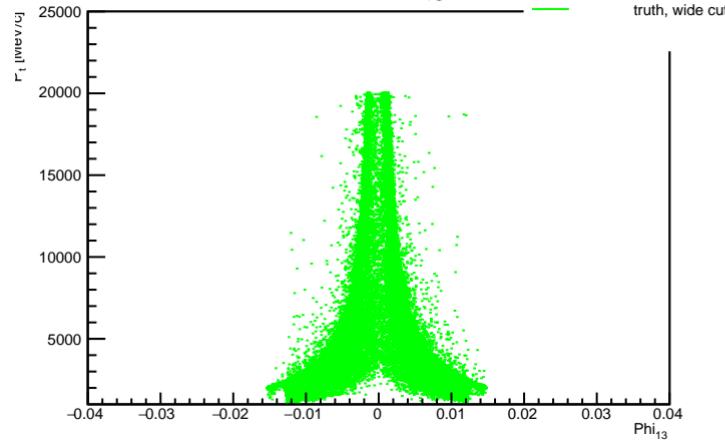
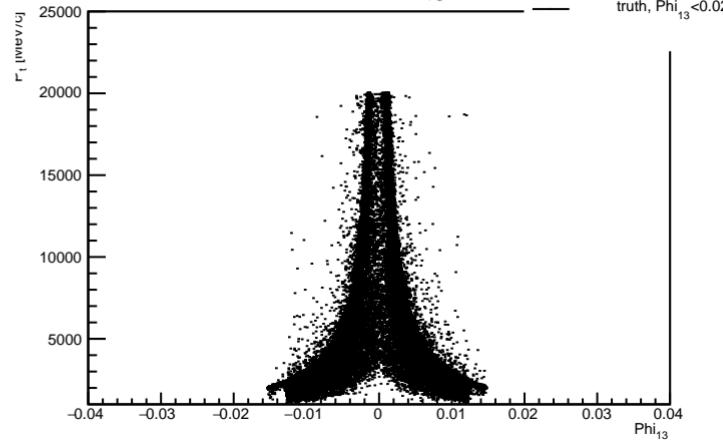


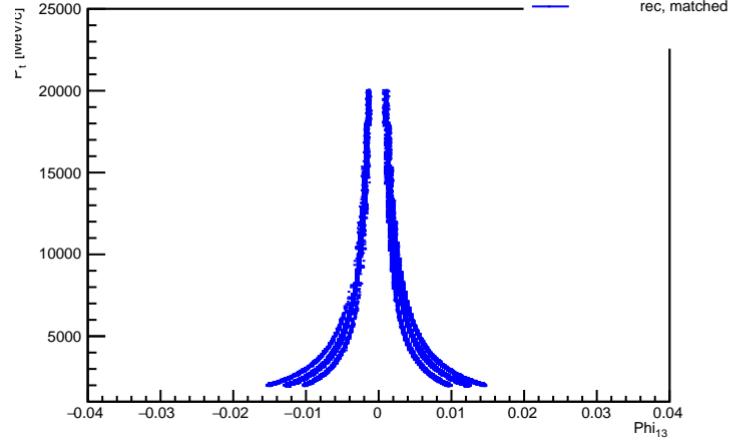
P_t Vs Φ_{13}



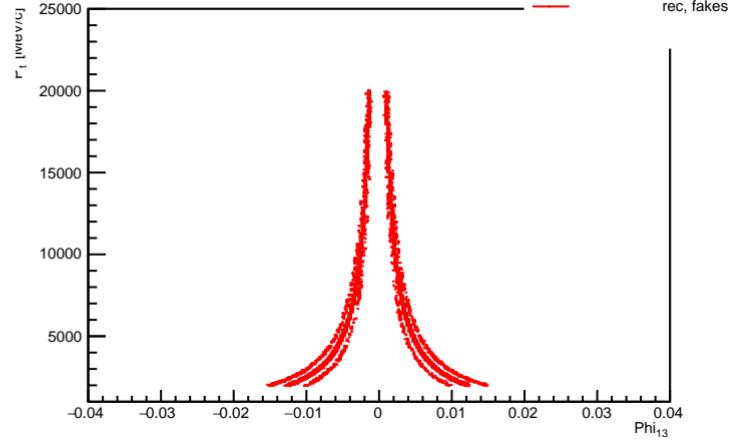
P_t Vs Φ_{13}



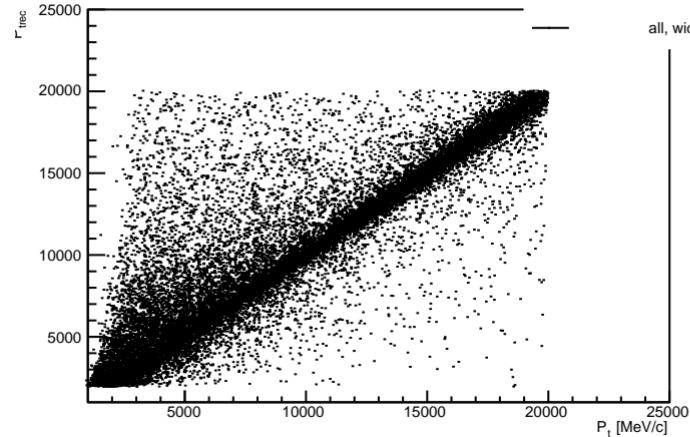
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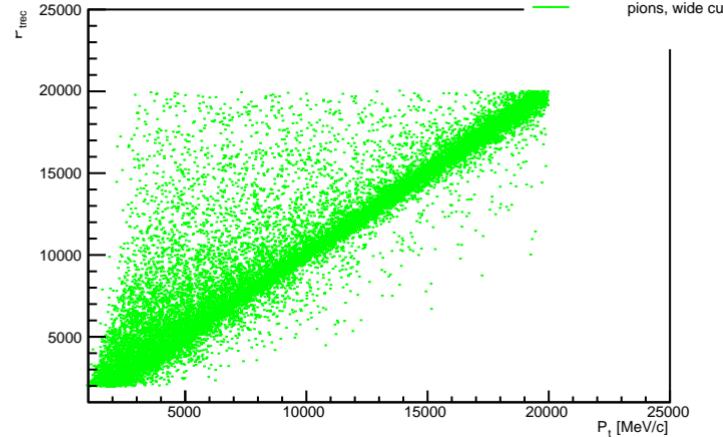
P_t Vs Φ_{13}



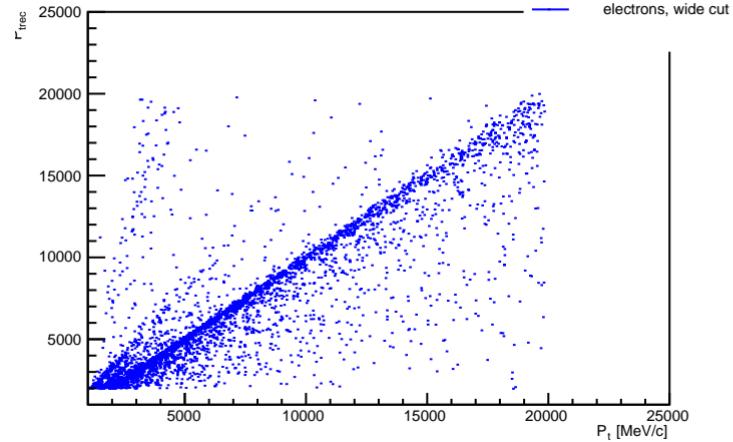
P_{trec} Vs P_t



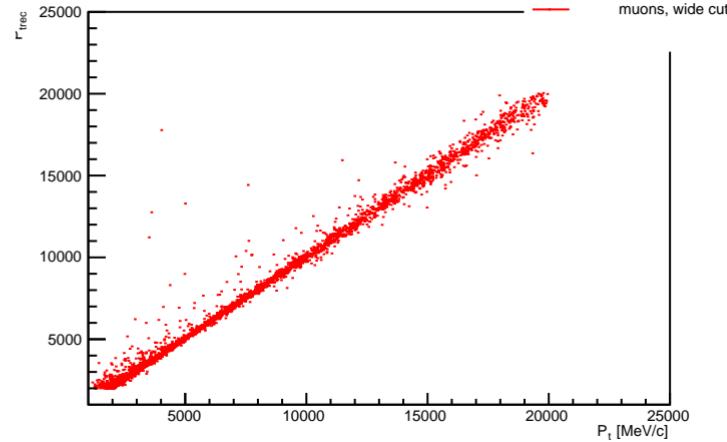
P_{trec} Vs P_t



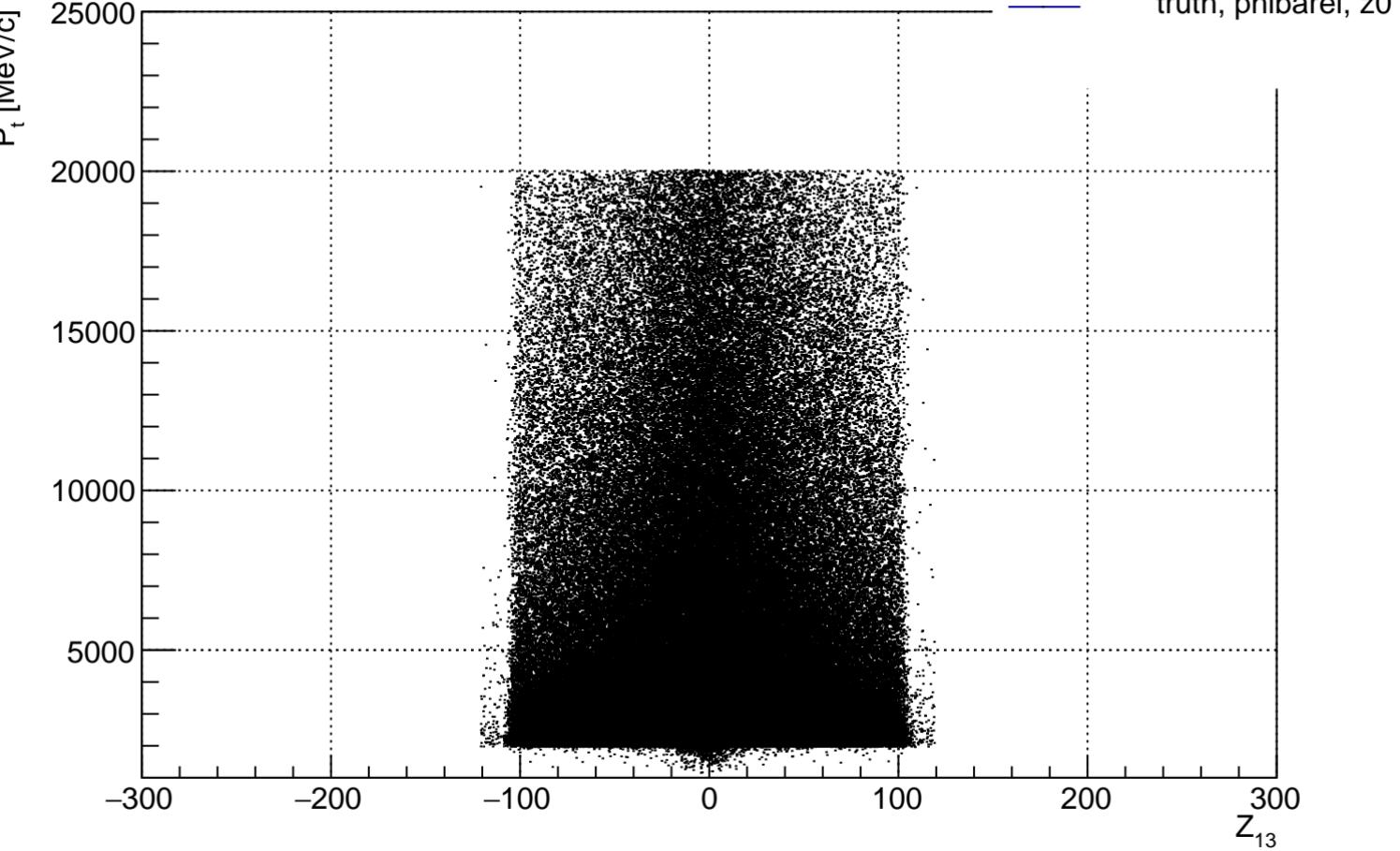
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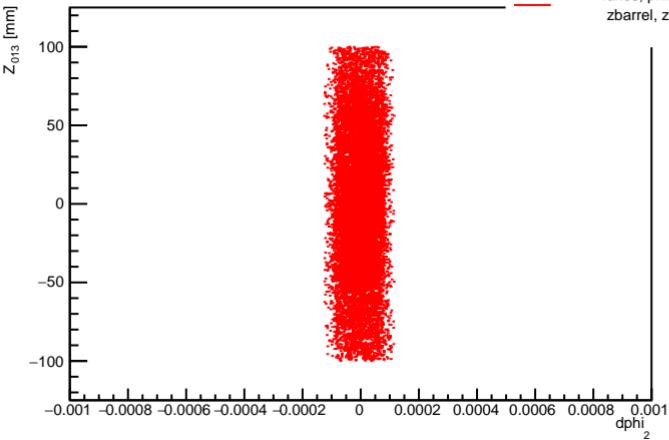
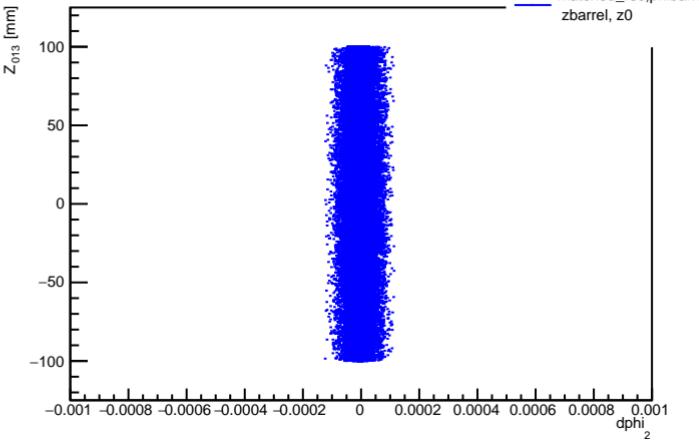
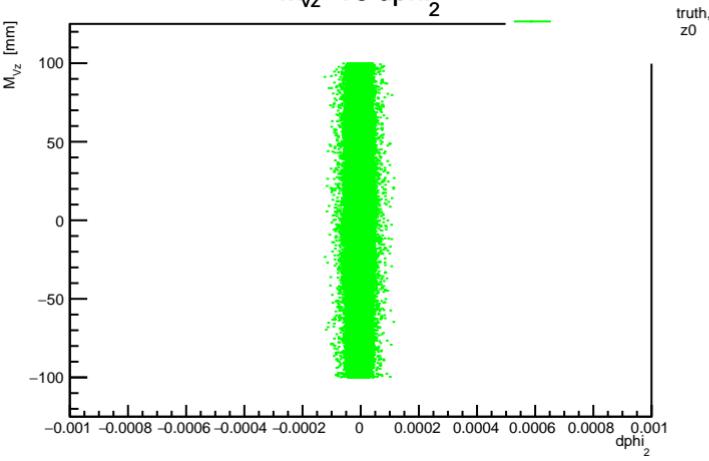
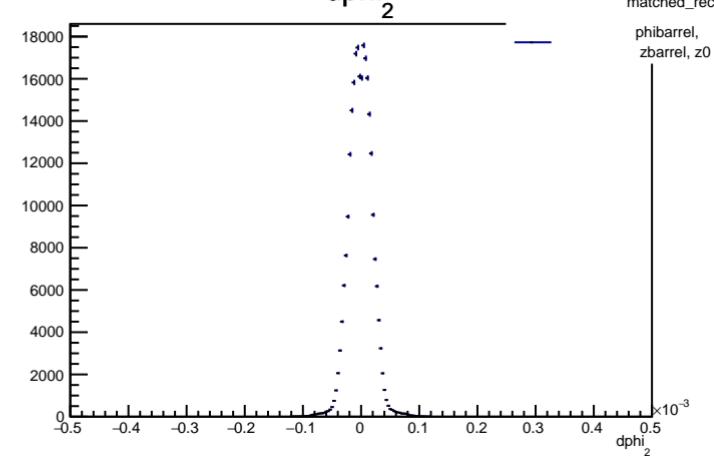


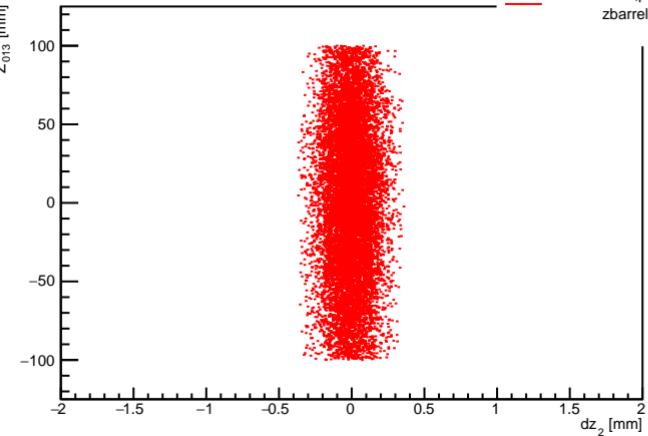
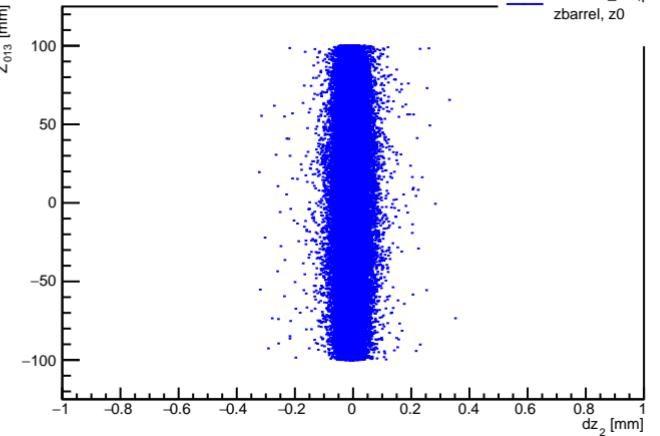
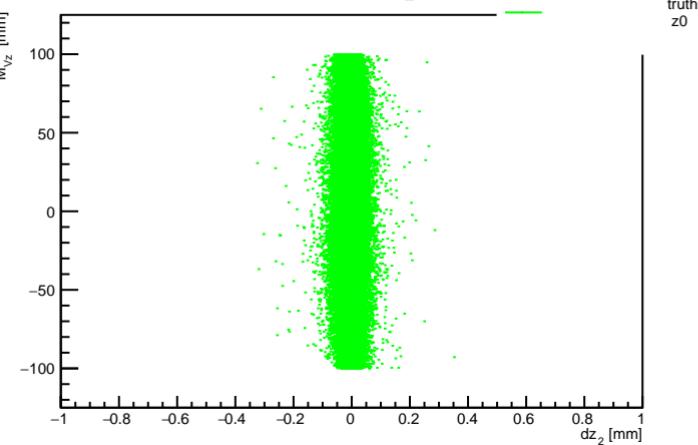
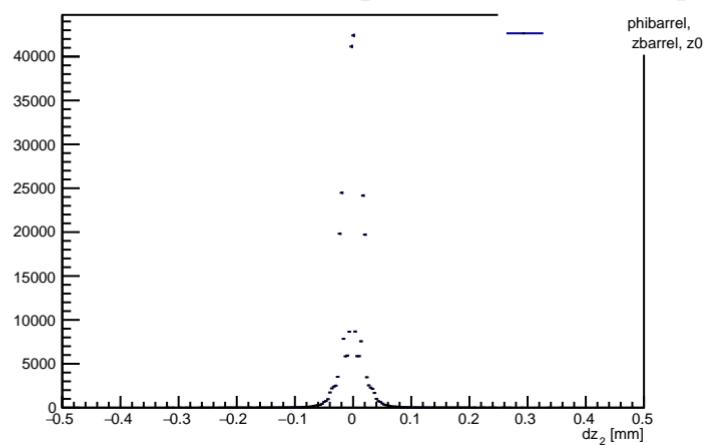
P_{trec} Vs P_t



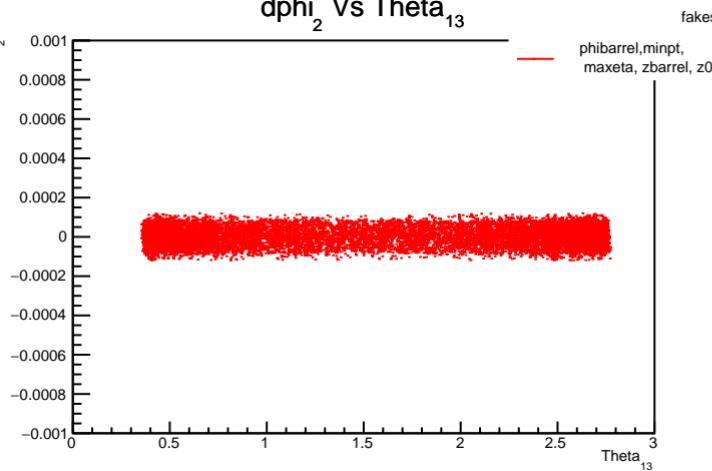
P_t Vs Z_{13}



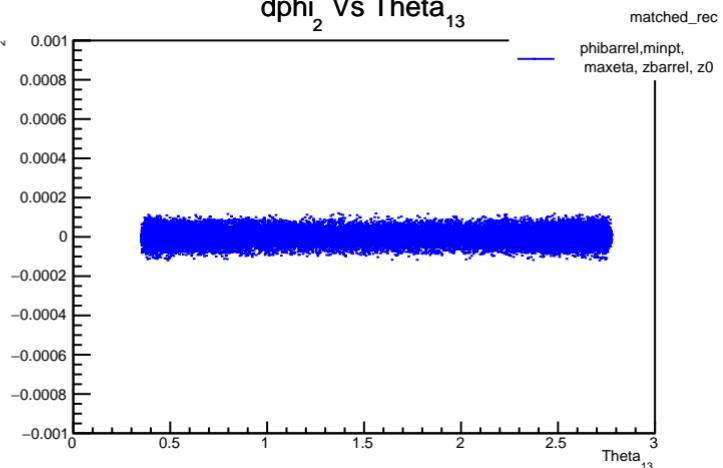
Z_{013} Vs $d\phi_i_2$  Z_{013} Vs $d\phi_i_2$  M_{vz} Vs $d\phi_i_2$  $d\phi_i_2$ 

