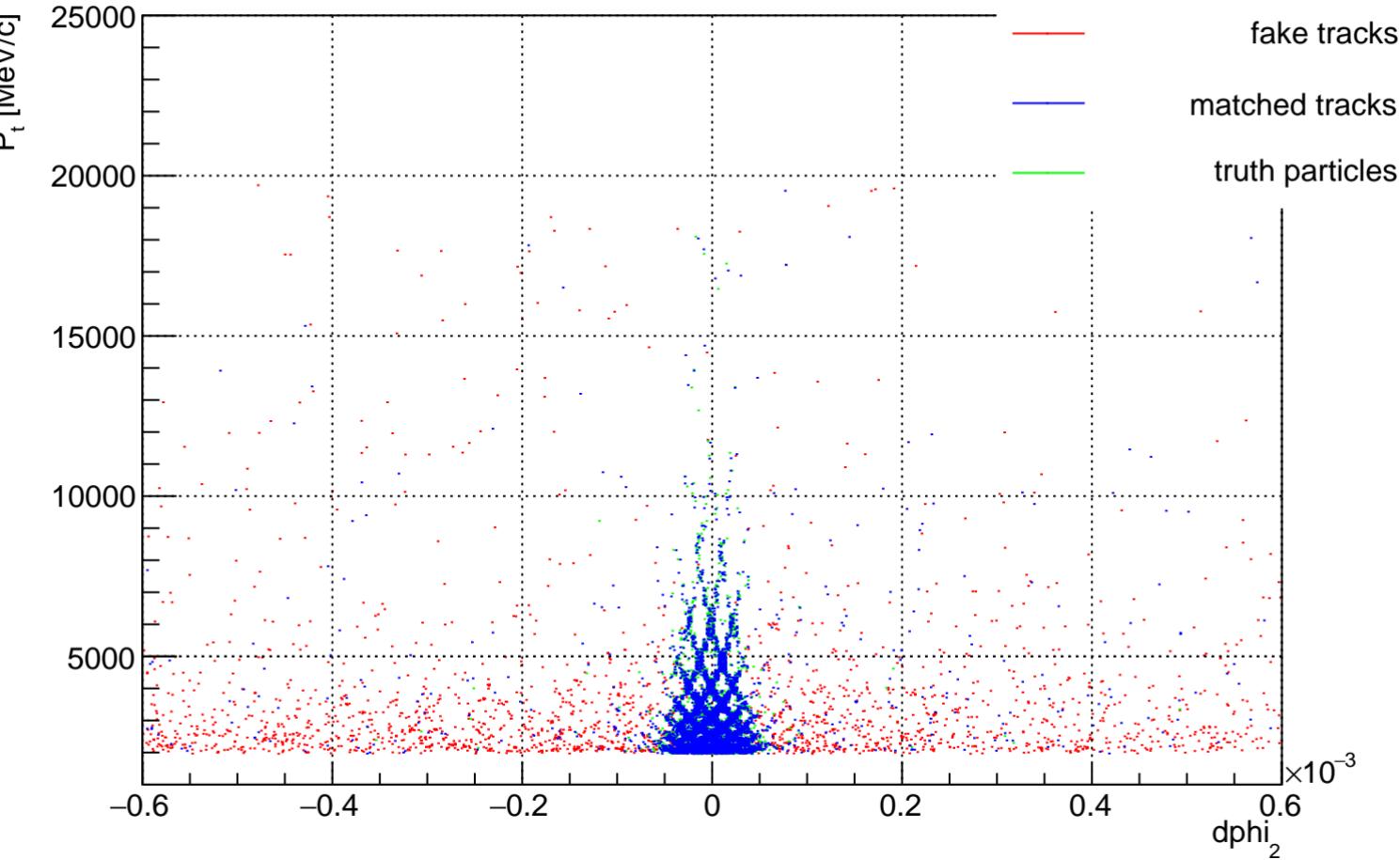
dz_2 Vs $\sin(\Theta_{13})$

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