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

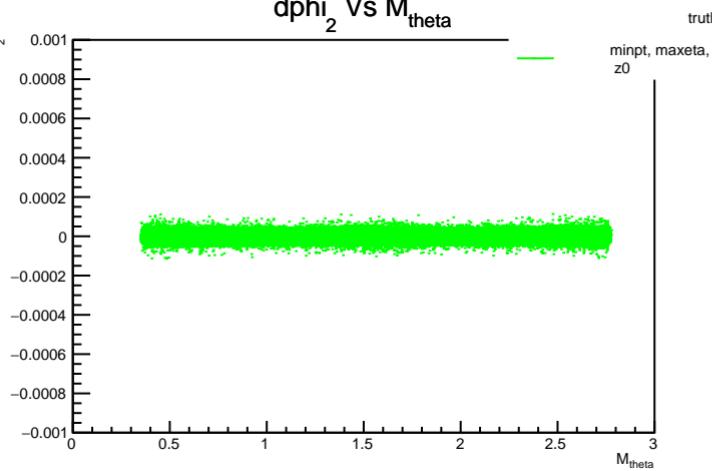
dphi₂ Vs Theta₁₃



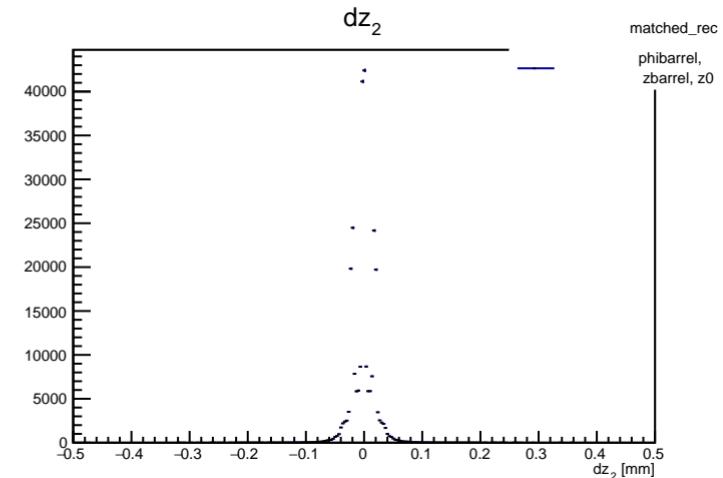
dphi₂ Vs Theta₁₃



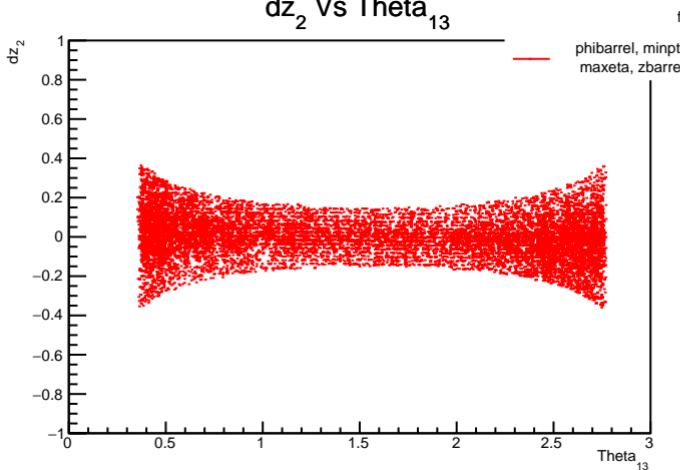
dphi₂ Vs M_{theta}



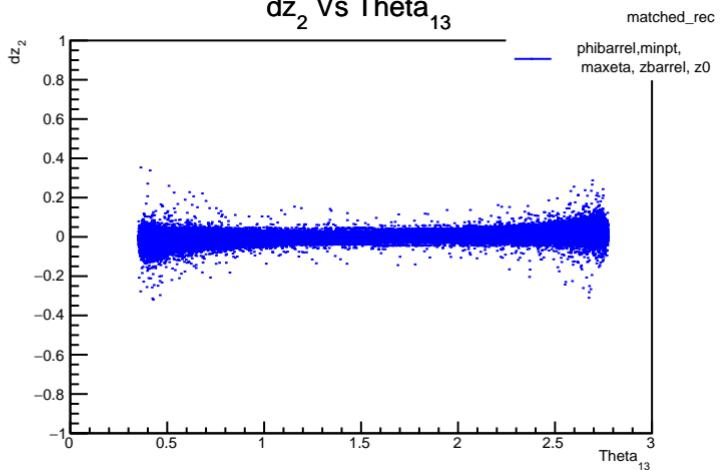
dz₂



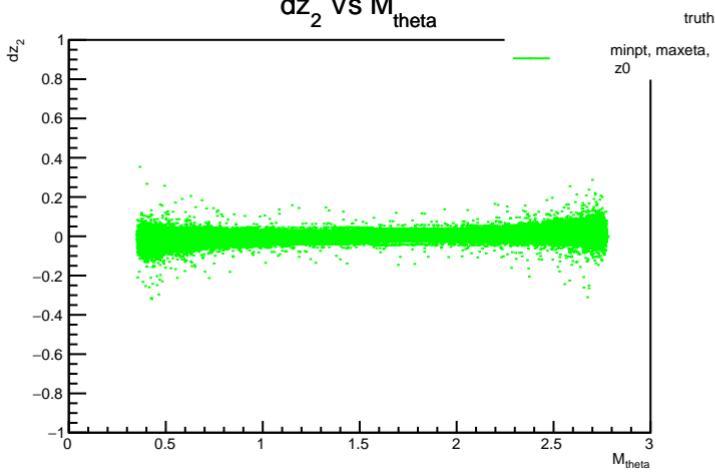
dz_2 Vs Θ_{13}



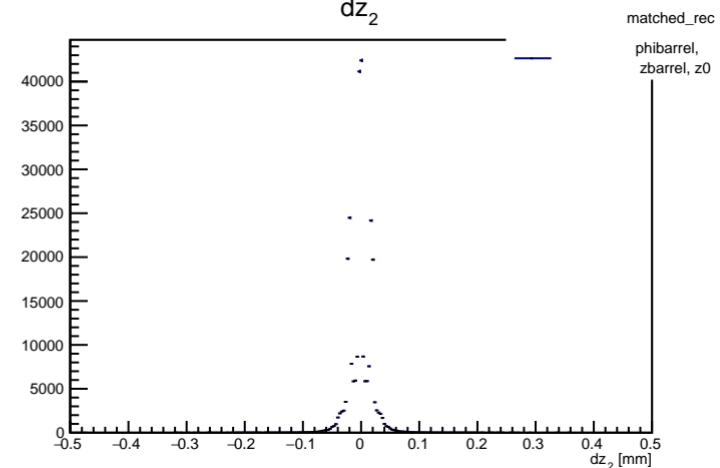
dz_2 Vs Θ_{13}



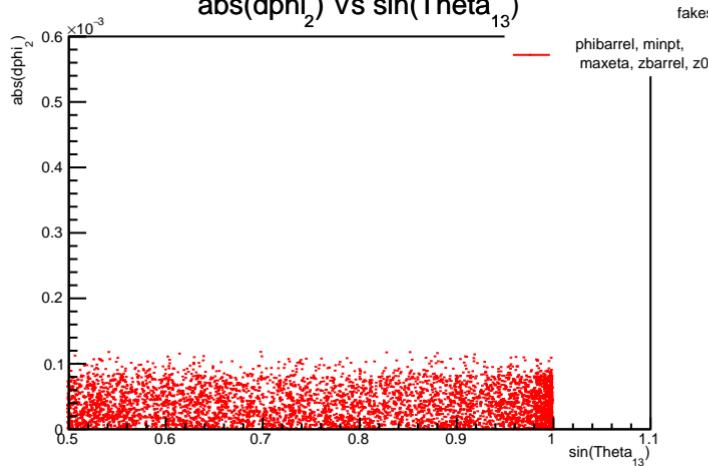
dz_2 Vs M_{θ}



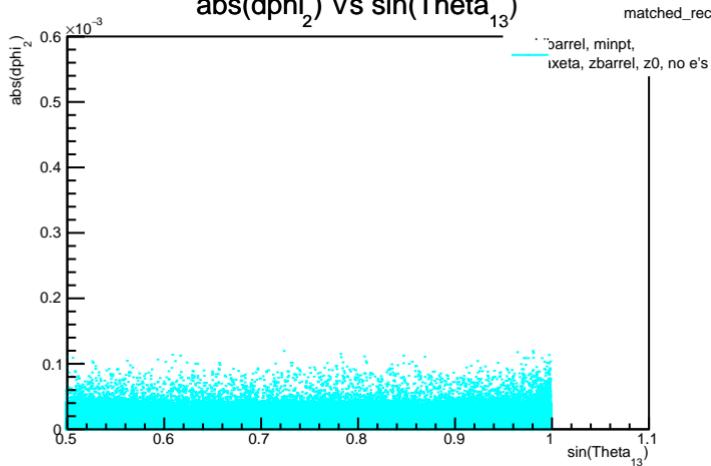
dz_2



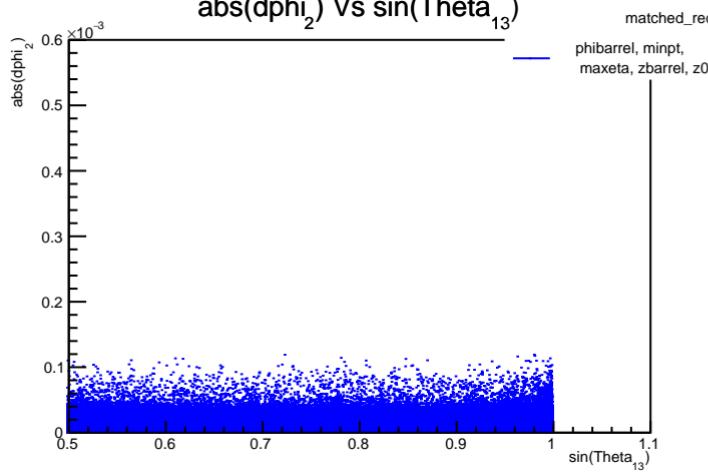
$\text{abs}(\text{dphi}_2)$ Vs $\sin(\Theta_{13})$



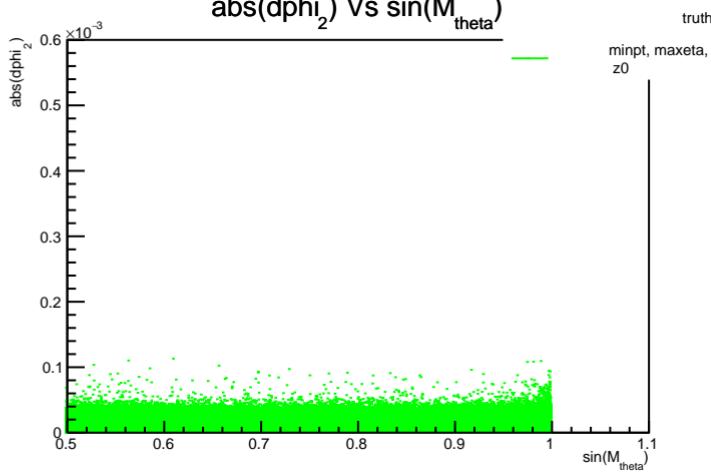
$\text{abs}(\text{dphi}_2)$ Vs $\sin(\Theta_{13})$



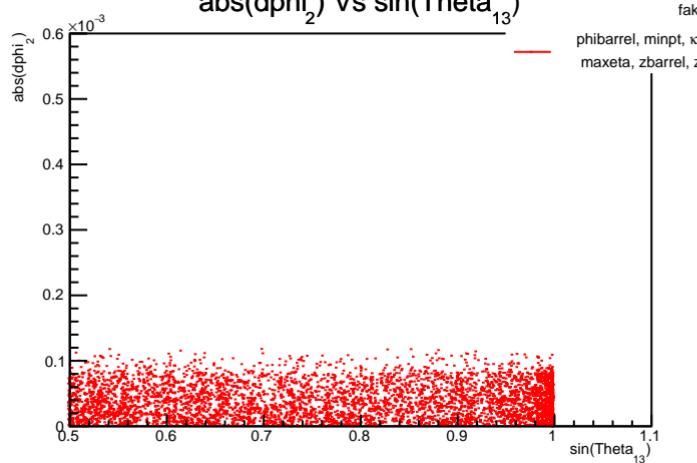
$\text{abs}(\text{dphi}_2)$ Vs $\sin(\Theta_{13})$



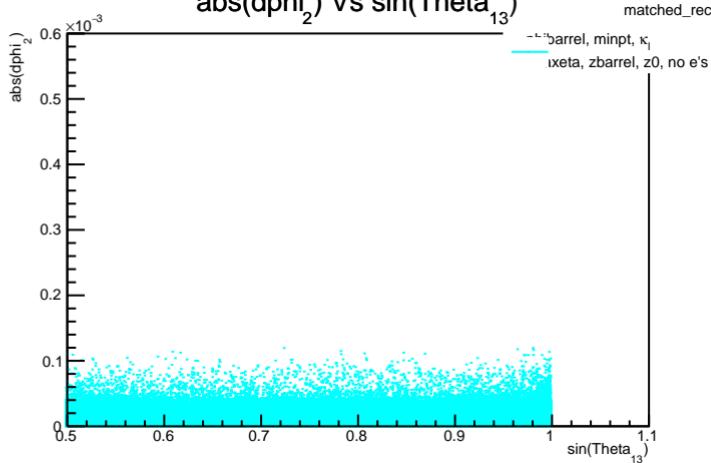
$\text{abs}(\text{dphi}_2)$ Vs $\sin(M_{\theta})$



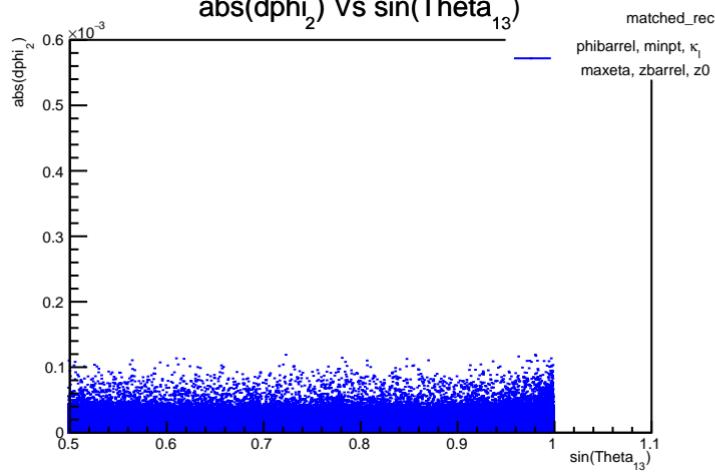
$\text{abs}(\text{dphi}_2)$ Vs $\sin(\Theta_{13})$



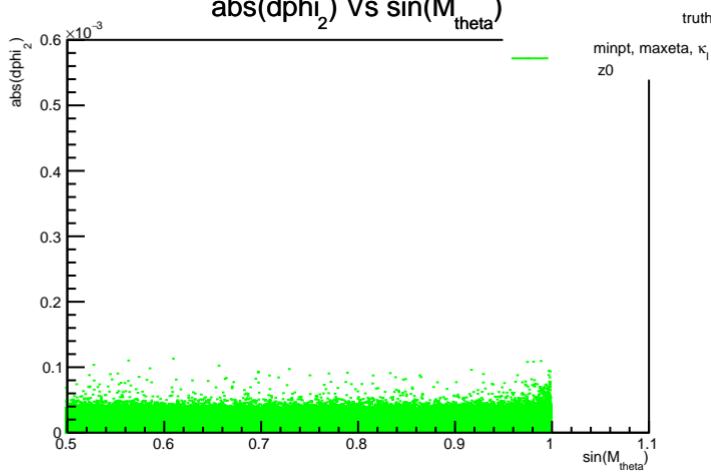
$\text{abs}(\text{dphi}_2)$ Vs $\sin(\Theta_{13})$

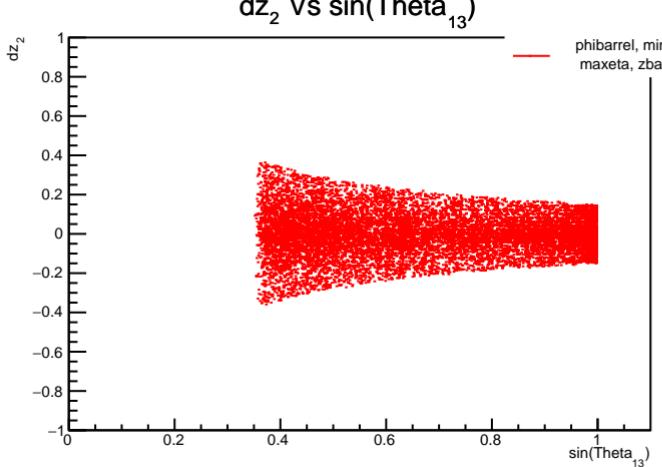
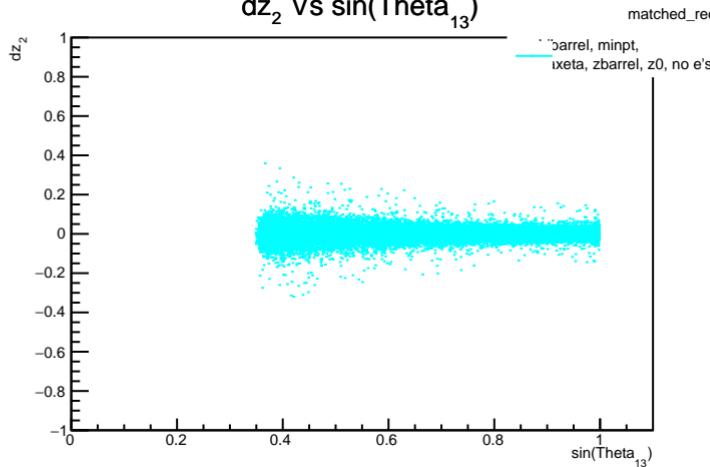
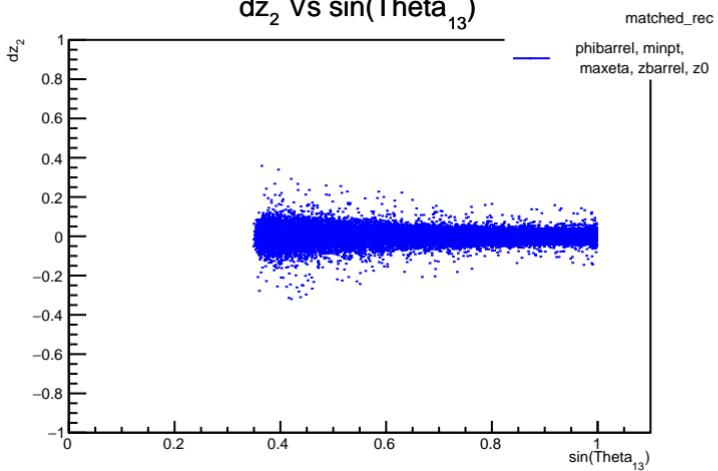
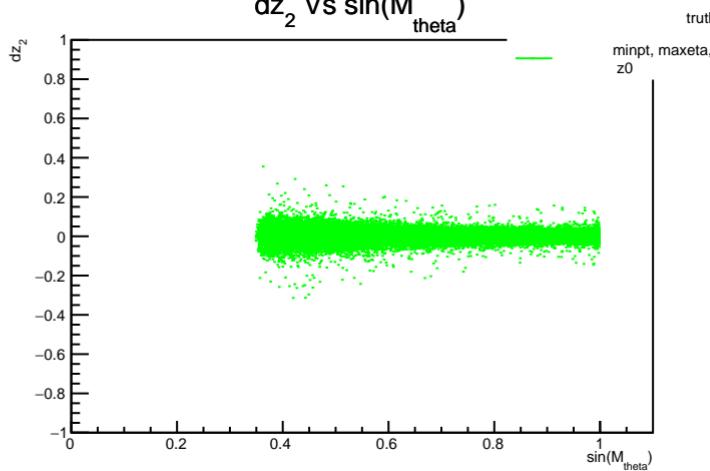


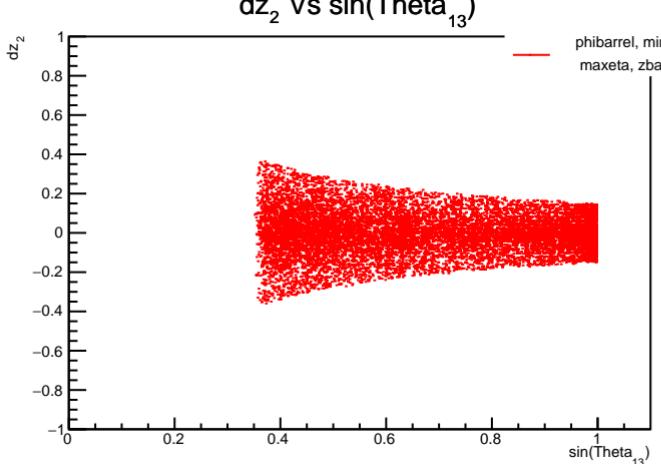
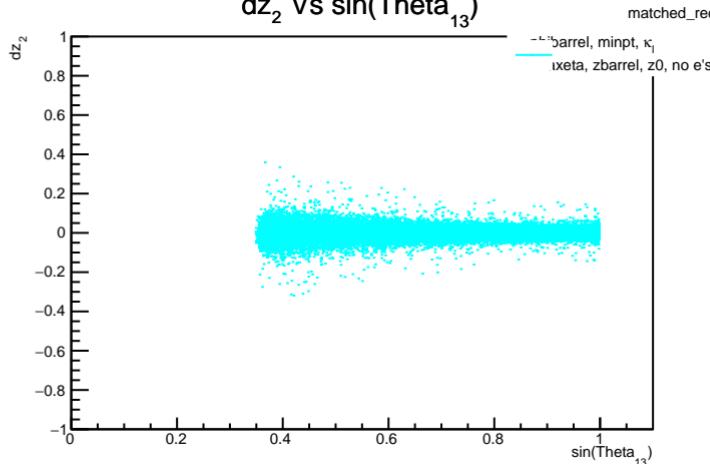
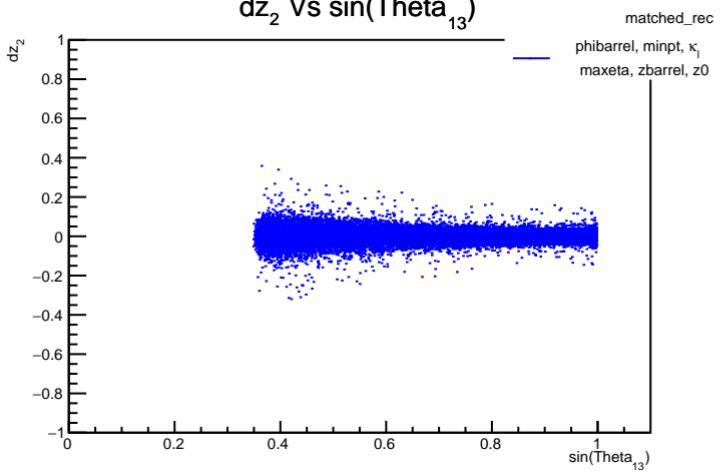
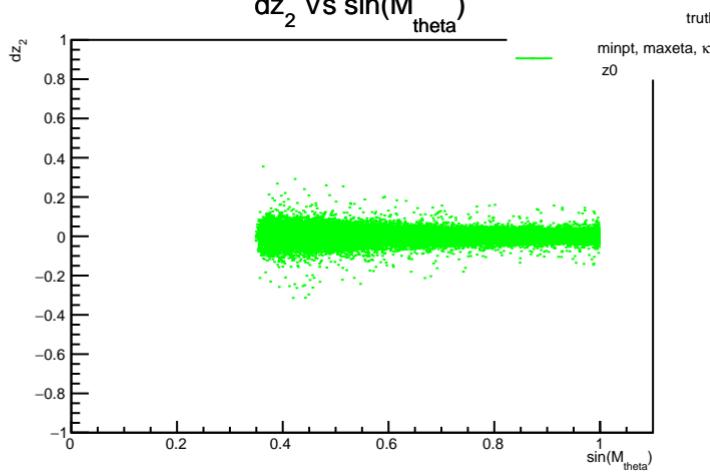
$\text{abs}(\text{dphi}_2)$ Vs $\sin(\Theta_{13})$



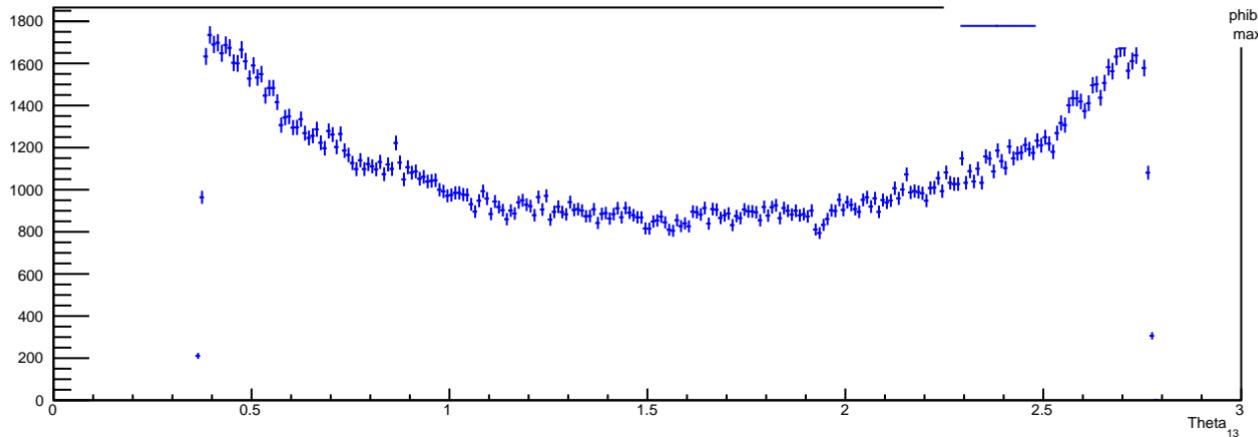
$\text{abs}(\text{dphi}_2)$ Vs $\sin(M_{\theta})$



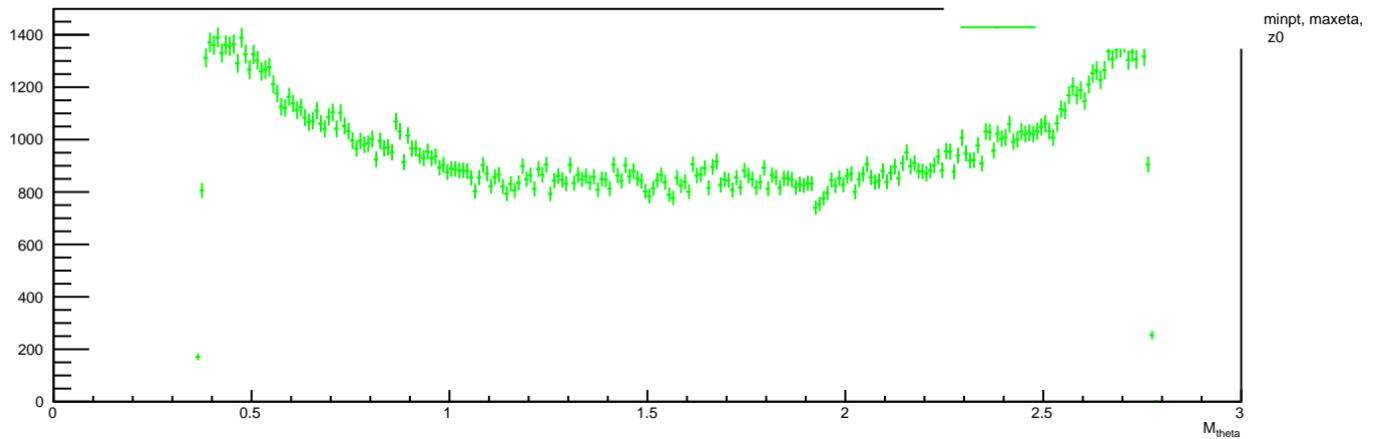
dz_2 Vs $\sin(\Theta_{13})$  dz_2 Vs $\sin(\Theta_{13})$  dz_2 Vs $\sin(\Theta_{13})$  dz_2 Vs $\sin(M_{\theta})$ 

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



M_{theta}



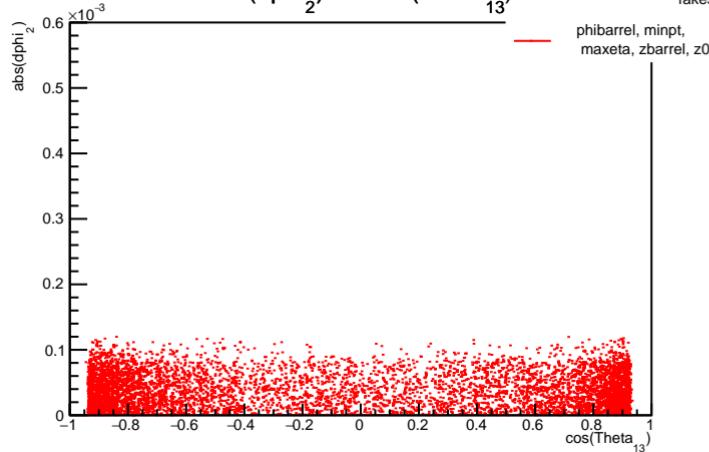
matched_rec

phibarrel,minpt,
maxeta, zbarrel, z0

truth

minpt, maxeta,
z0

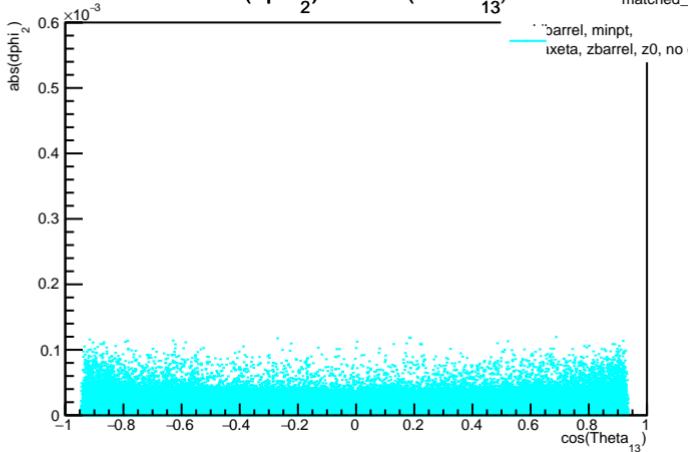
$\text{abs}(\text{dphi}_2)$ Vs $\cos(\Theta_{13})$



fakes

phibarrel, minpt,
maxeta, zbarrel, z0

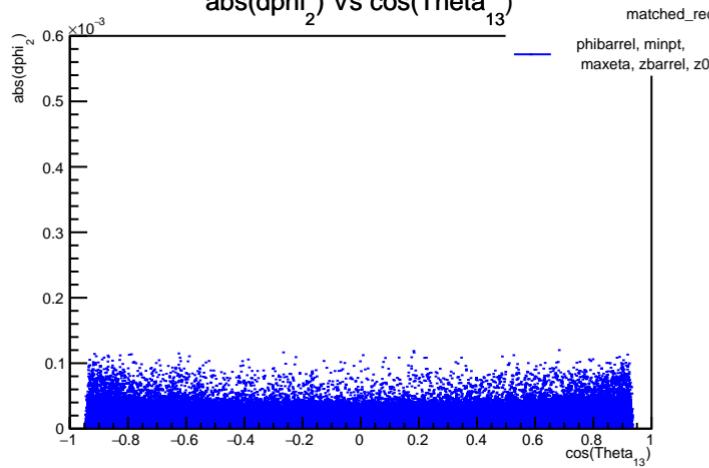
$\text{abs}(\text{dphi}_2)$ Vs $\cos(\Theta_{13})$



matched_rec

phibarrel, minpt,
maxeta, zbarrel, z0, no e's

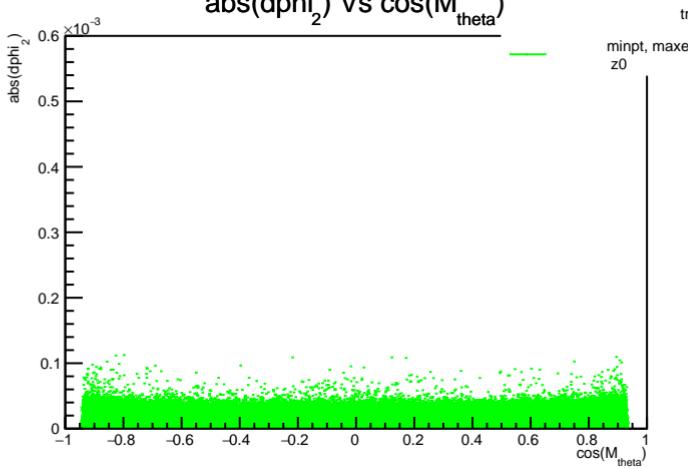
$\text{abs}(\text{dphi}_2)$ Vs $\cos(\Theta_{13})$



matched_rec

phibarrel, minpt,
maxeta, zbarrel, z0

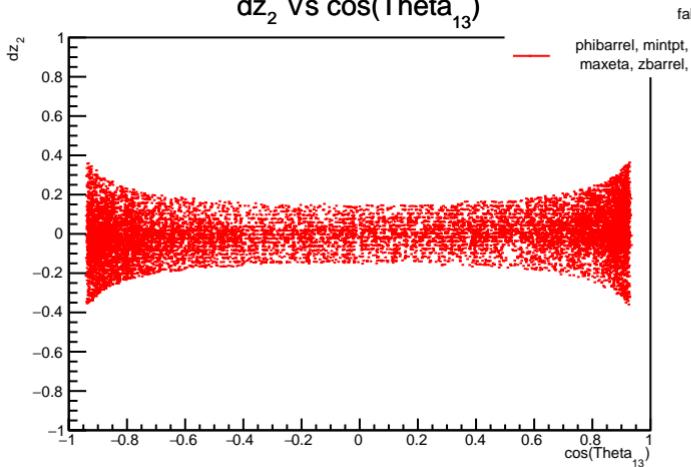
$\text{abs}(\text{dphi}_2)$ Vs $\cos(M_{\theta})$



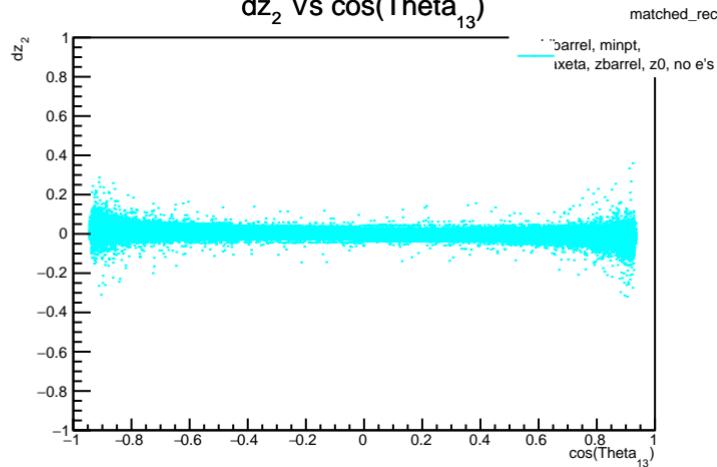
truth

minpt, maxeta,
z0

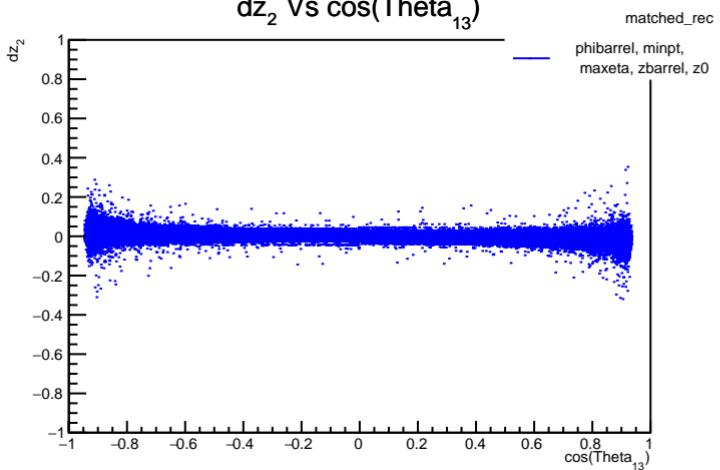
dz_2 Vs $\cos(\Theta_{13})$



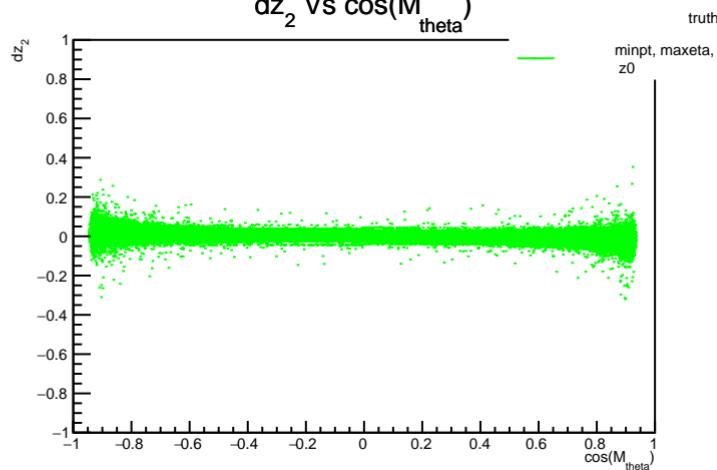
dz_2 Vs $\cos(\Theta_{13})$



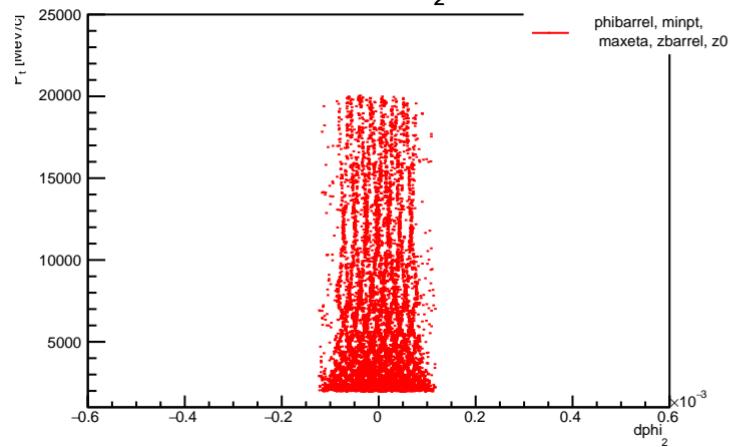
dz_2 Vs $\cos(\Theta_{13})$



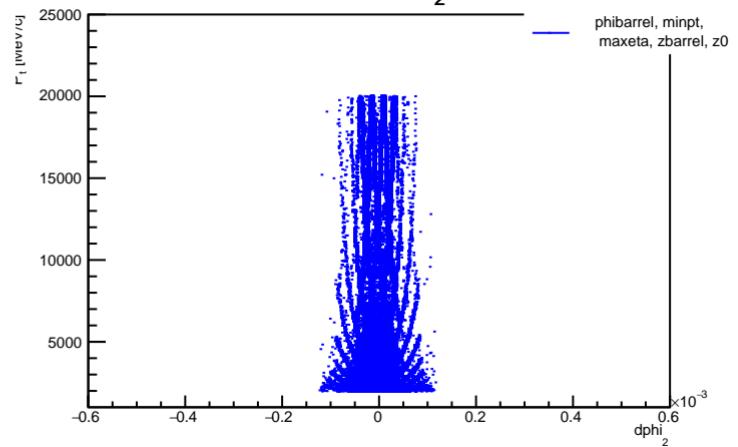
dz_2 Vs $\cos(M_{\theta})$



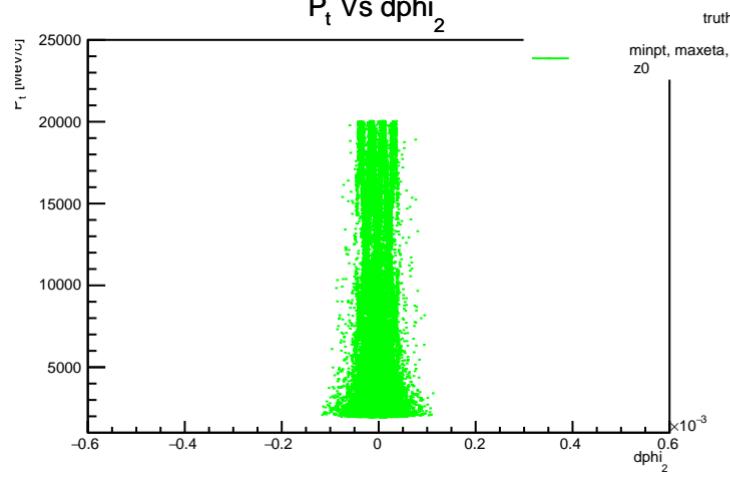
P_t Vs $d\phi_{2}$



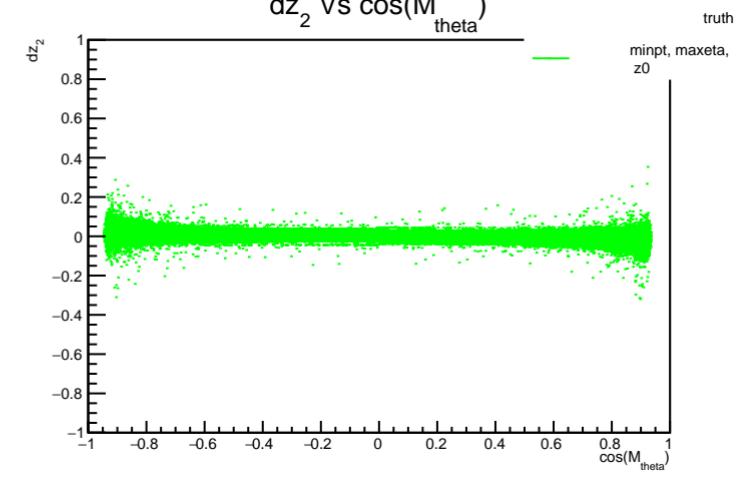
P_t Vs $d\phi_{2}$



P_t Vs $d\phi_{2}$

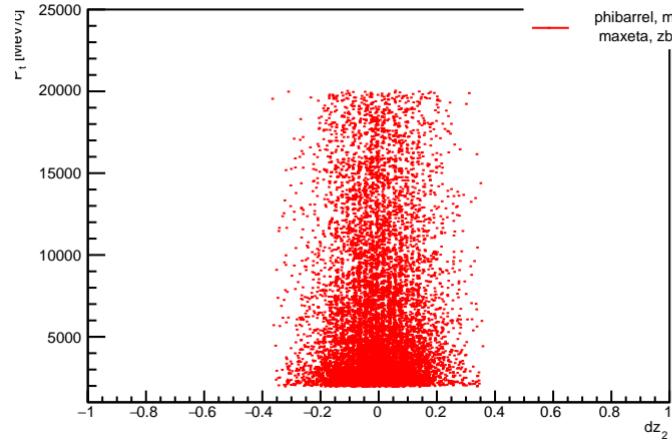


dz_2 Vs $\cos(M_{\theta})$



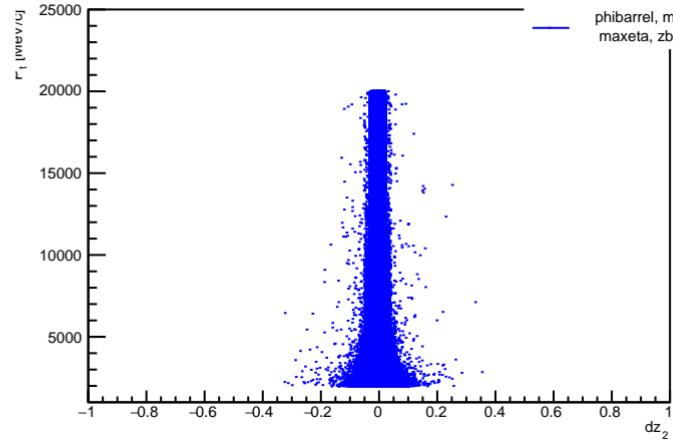
P_t Vs dz_2

fakes



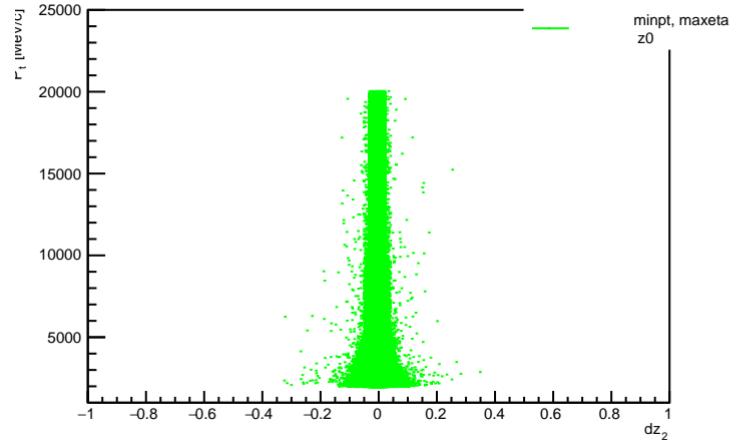
P_t Vs dz_2

matched_rec



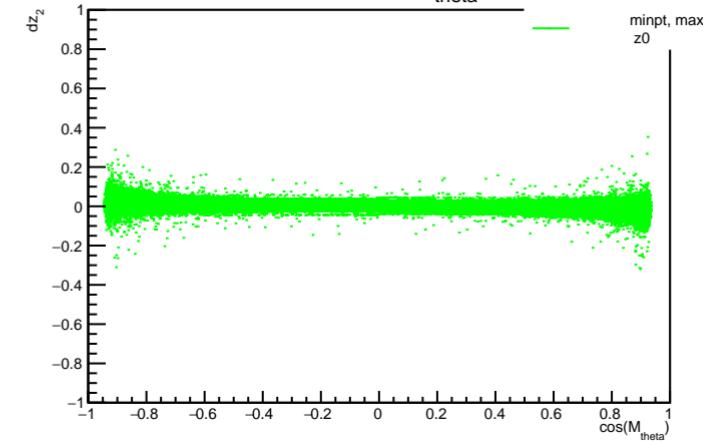
P_t Vs dz_2

truth

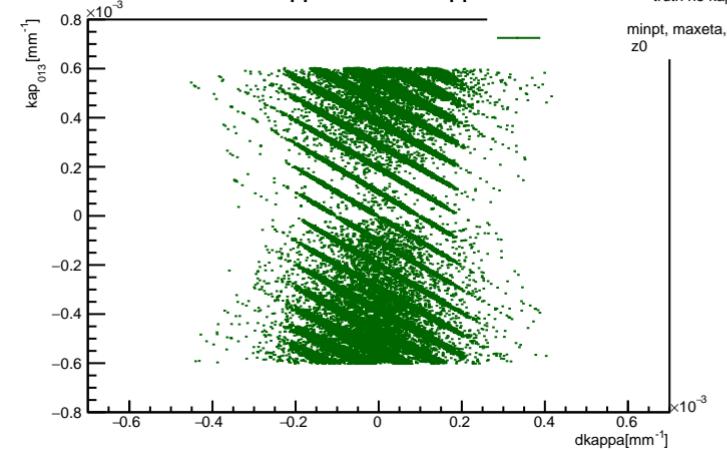


dz_2 Vs $\cos(M_{\theta})$

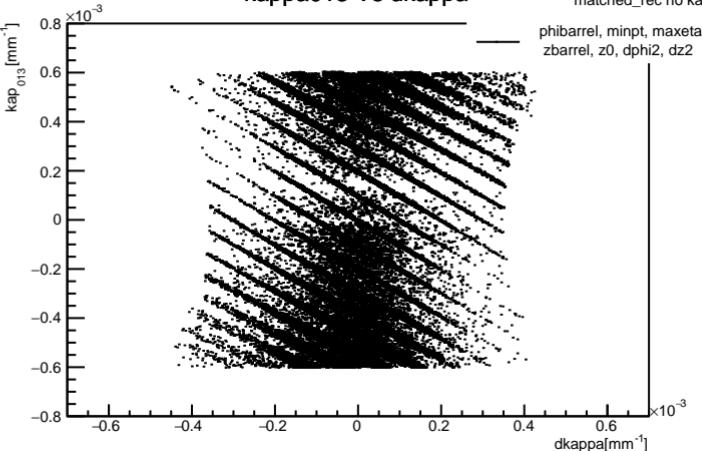
truth



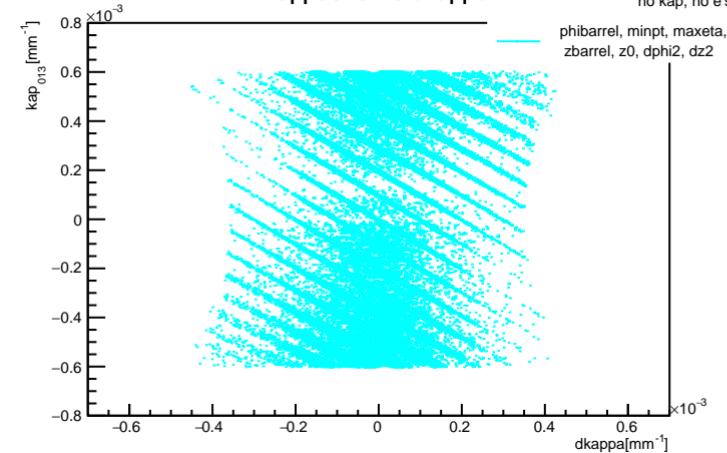
kappa013 Vs dkappa



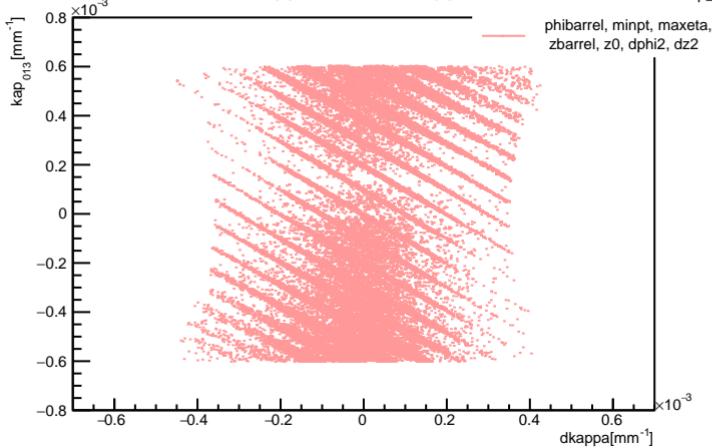
kappa013 Vs dkappa



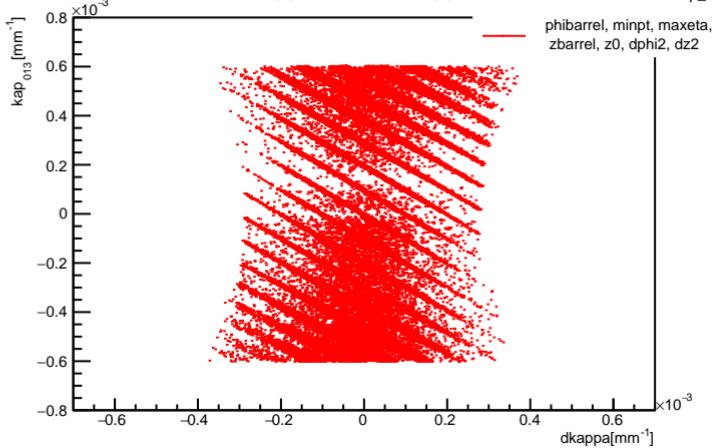
kappa013 Vs dkappa



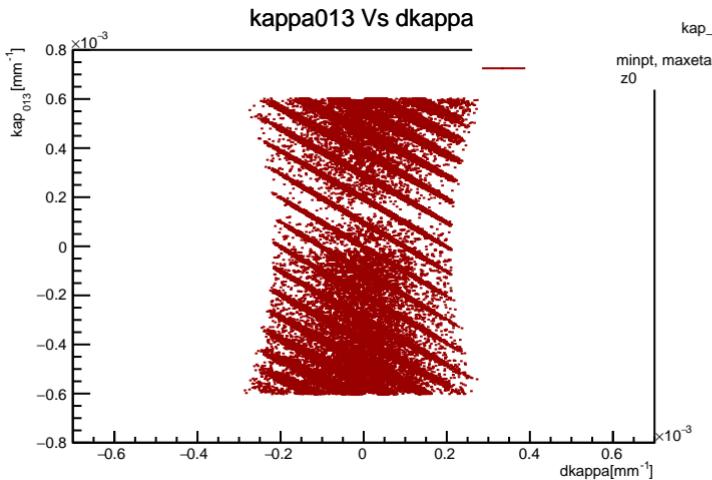
kappa013 Vs dkappa



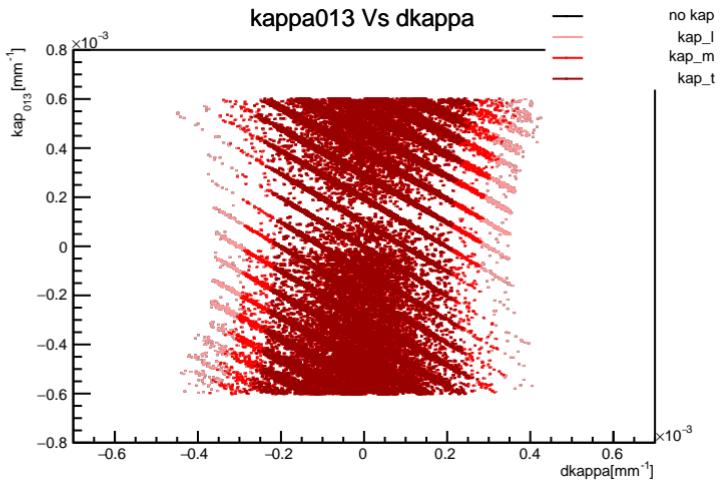
kappa013 Vs dkappa



kappa013 Vs dkappa

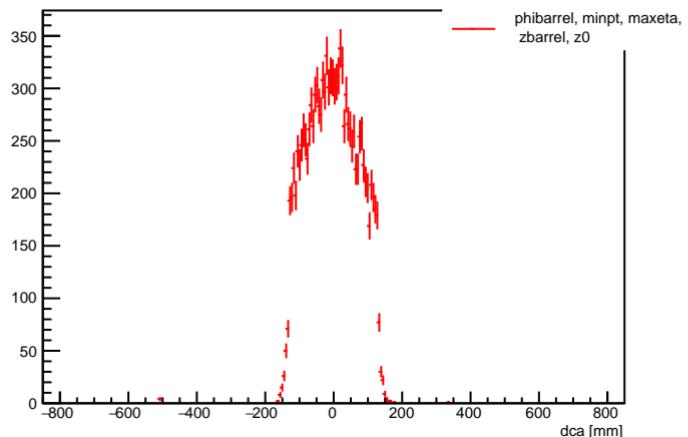


kappa013 Vs dkappa



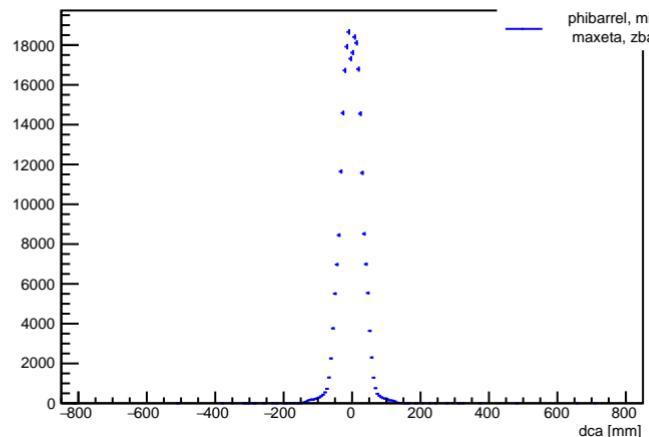
dca

fakes



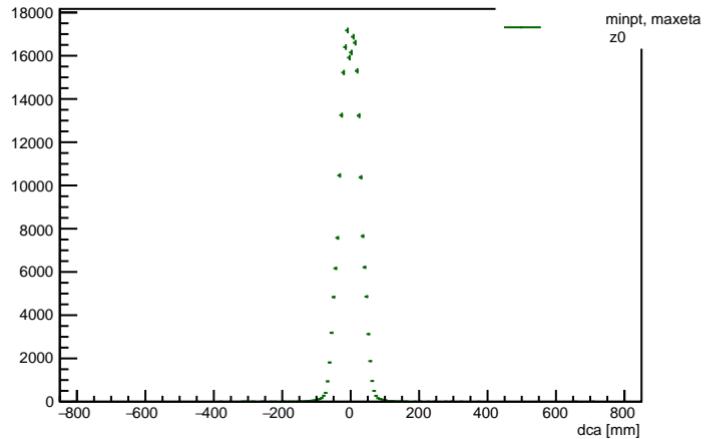
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matched_rec