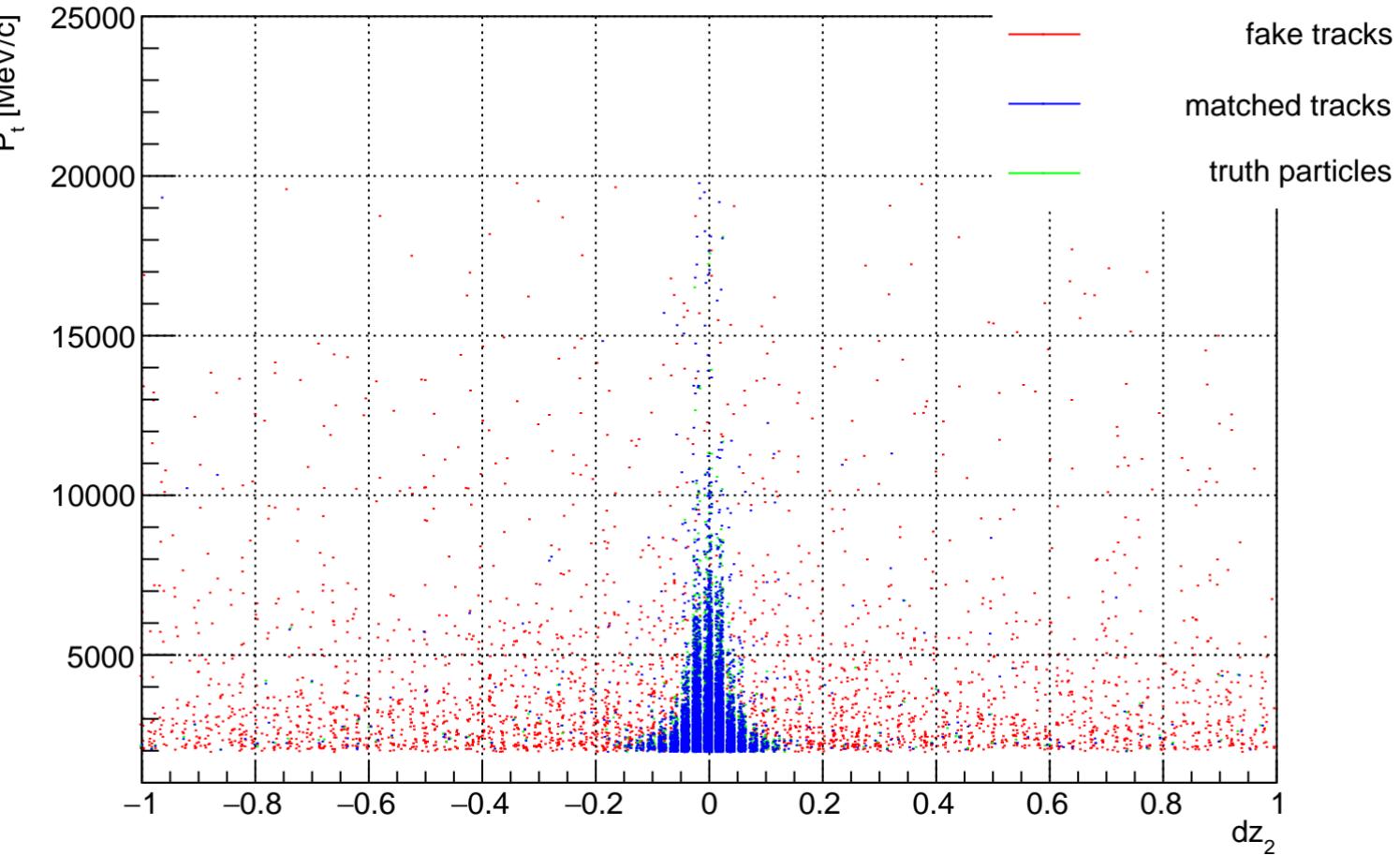
P_t Vs $d\phi_{2}$

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



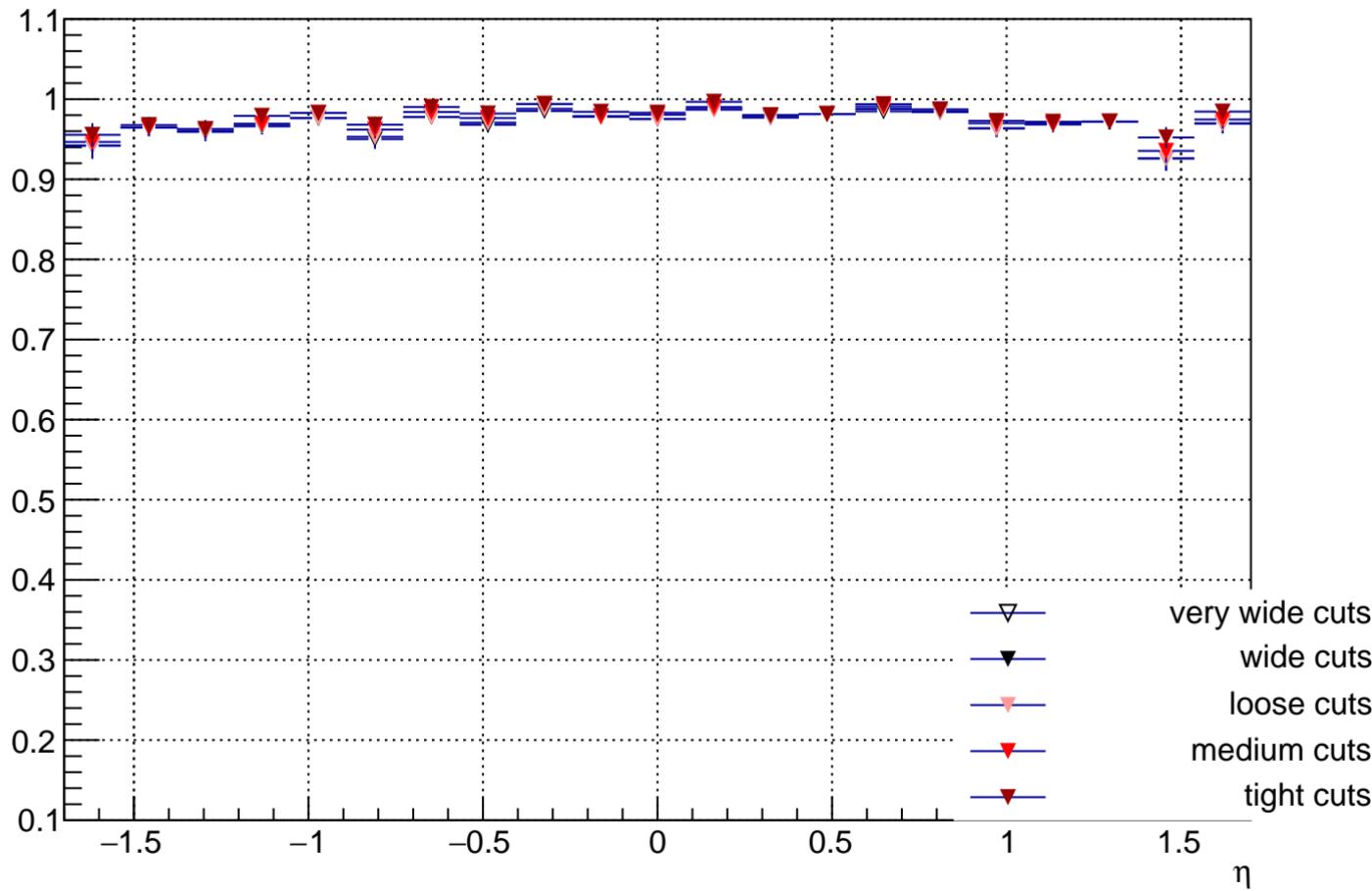
P_t Vs dz_2