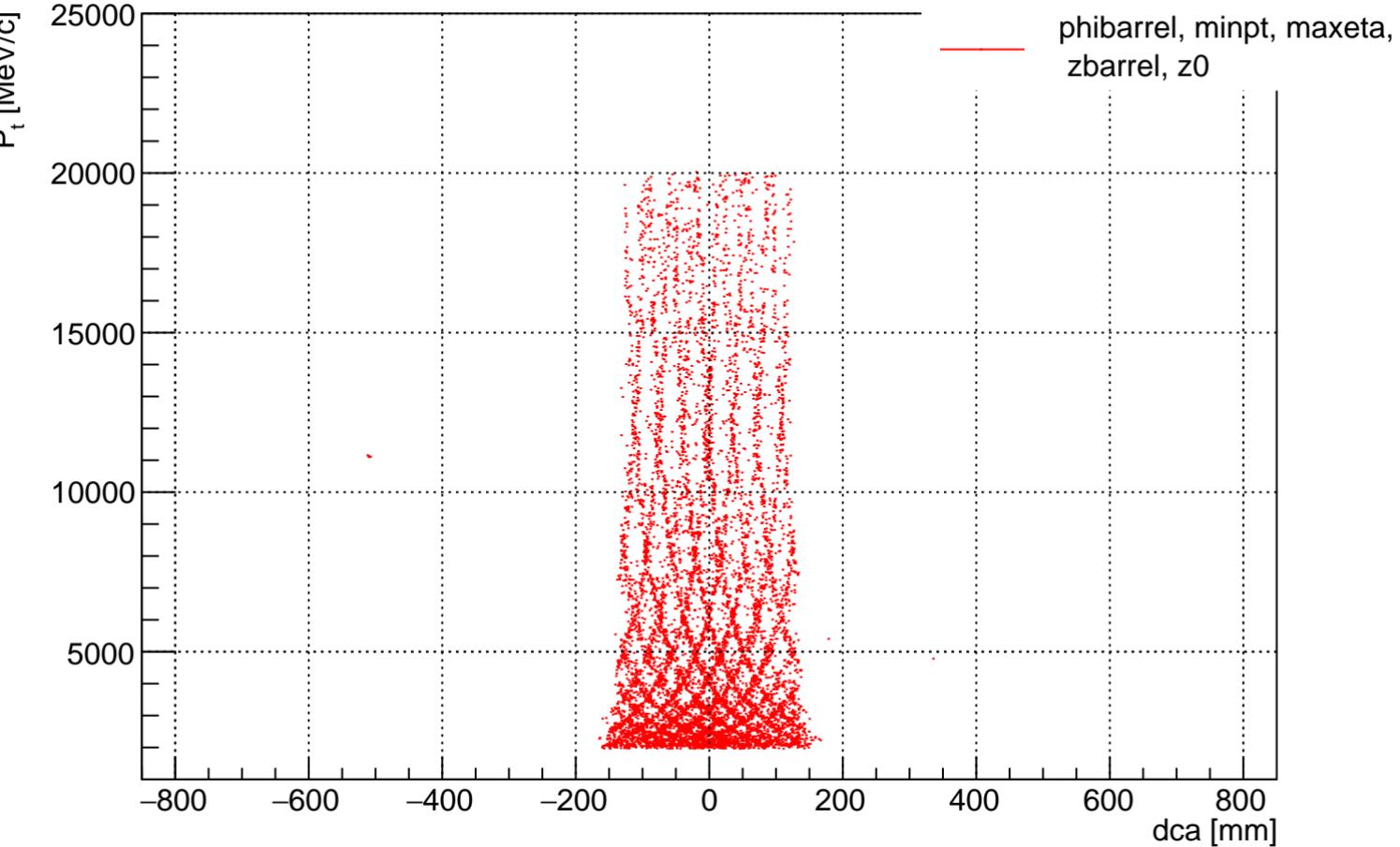
dca

truth

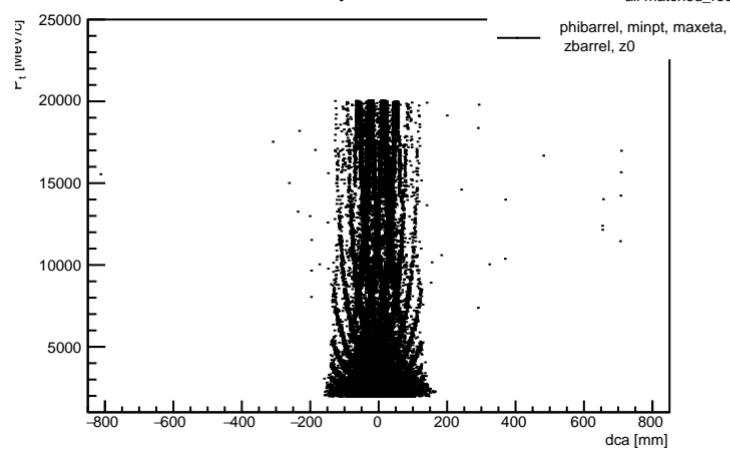


P_t Vs dca

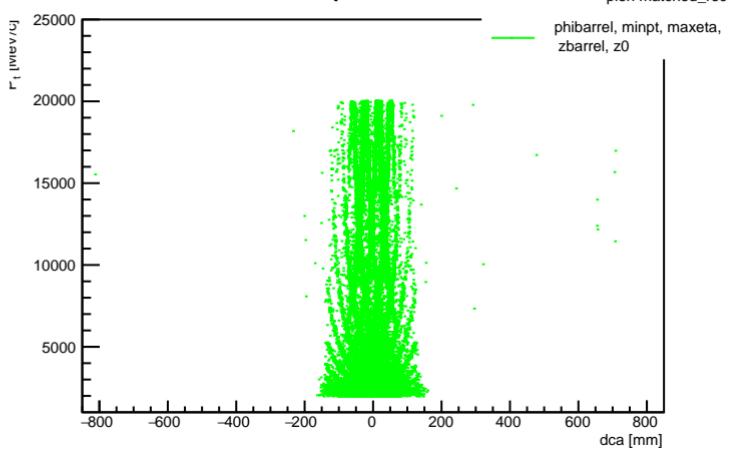
fakes



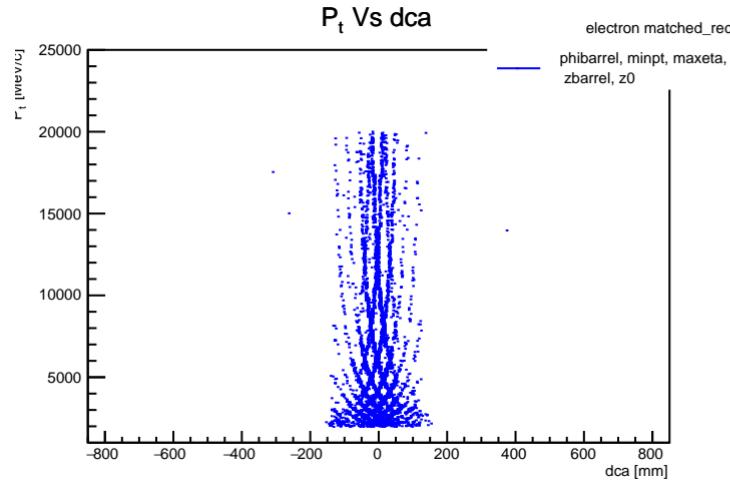
P_t Vs dca



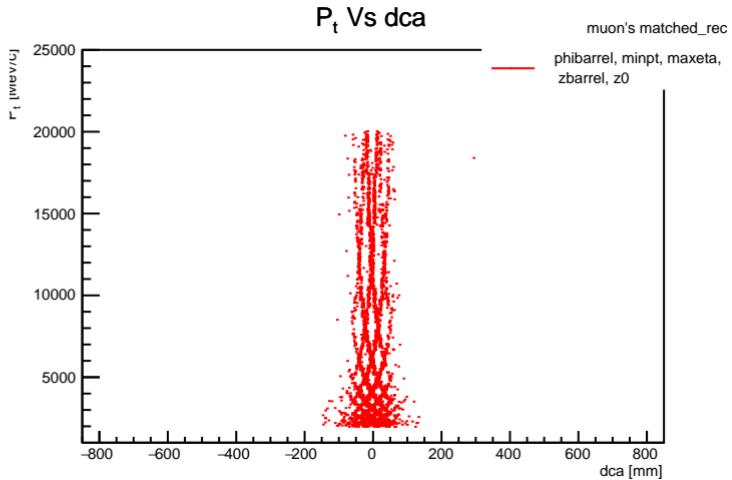
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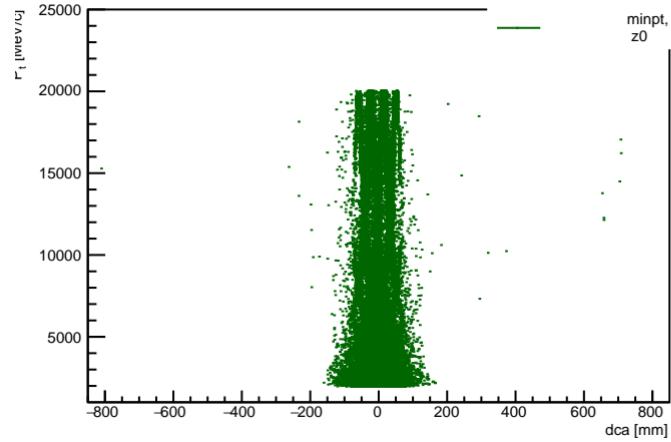
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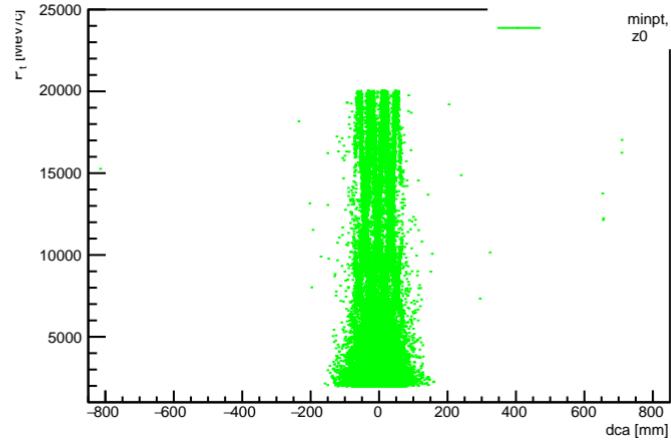
P_t Vs dca



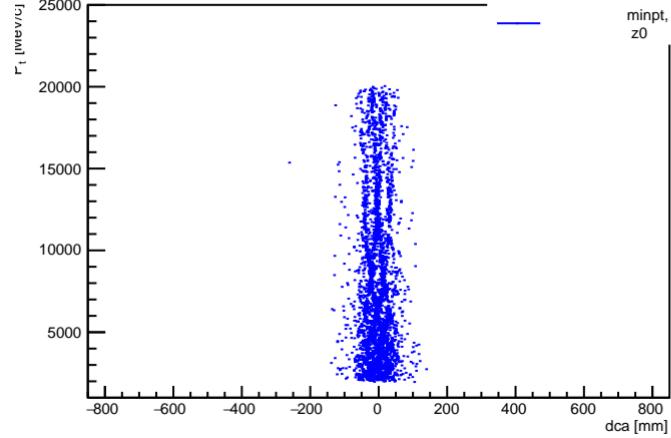
P_t Vs dca



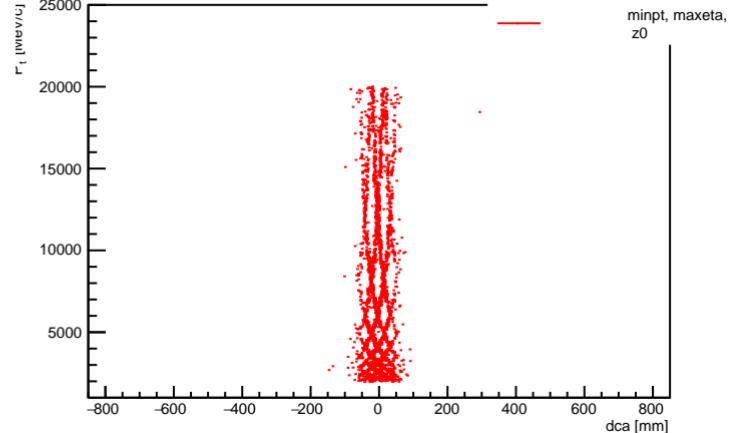
P_t Vs dca



P_t Vs dca

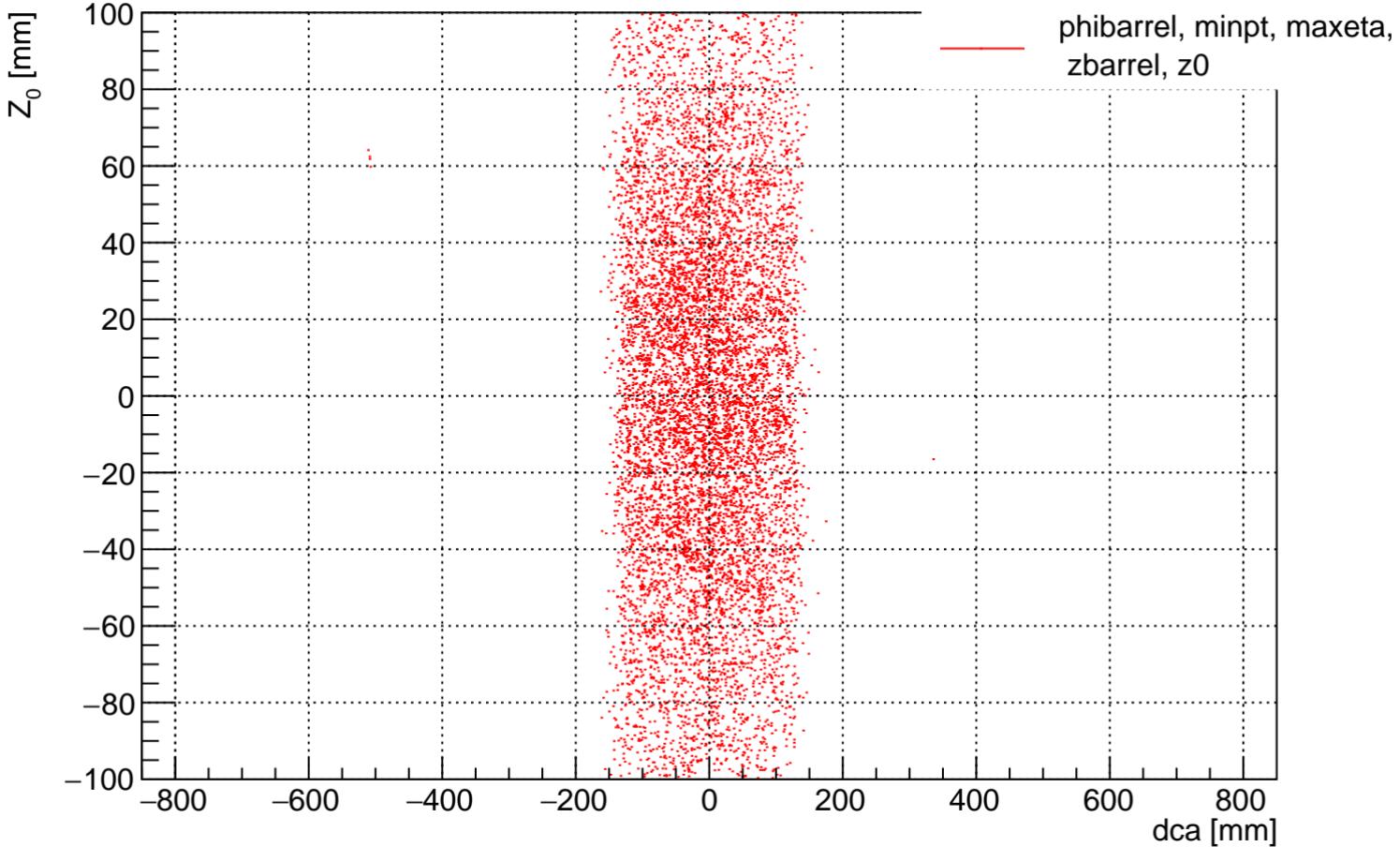


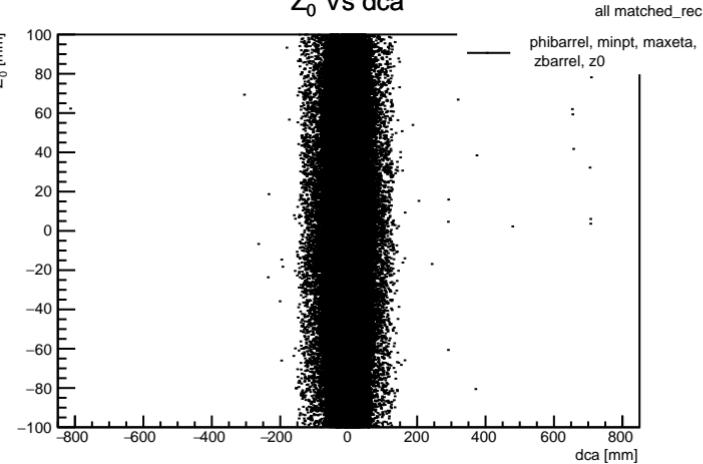
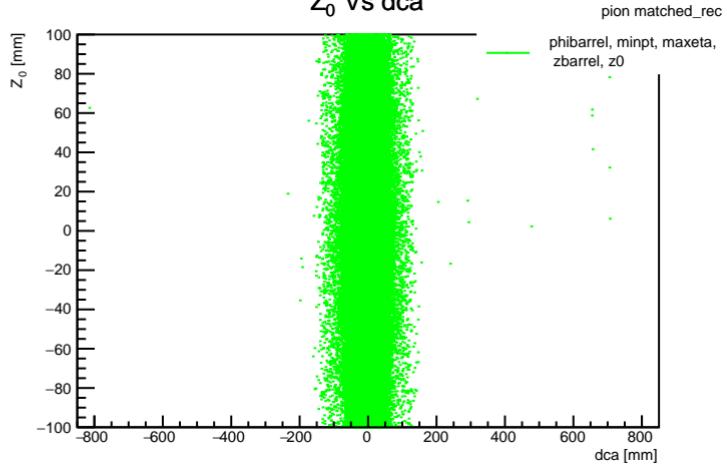
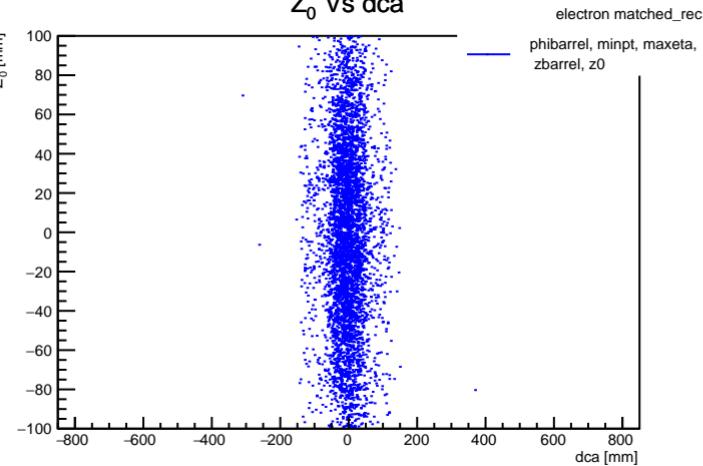
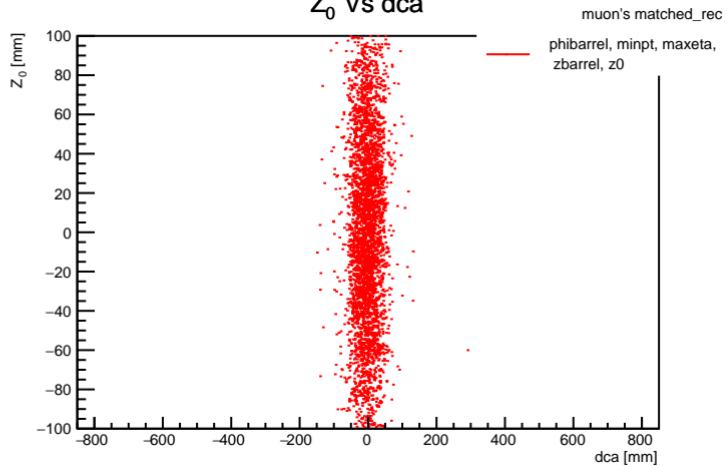
P_t Vs dca

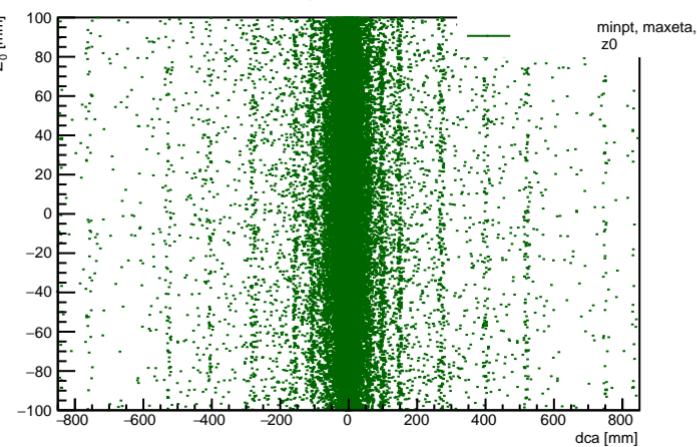
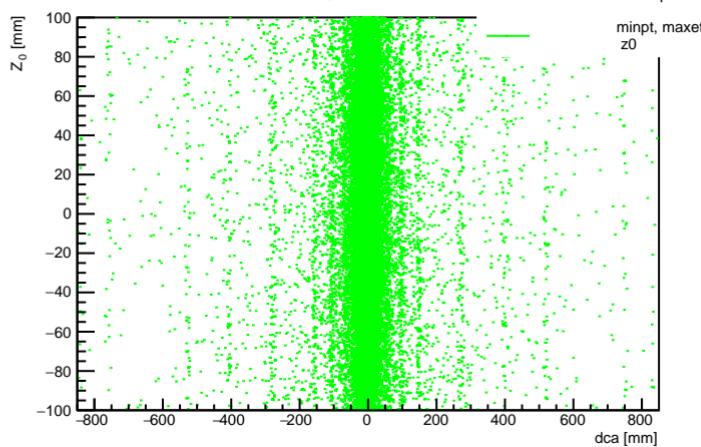
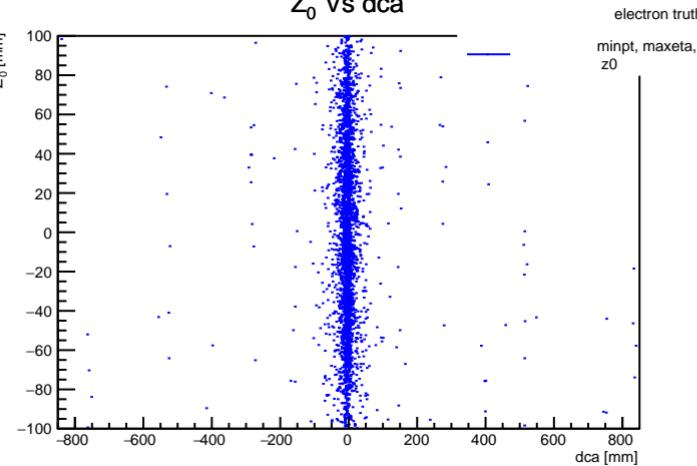
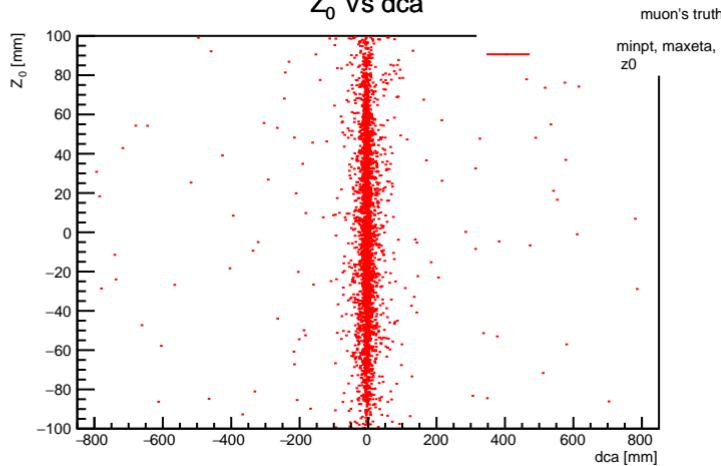