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

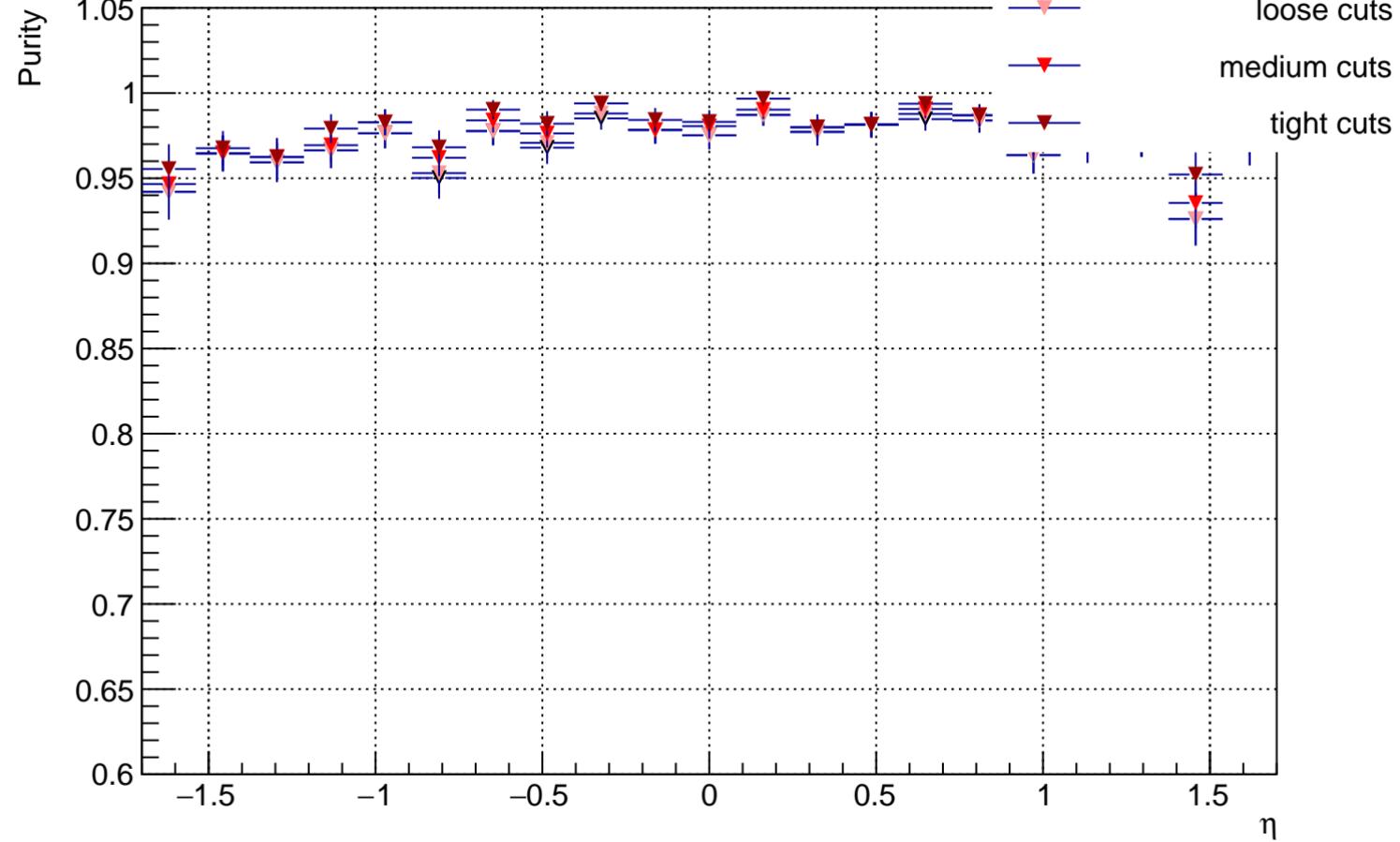


Purity vs η

Purity

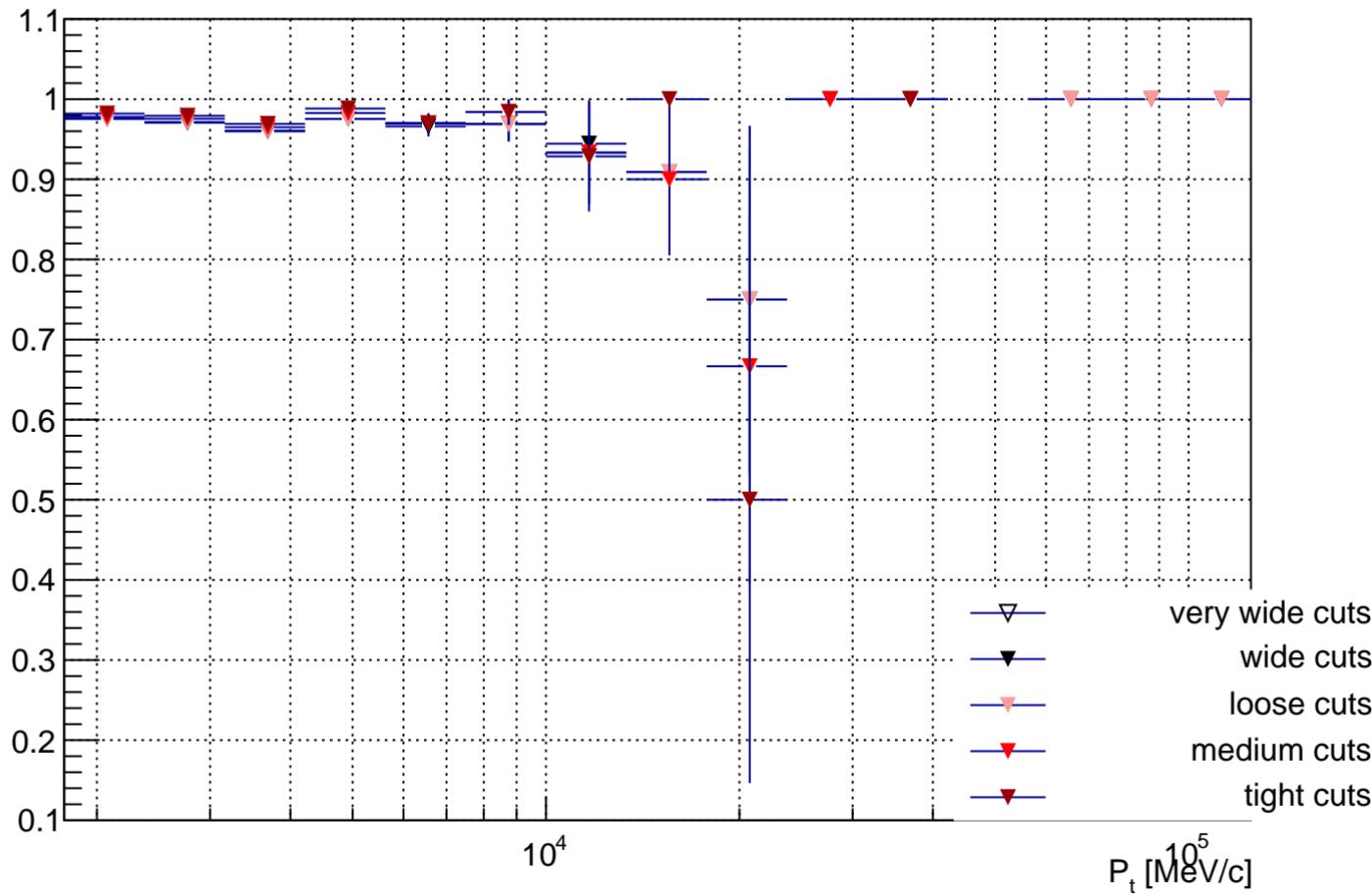


Purity vs η



Purity vs P_t

Purity



Purity vs P_t