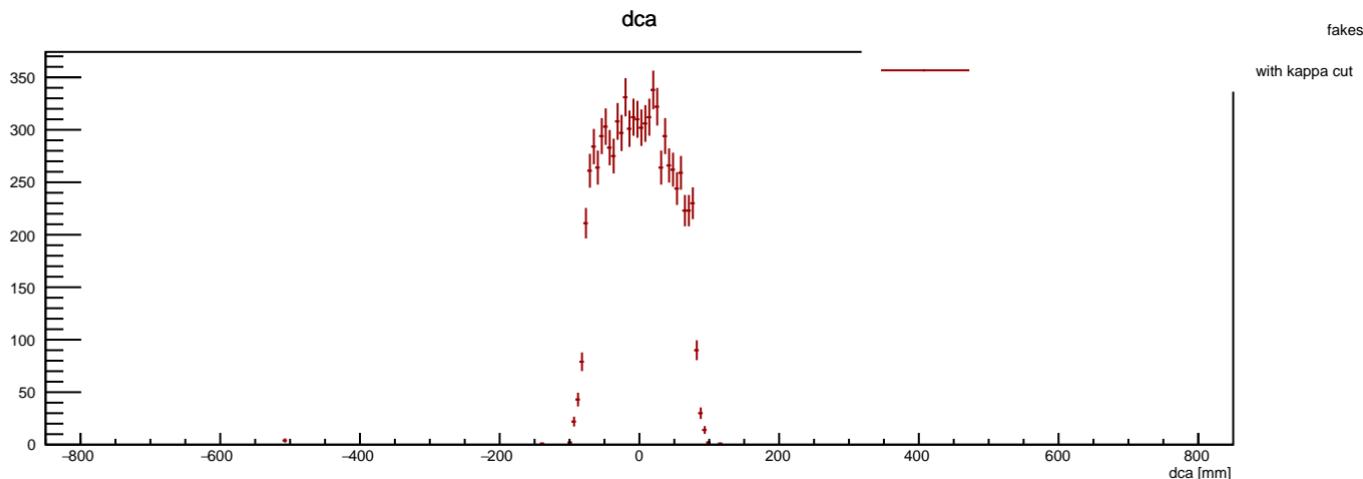
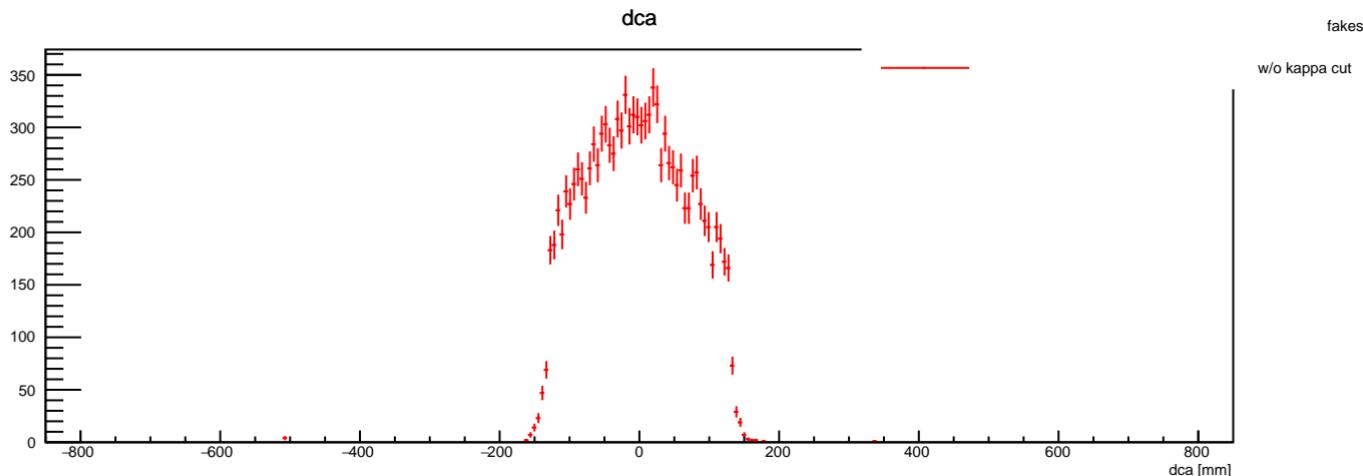
Z_0 Vs dca

fakes

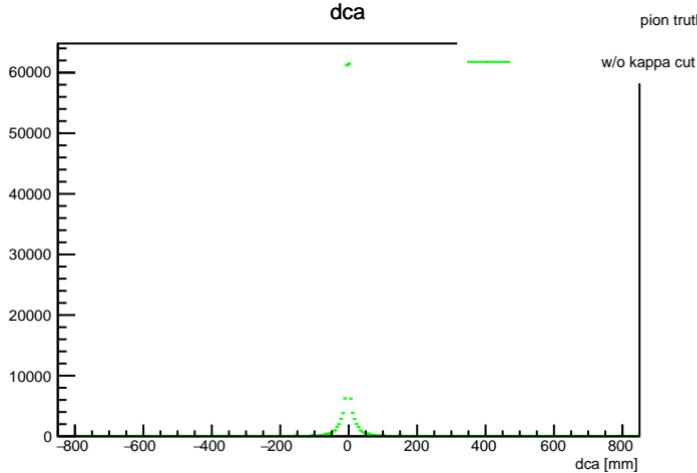


Z_0 Vs dca Z_0 Vs dca Z_0 Vs dca Z_0 Vs dca

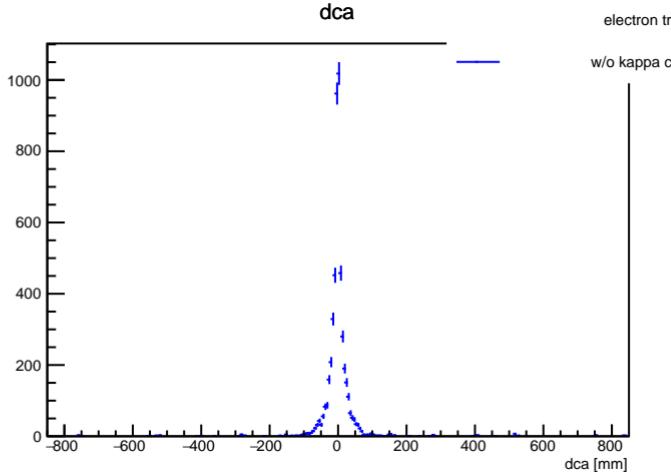
Z_0 Vs dca Z_0 Vs dca Z_0 Vs dca Z_0 Vs dca



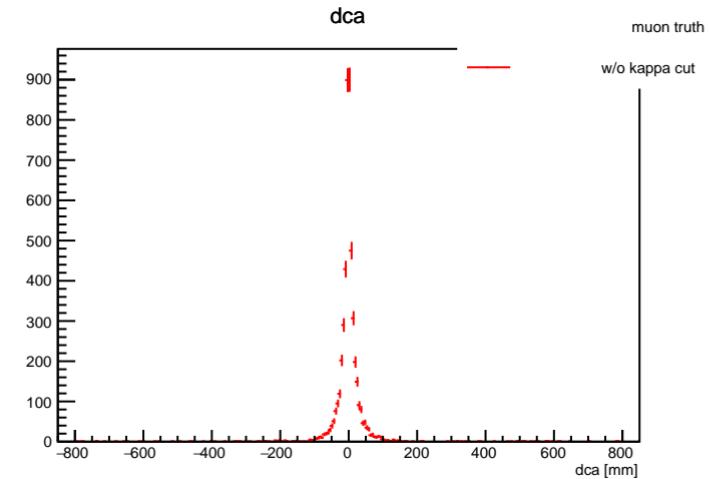
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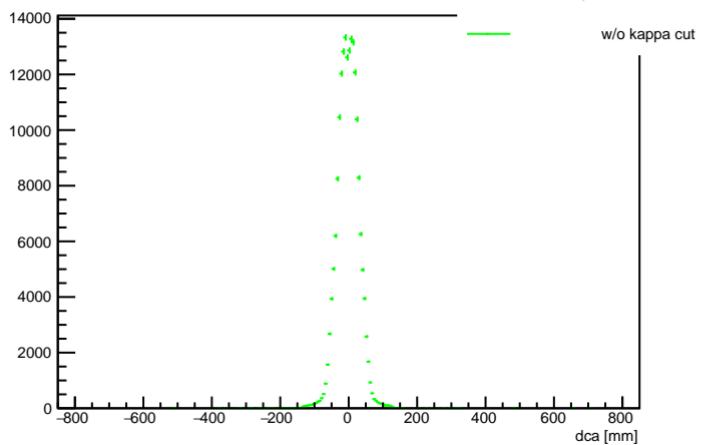
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dca



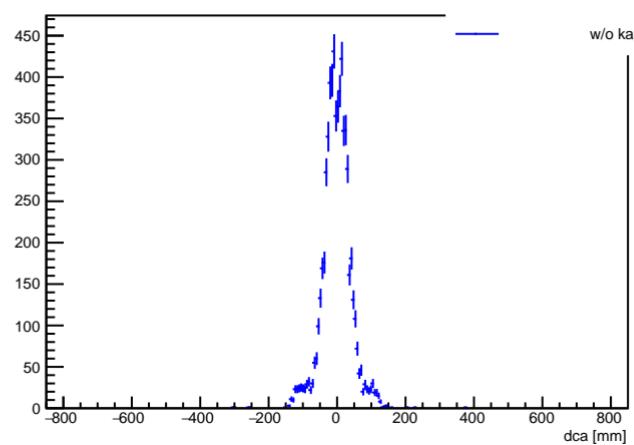
dca



pion matched_rec

w/o kappa cut

dca



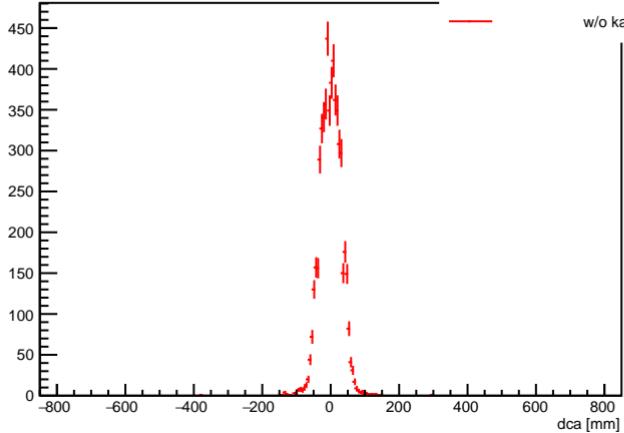
electron matched_rec

w/o kappa cut

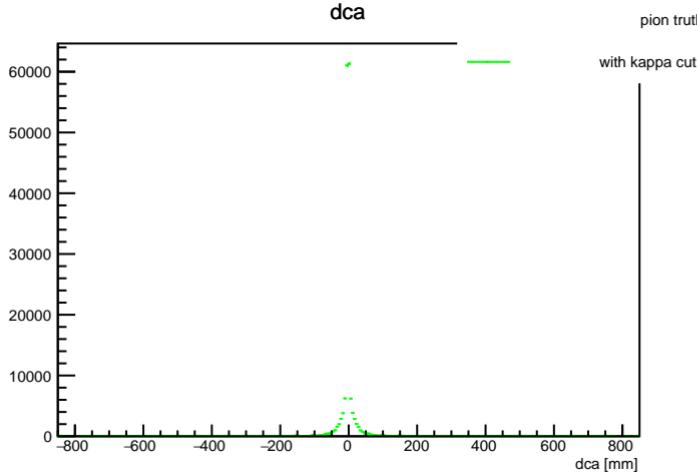
dca

muon matched_rec

w/o kappa cut



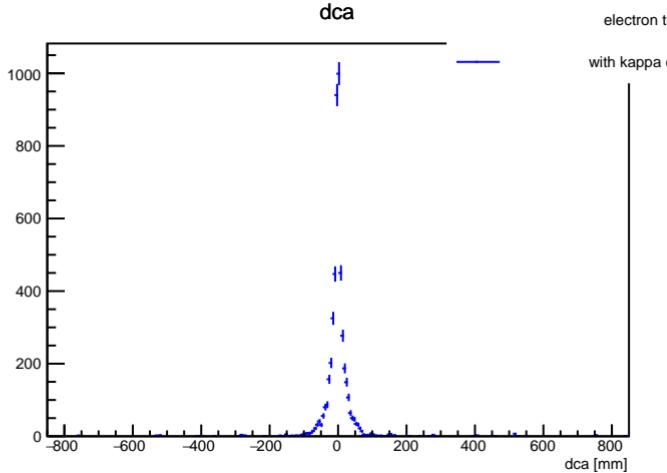
dca



pion truth

with kappa cut

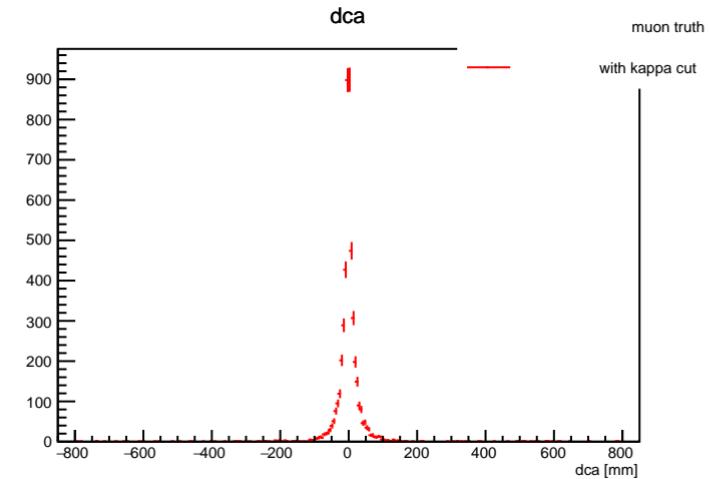
dca



electron truth

with kappa cut

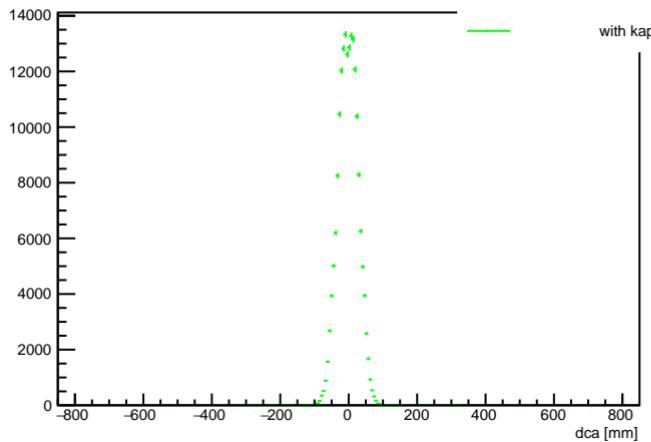
dca



muon truth

with kappa cut

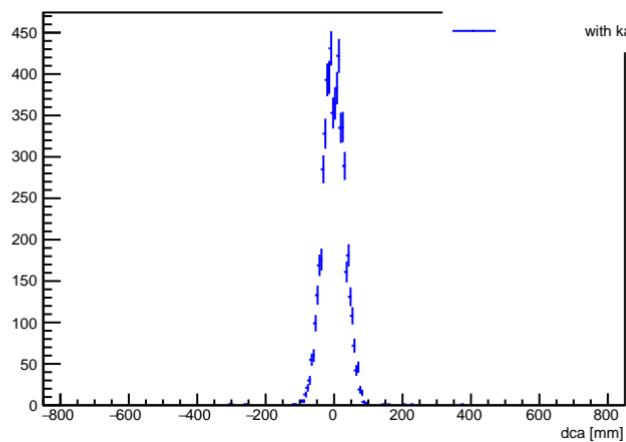
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pion matched_rec

with kappa cut

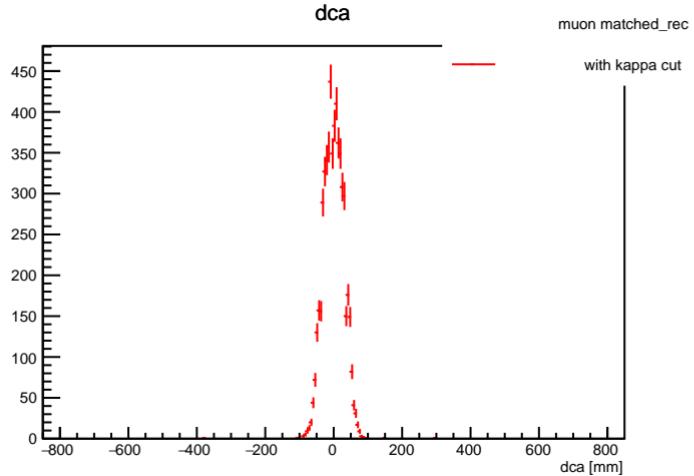
dca



electron matched_rec

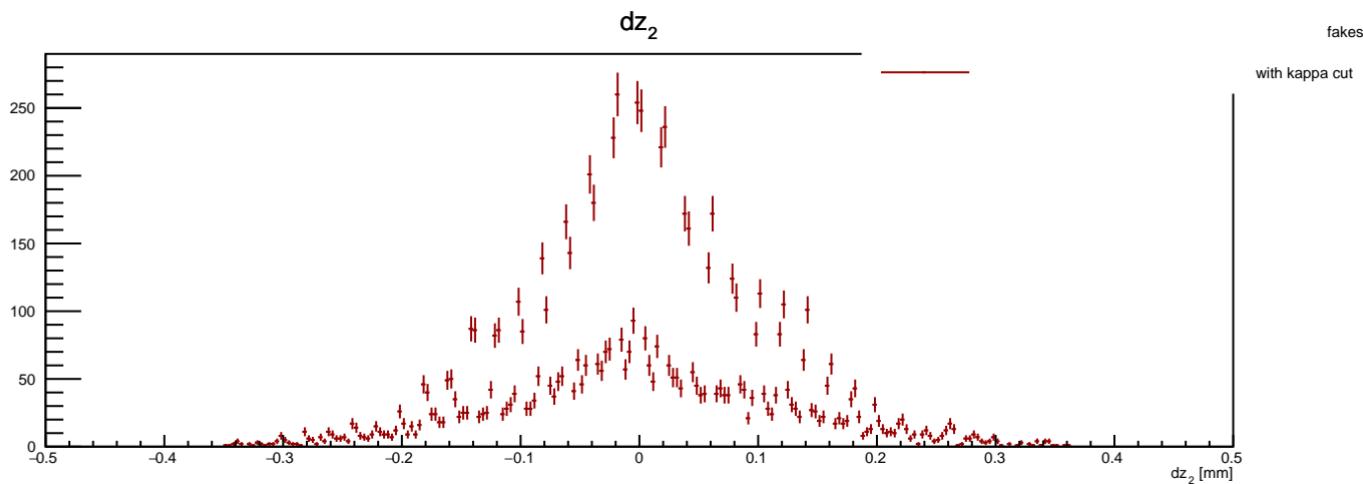
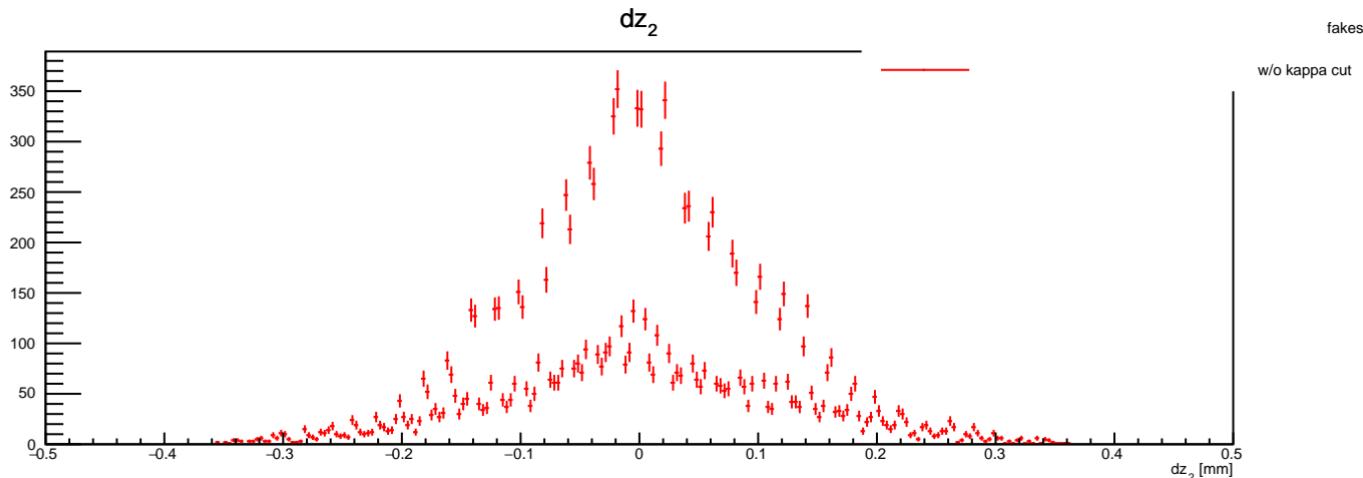
with kappa cut

dca



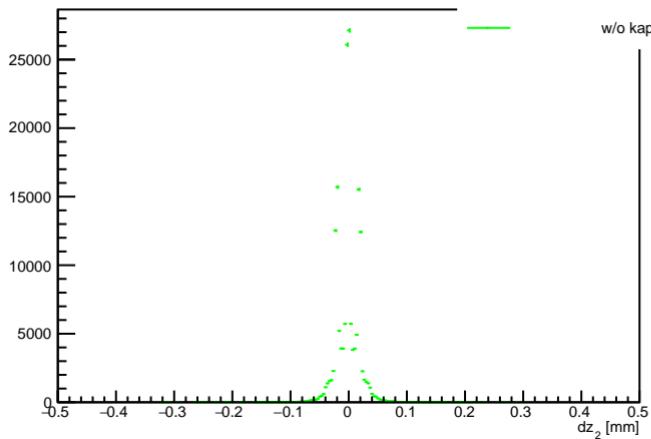
muon matched_rec

with kappa cut

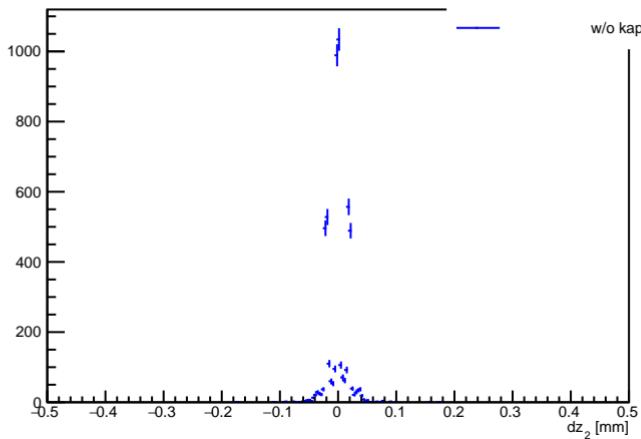


dz_2

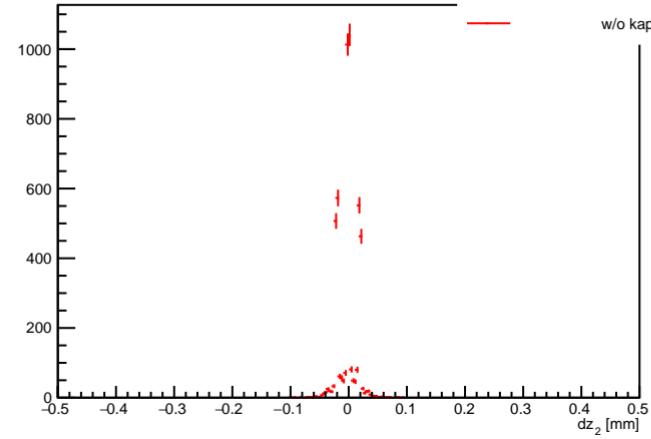
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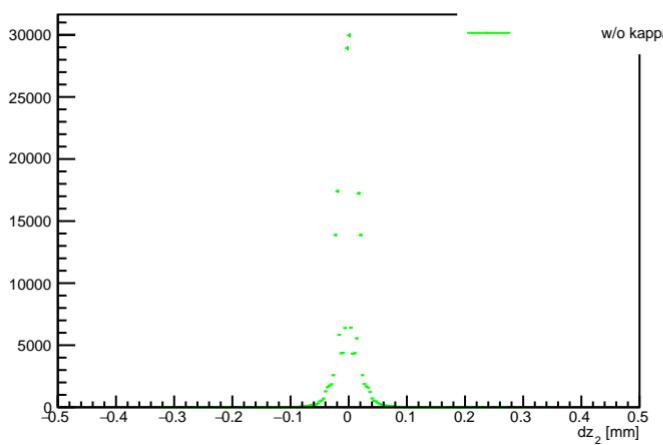
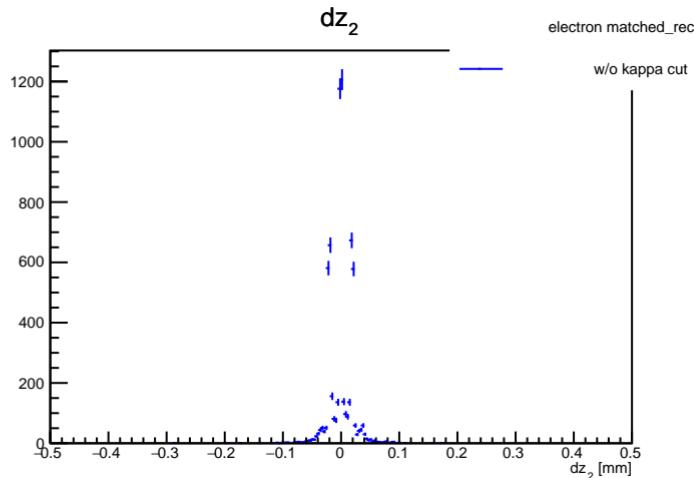
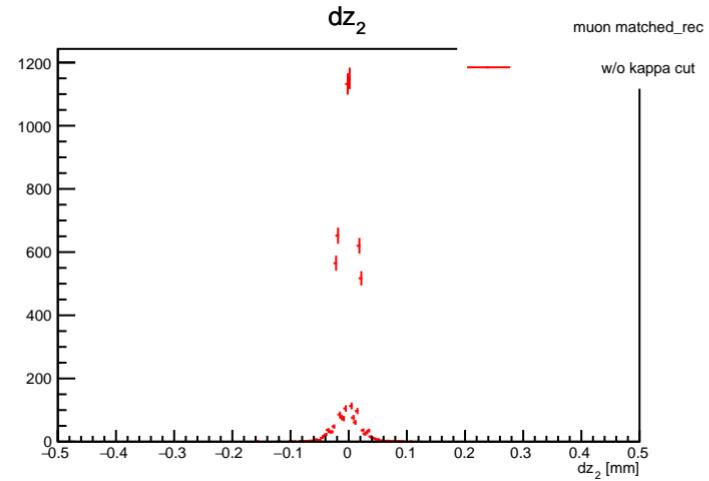
 dz_2

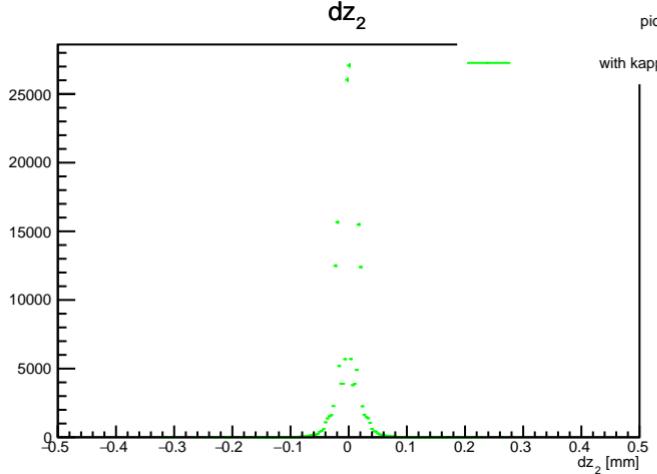
electron truth

 dz_2

muon truth

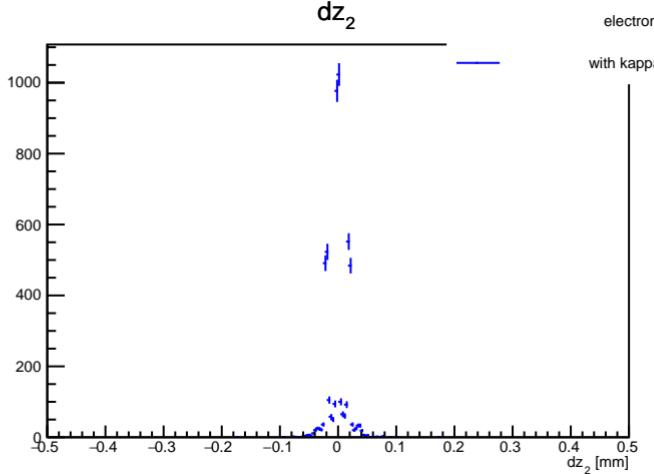


dz_2  dz_2  dz_2 

dz_2 

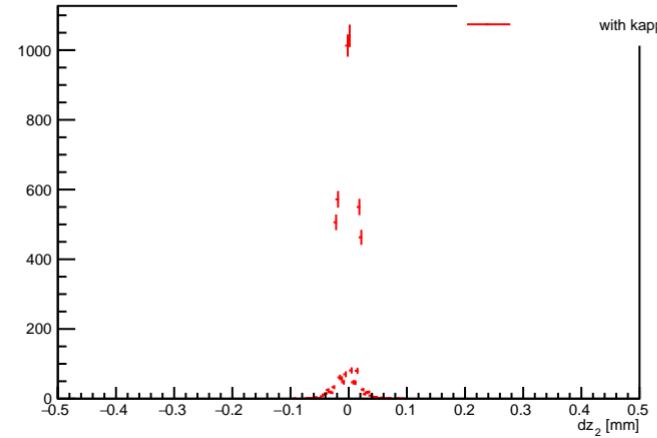
pion truth

with kappa cut

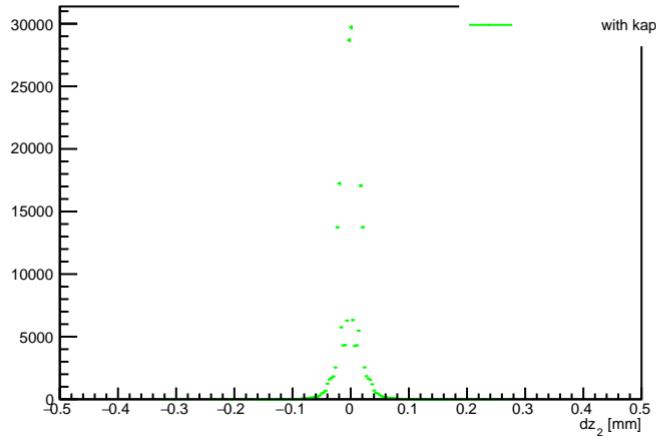
 dz_2 

electron truth

muon truth

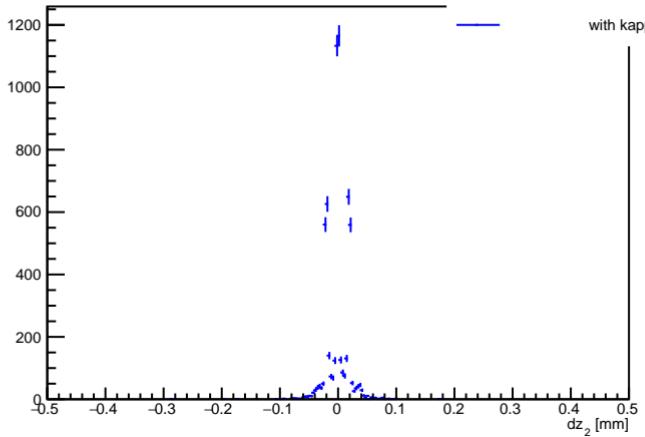
 dz_2 

with kappa cut

dz_2 

pion matched_rec

with kappa cut

 dz_2 

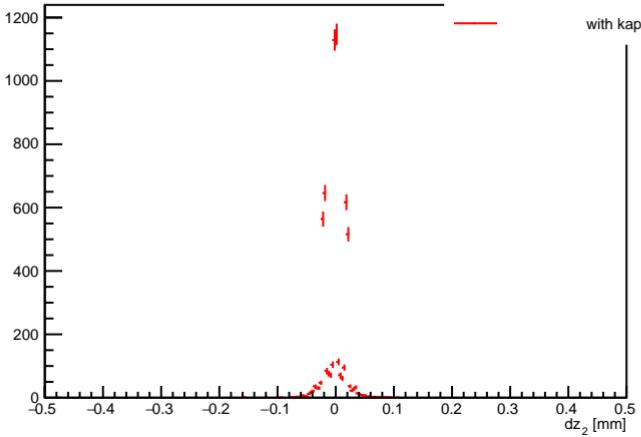
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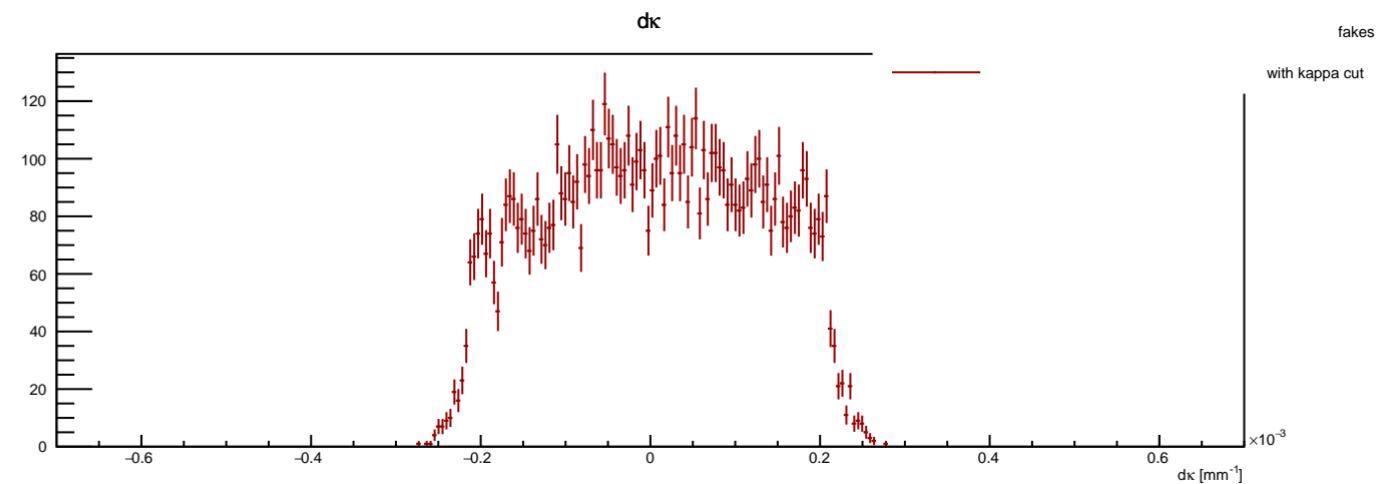
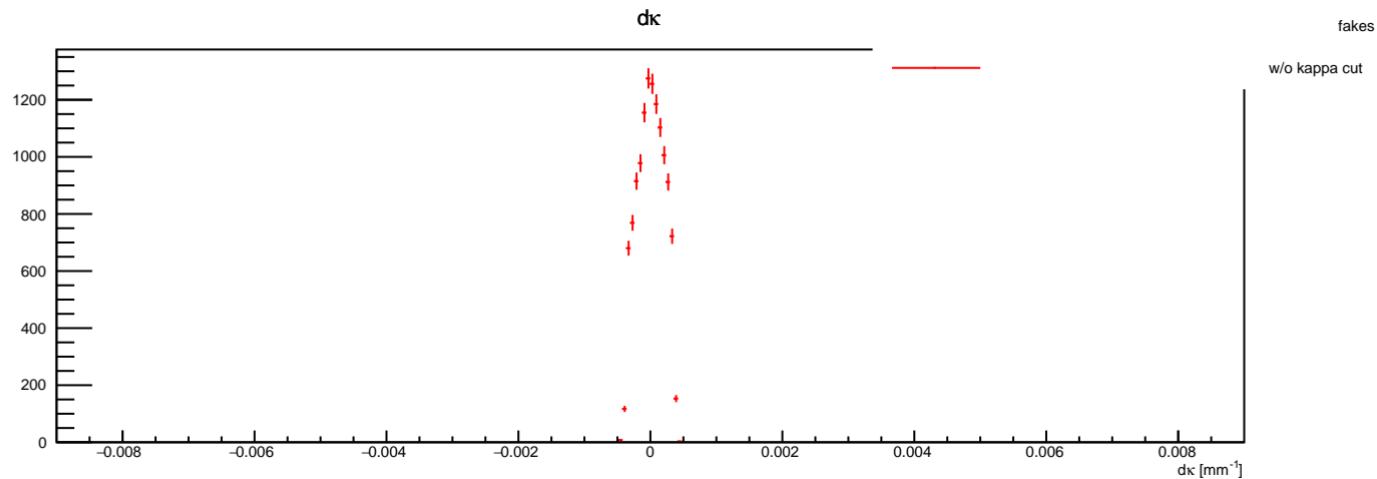
with kappa cut

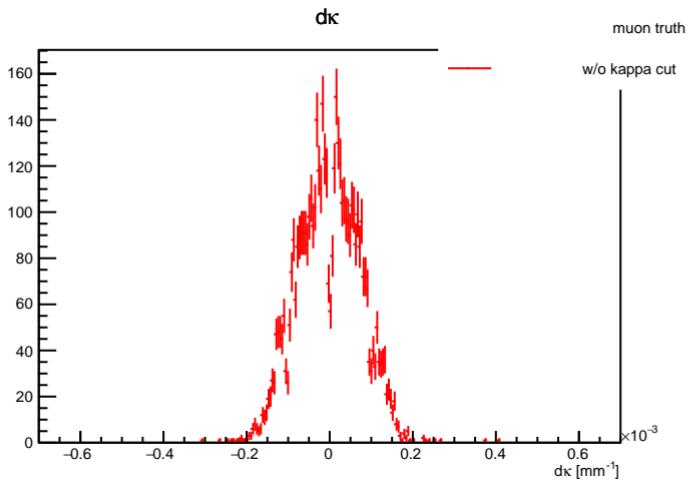
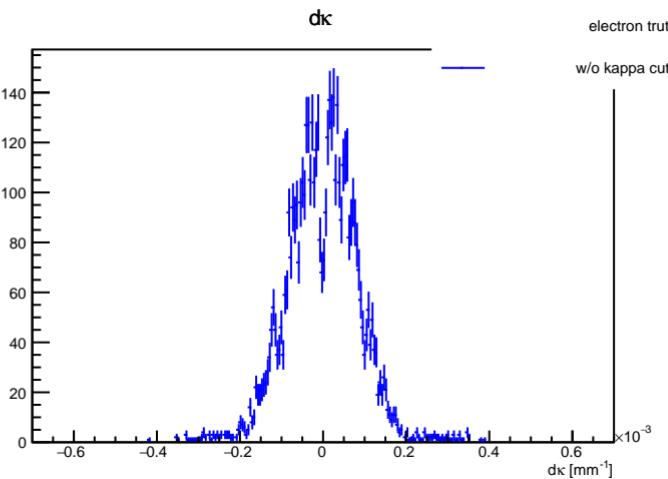
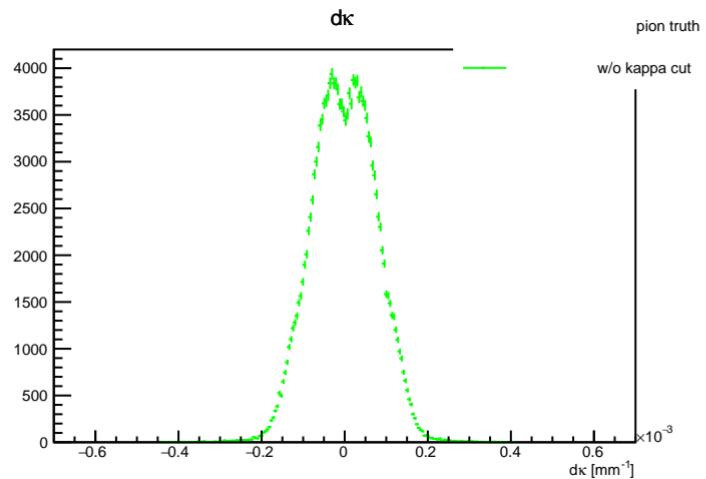
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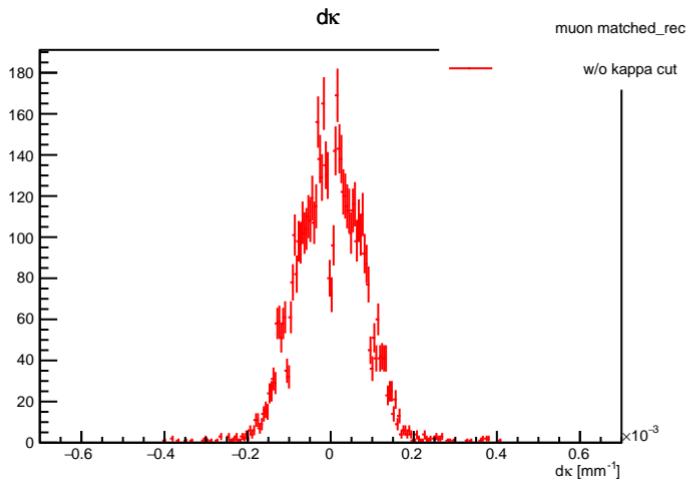
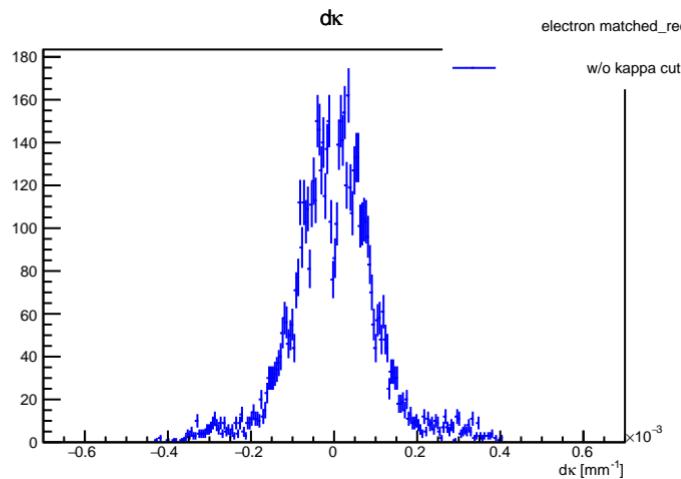
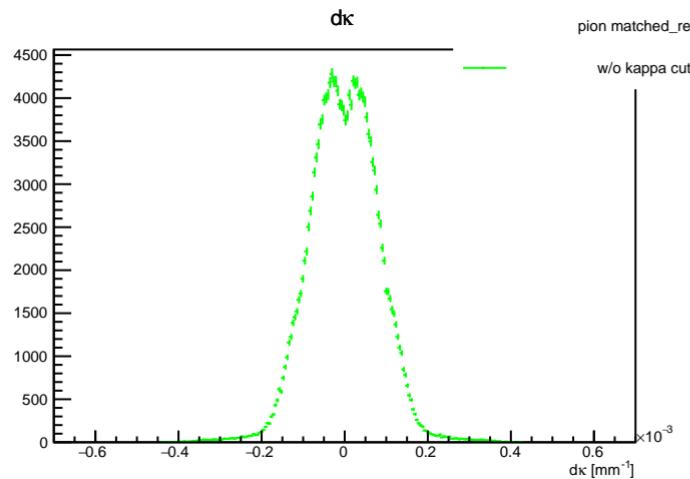
muon matched_rec

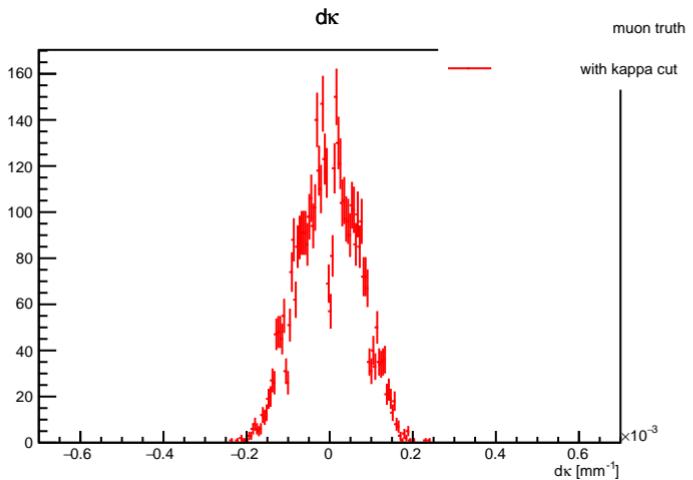
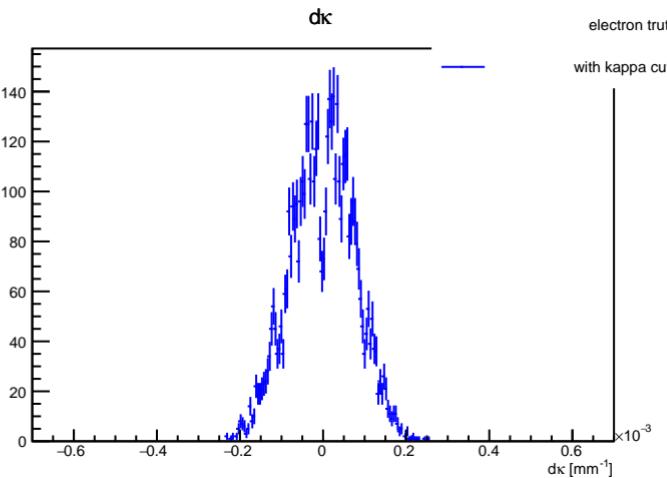
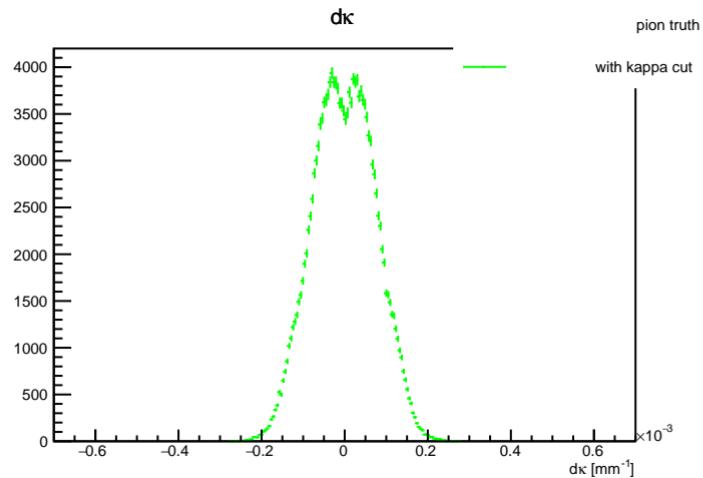
with kappa cut

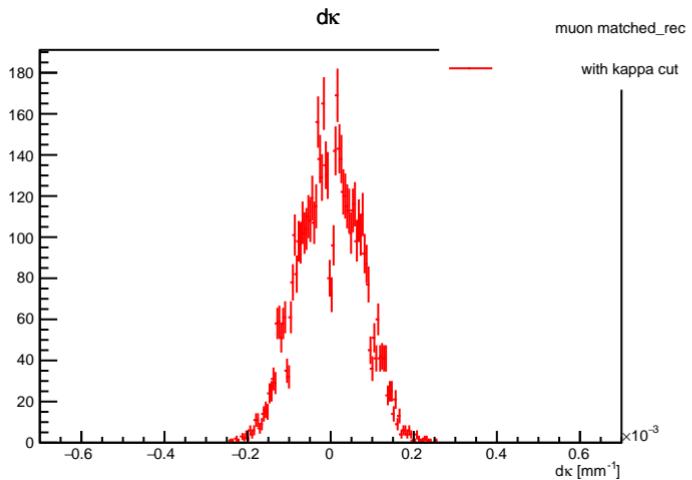
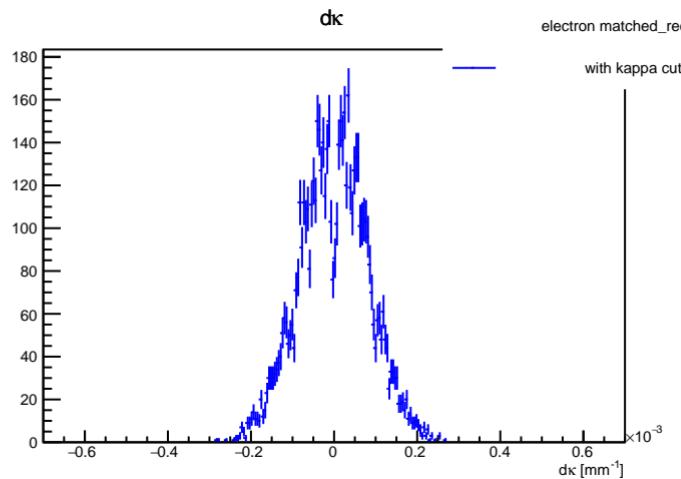
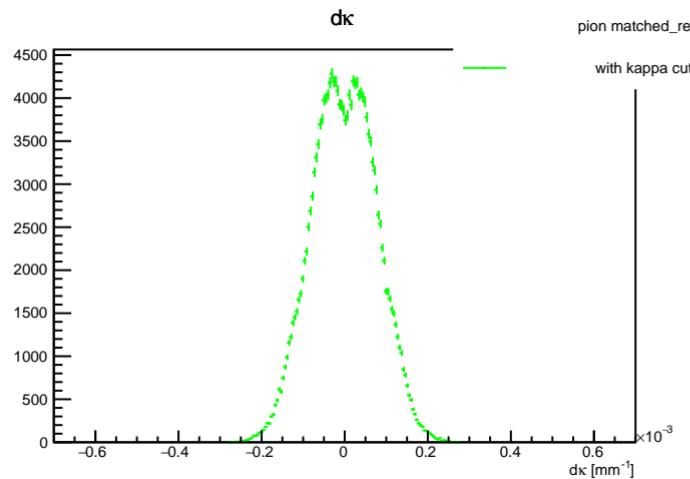




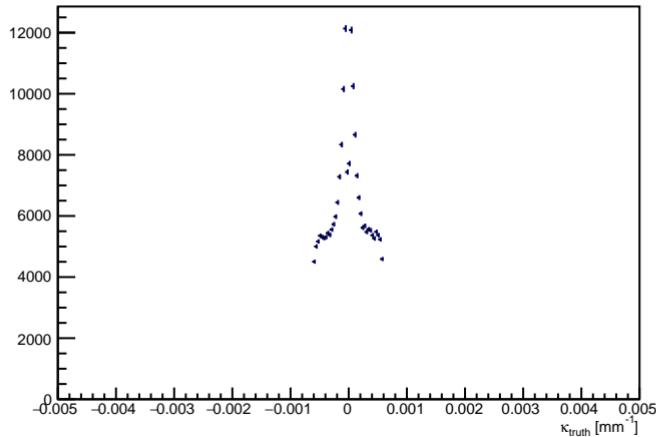




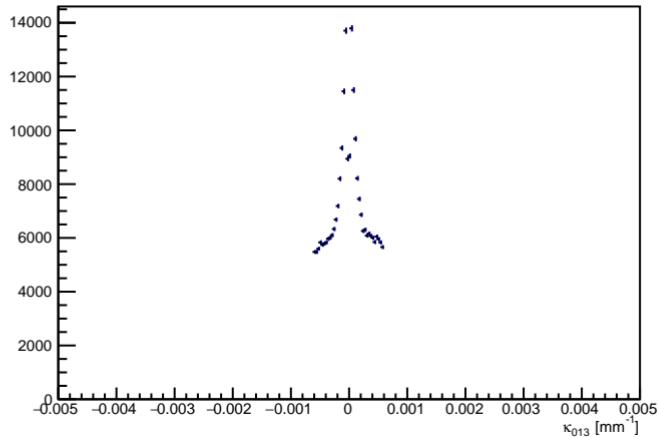




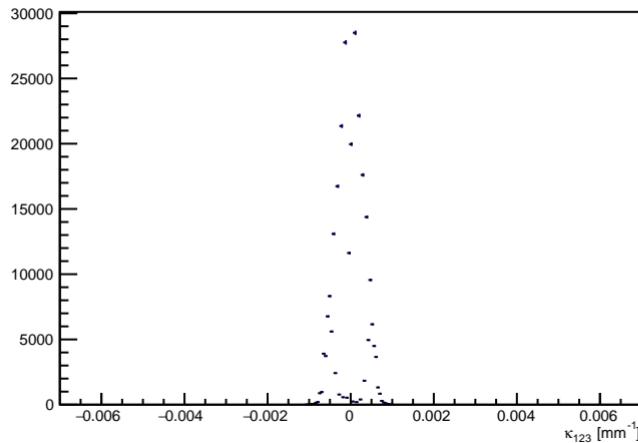
kappa truth

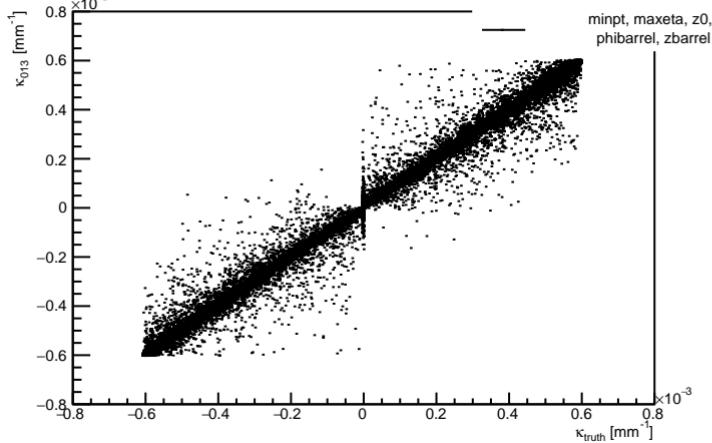
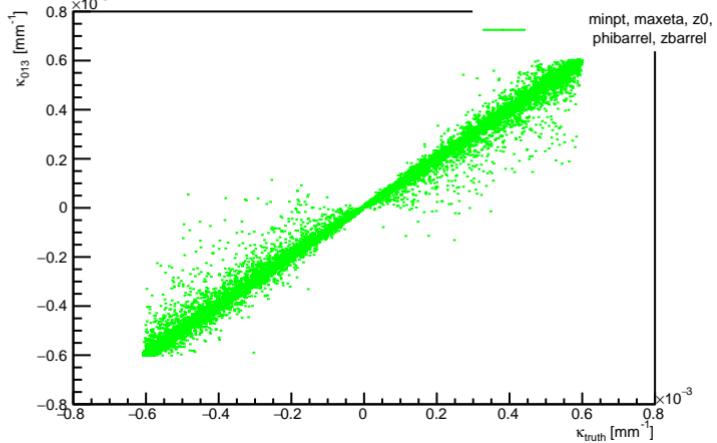
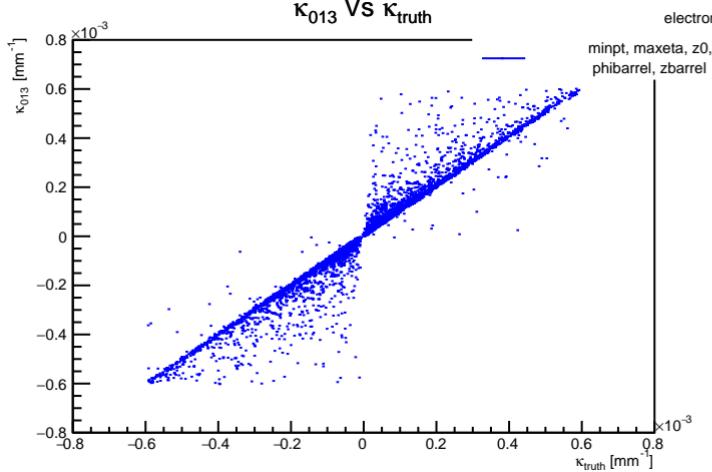
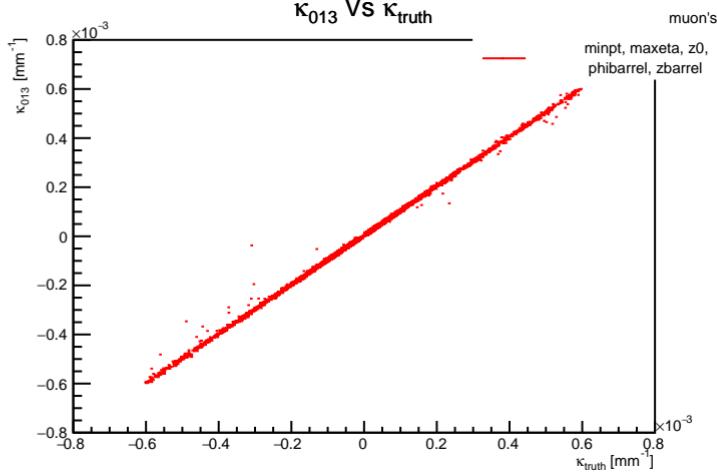


kappa rec with bml constraint

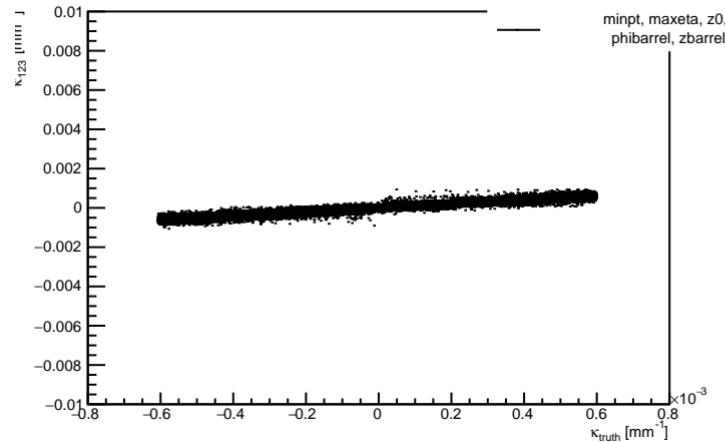
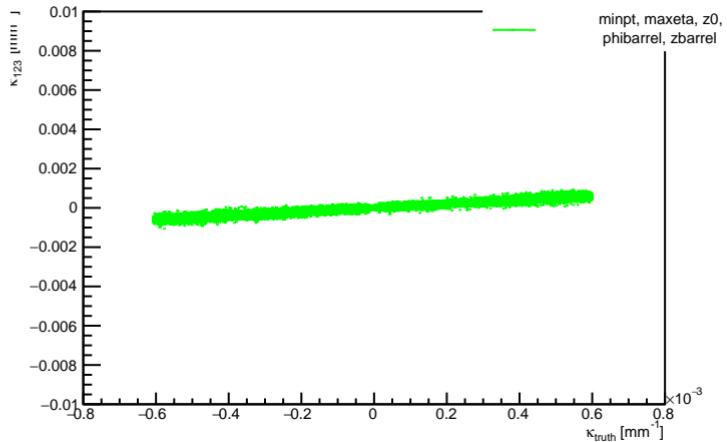
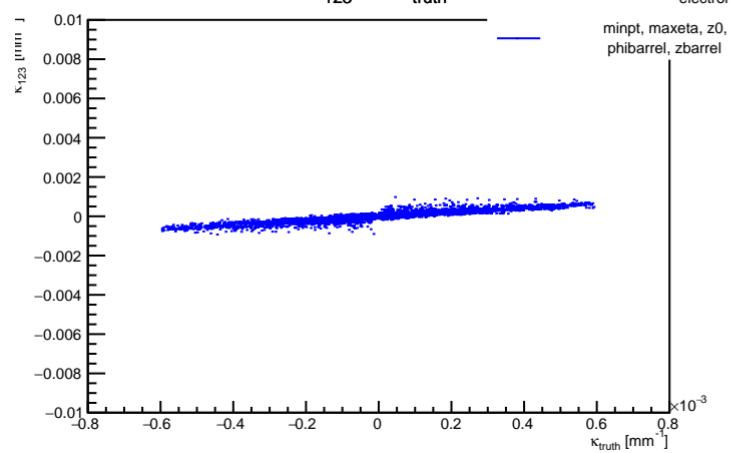
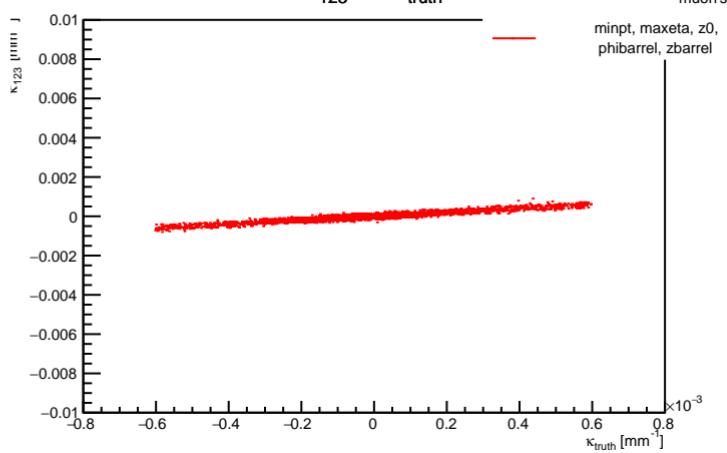


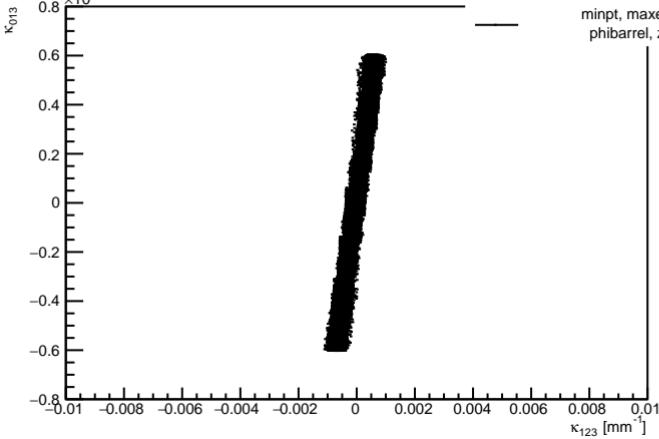
kappa rec w/o bml constraint



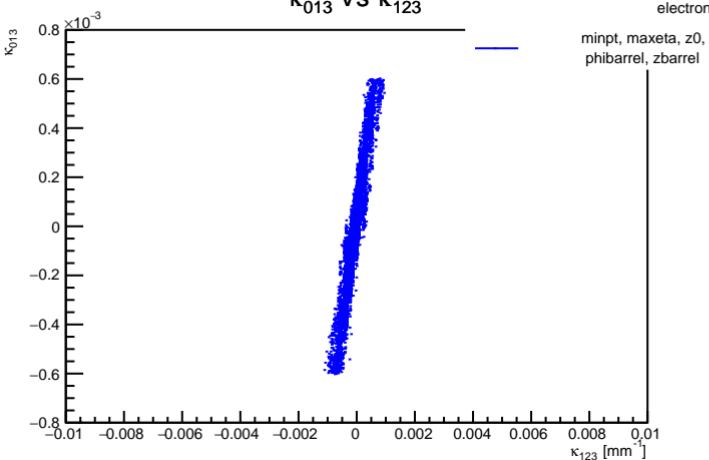
κ_{013} Vs κ_{truth}  κ_{013} Vs κ_{truth}  κ_{013} Vs κ_{truth}  κ_{013} Vs κ_{truth} 

pion

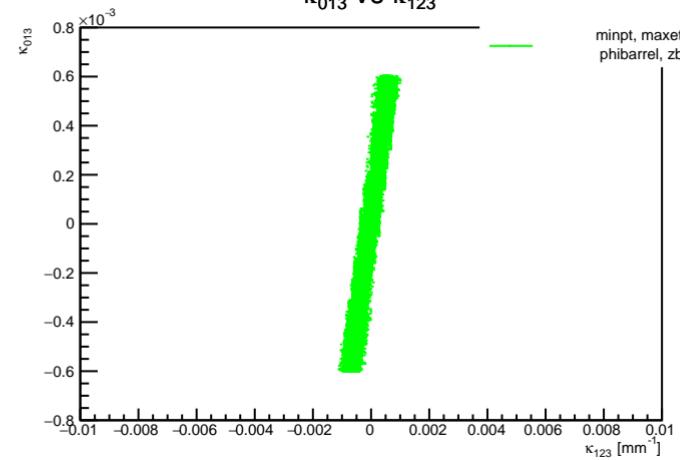
κ_{123} Vs κ_{truth}  κ_{123} Vs κ_{truth}  κ_{123} Vs κ_{truth}  κ_{123} Vs κ_{truth} 

κ_{013} Vs κ_{123} 

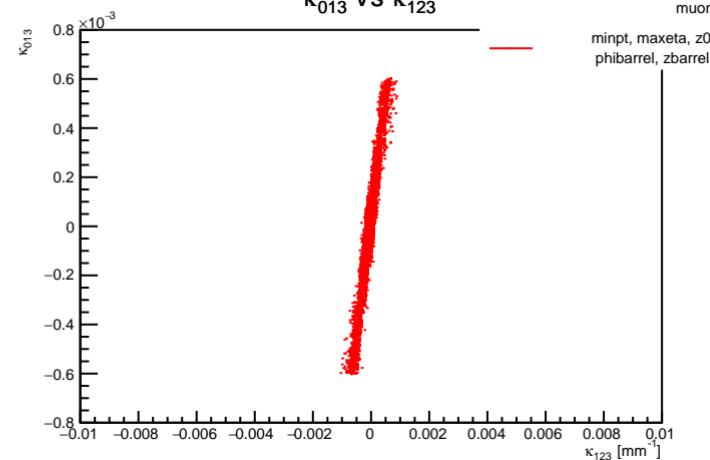
all

minpt, maxeta, z0,
phibarrel, zbarrel κ_{013} Vs κ_{123} 

electron

minpt, maxeta, z0,
phibarrel, zbarrel κ_{013} Vs κ_{123} 

pion

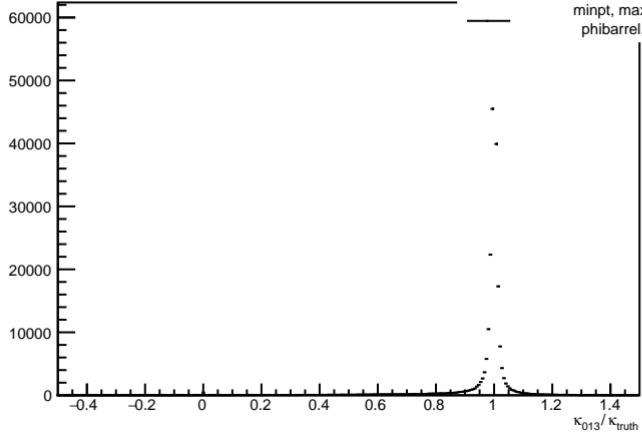
minpt, maxeta, z0,
phibarrel, zbarrel κ_{013} Vs κ_{123} 

muon's

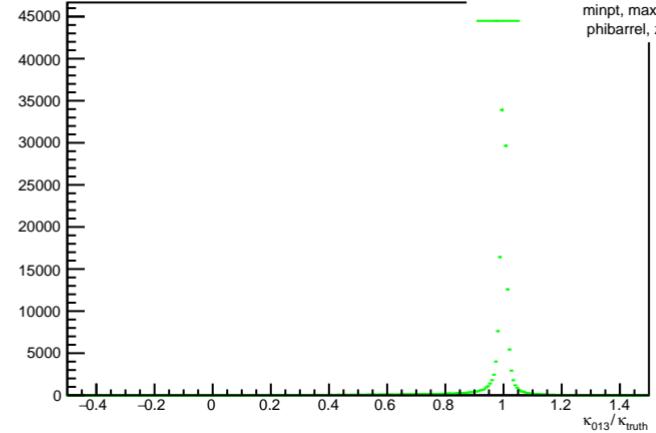
minpt, maxeta, z0,
phibarrel, zbarrel

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

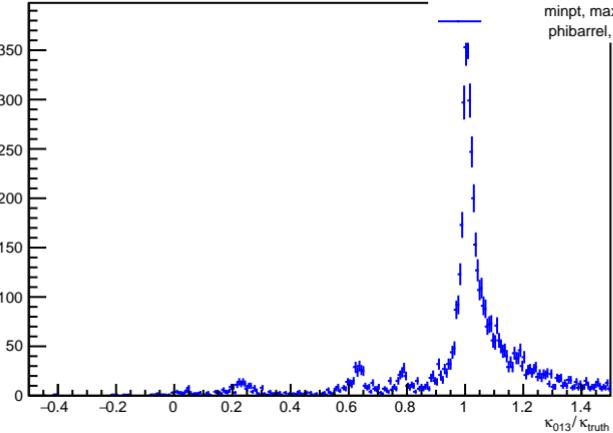
all

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

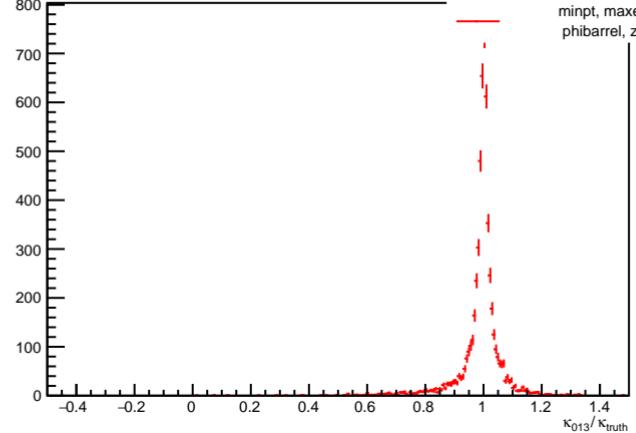
pion

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

electron

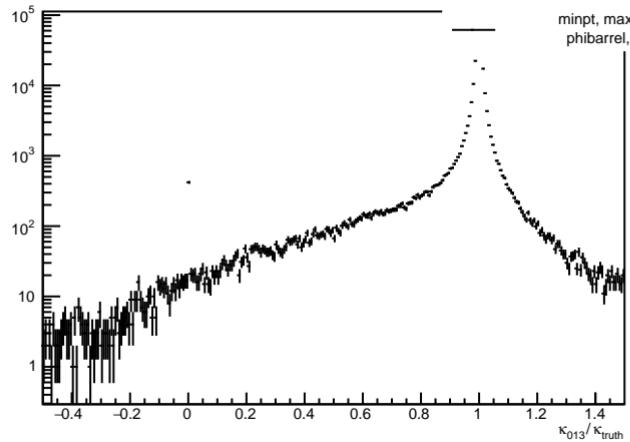
 $\kappa_{013}/\kappa_{\text{truth}}$

muon's

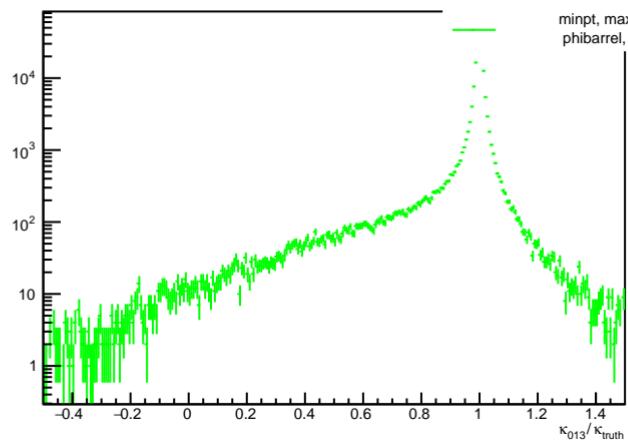


$\kappa_{013}/\kappa_{\text{truth}}$

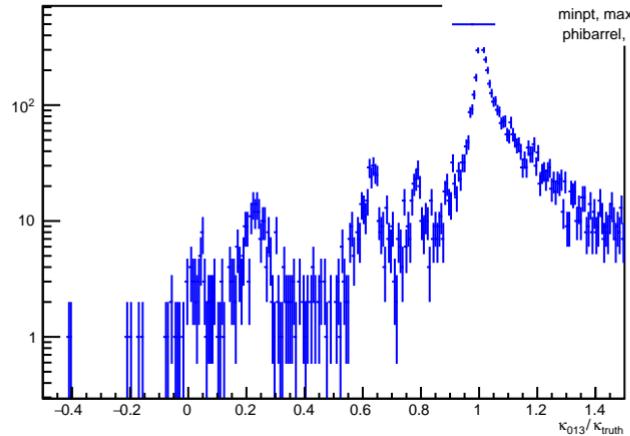
all

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

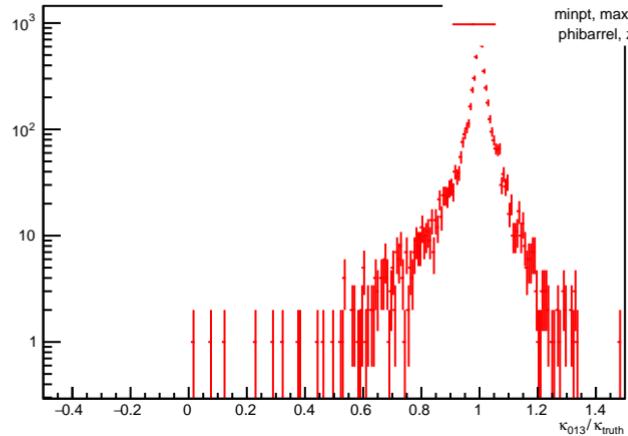
pion

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

electron

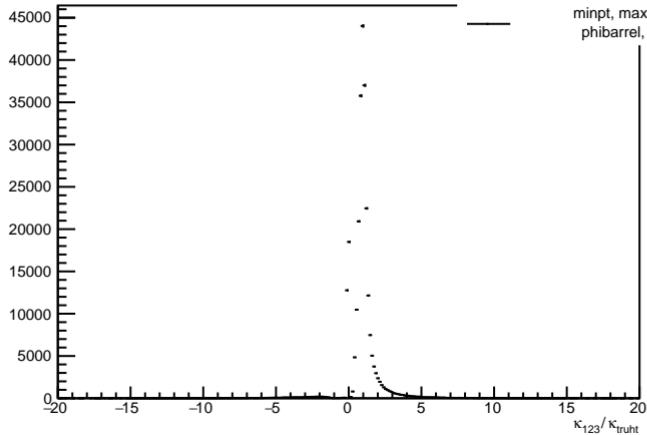
 $\kappa_{013}/\kappa_{\text{truth}}$

muon's

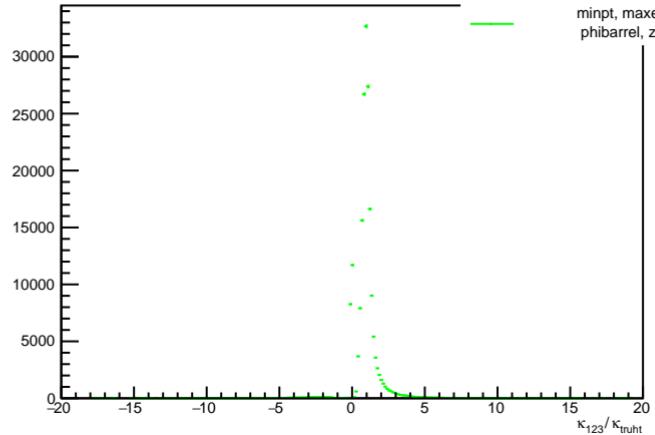


$\kappa_{123}/\kappa_{\text{truth}}$

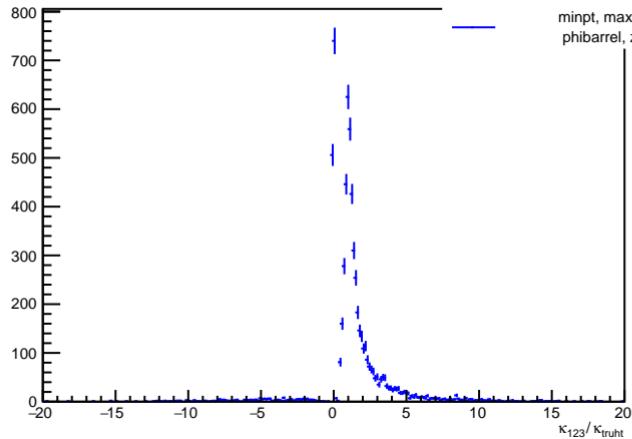
all

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

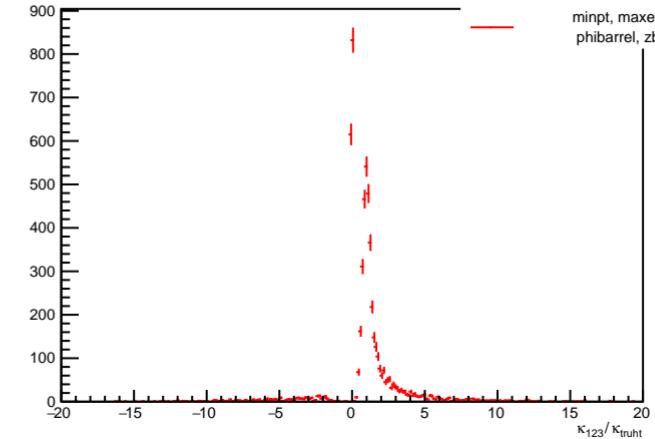
pion

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

electron

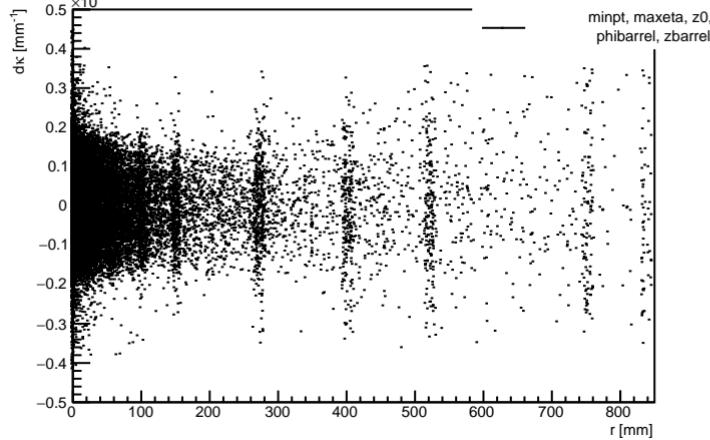
 $\kappa_{123}/\kappa_{\text{truth}}$

muon's



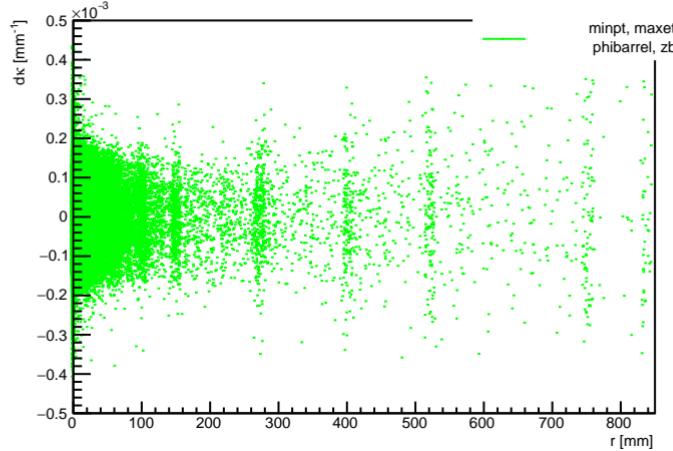
dk Vs r

all



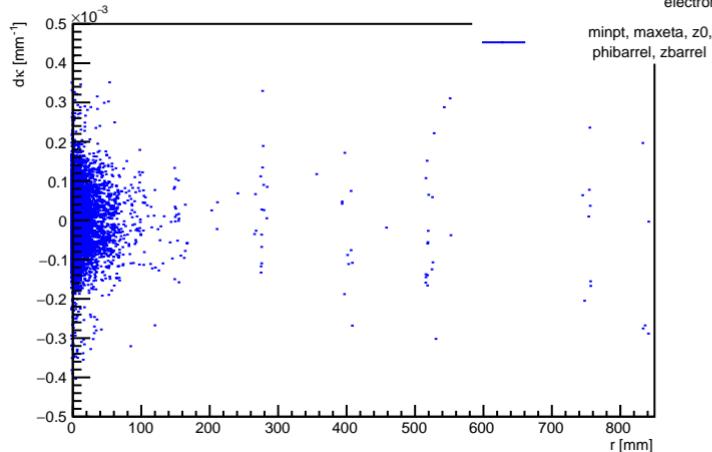
dk Vs r

pion



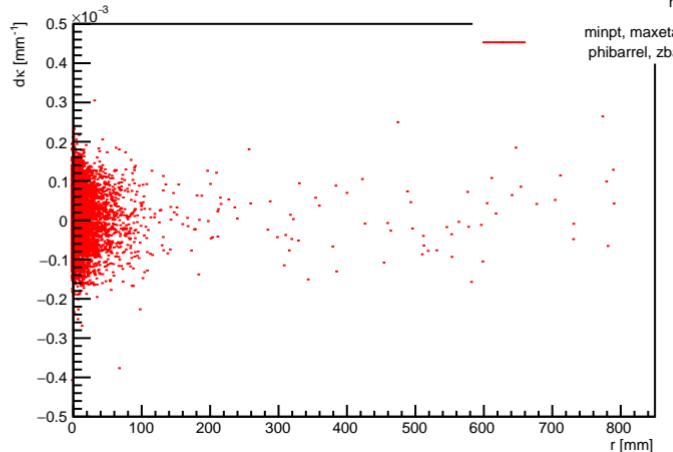
dk Vs r

electron



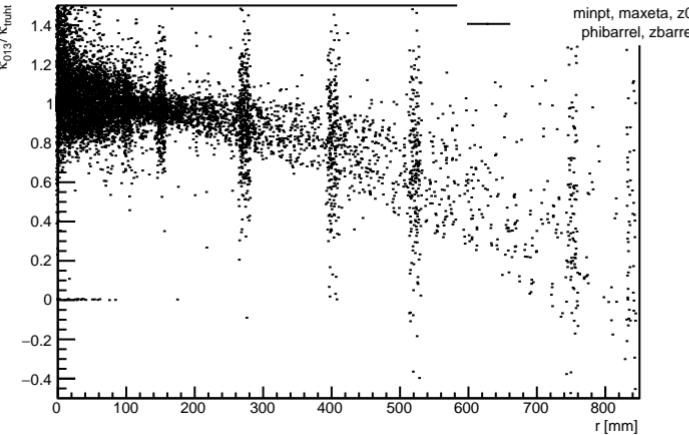
dk Vs r

muon's

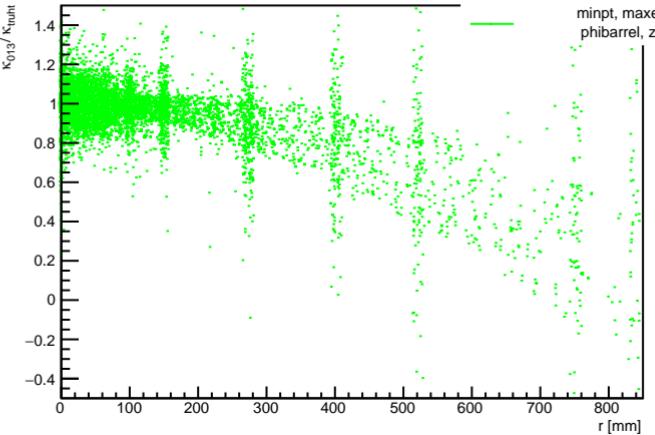


$\kappa_{013}/\kappa_{\text{truth}}$ Vs r

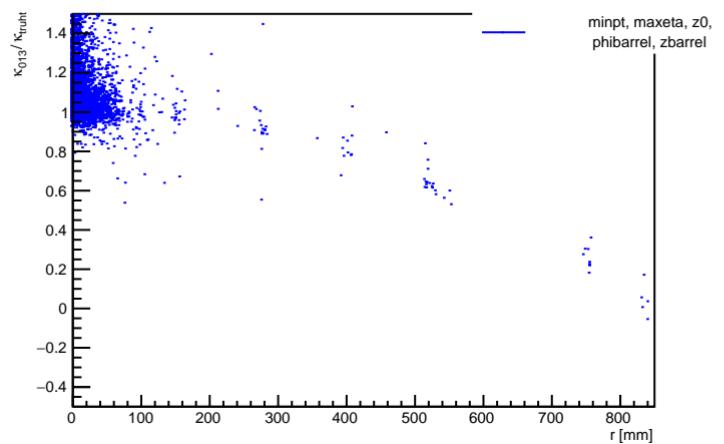
all

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

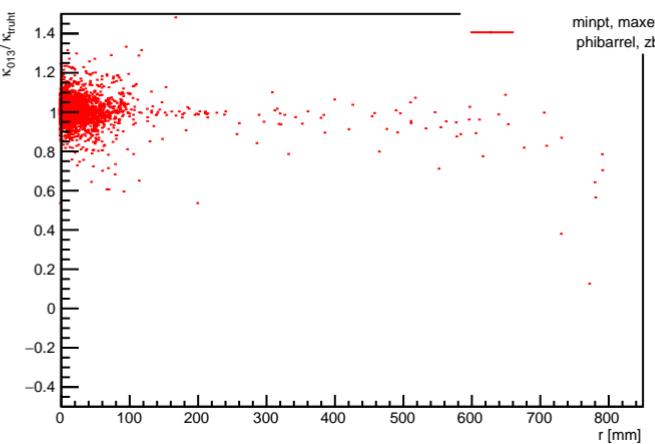
pion

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

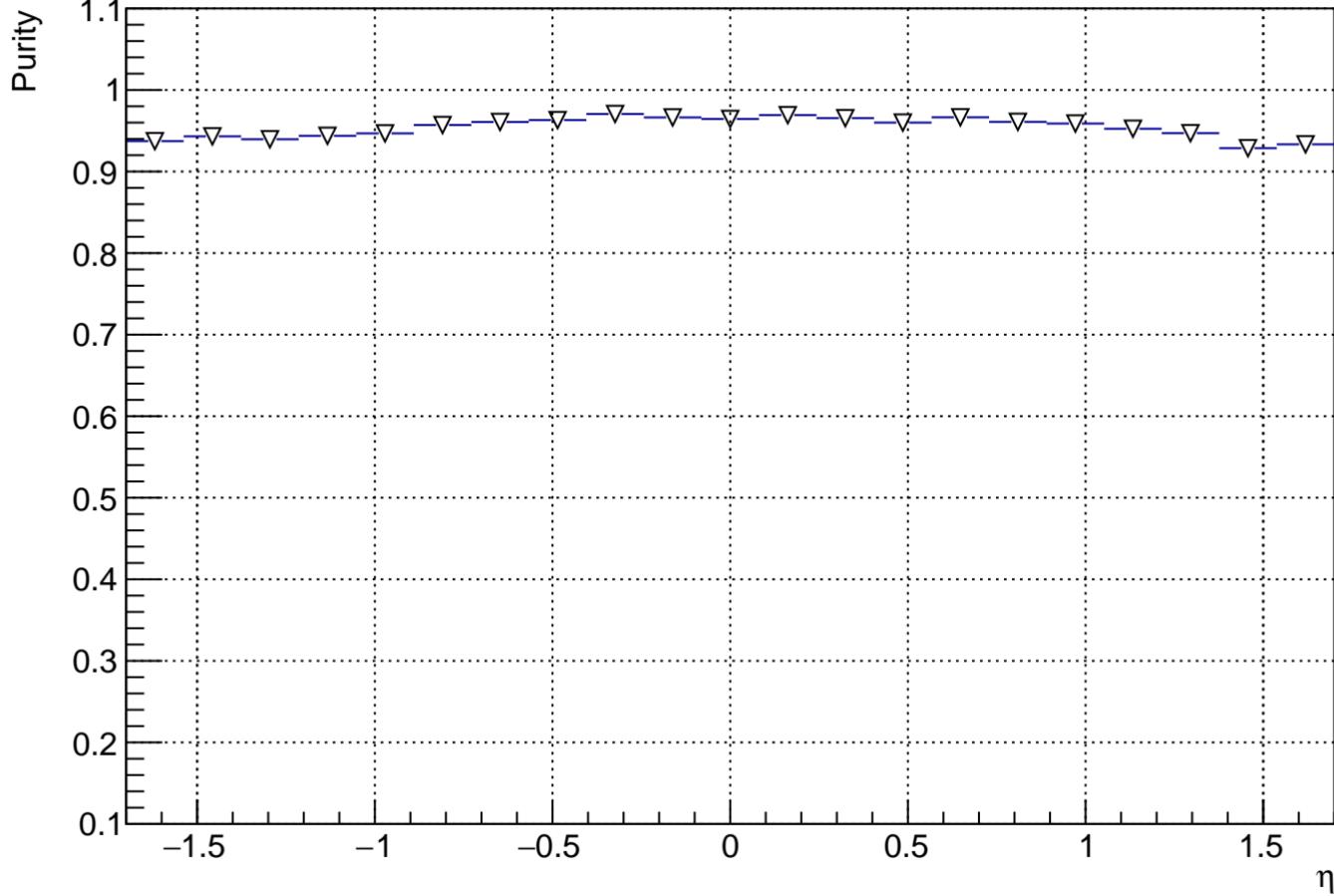
electron

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

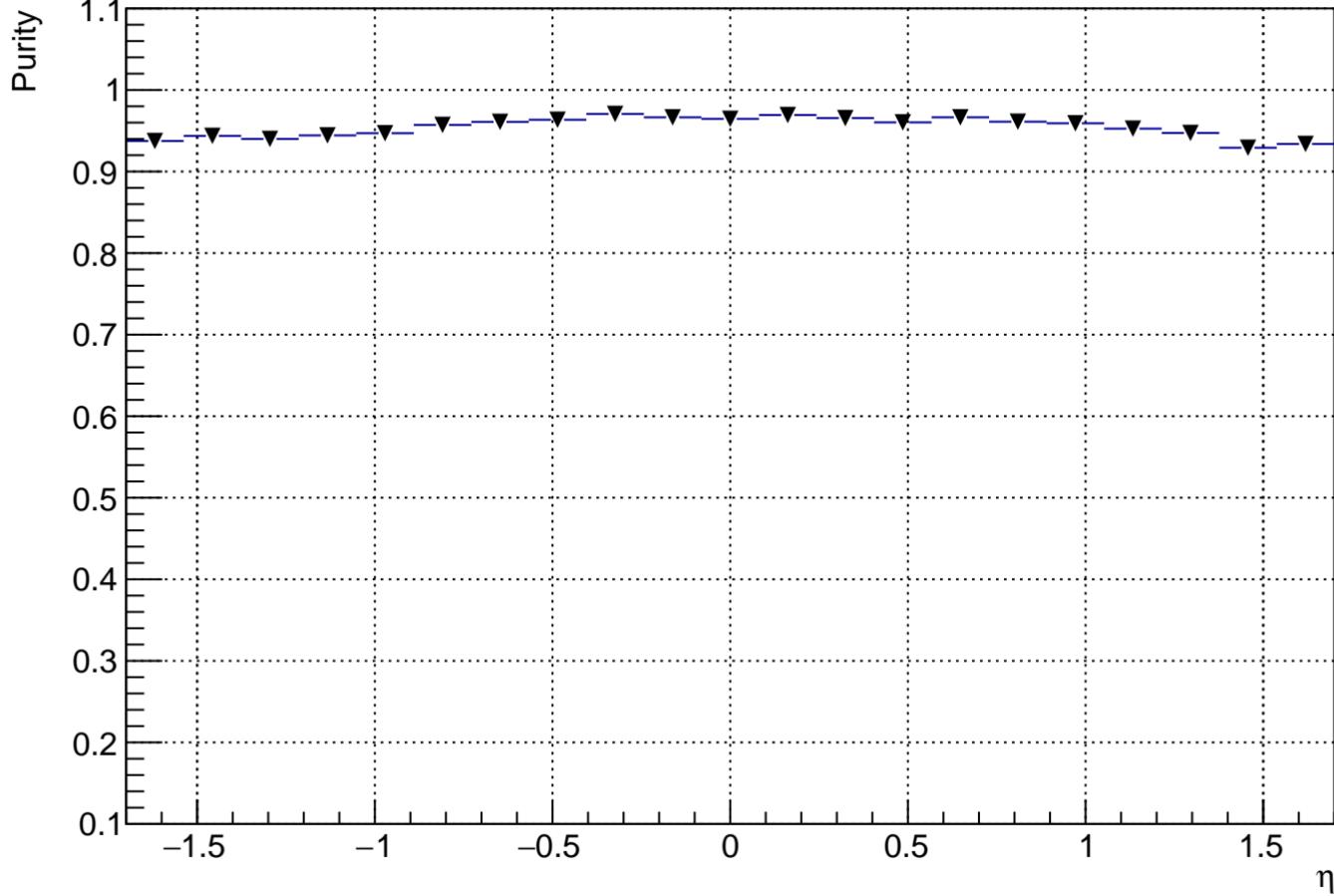
muon's



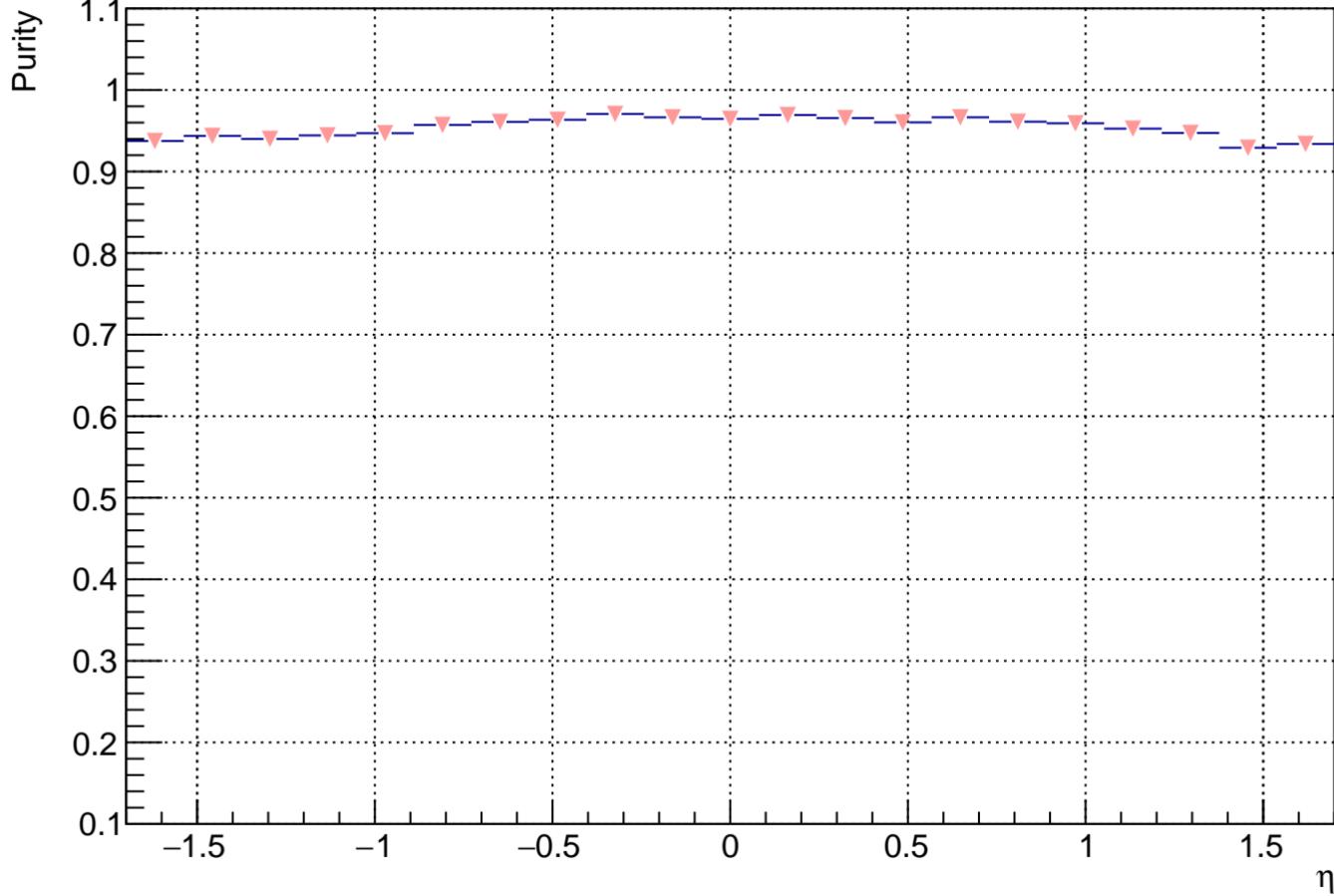
Purity vs η



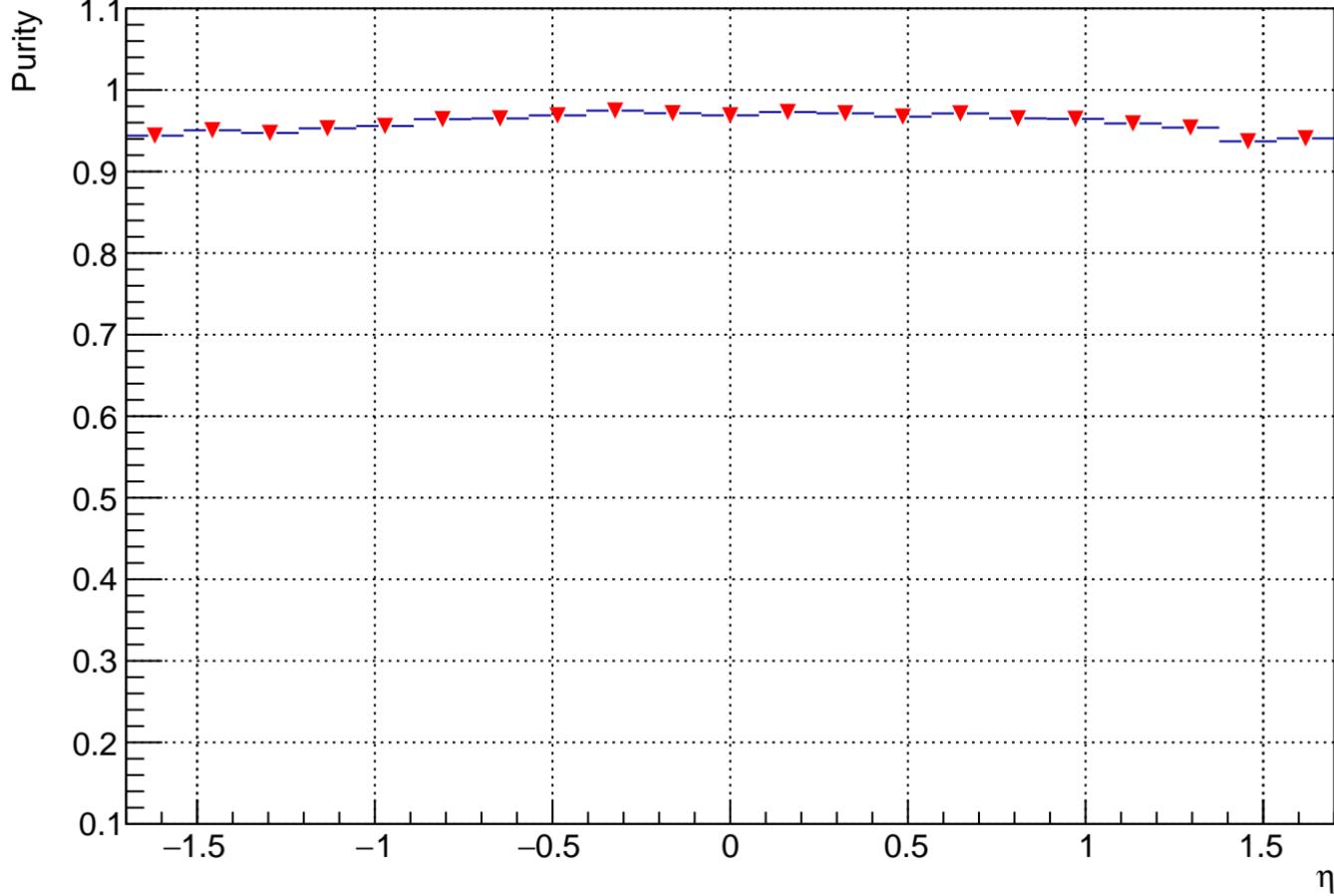
Purity vs η



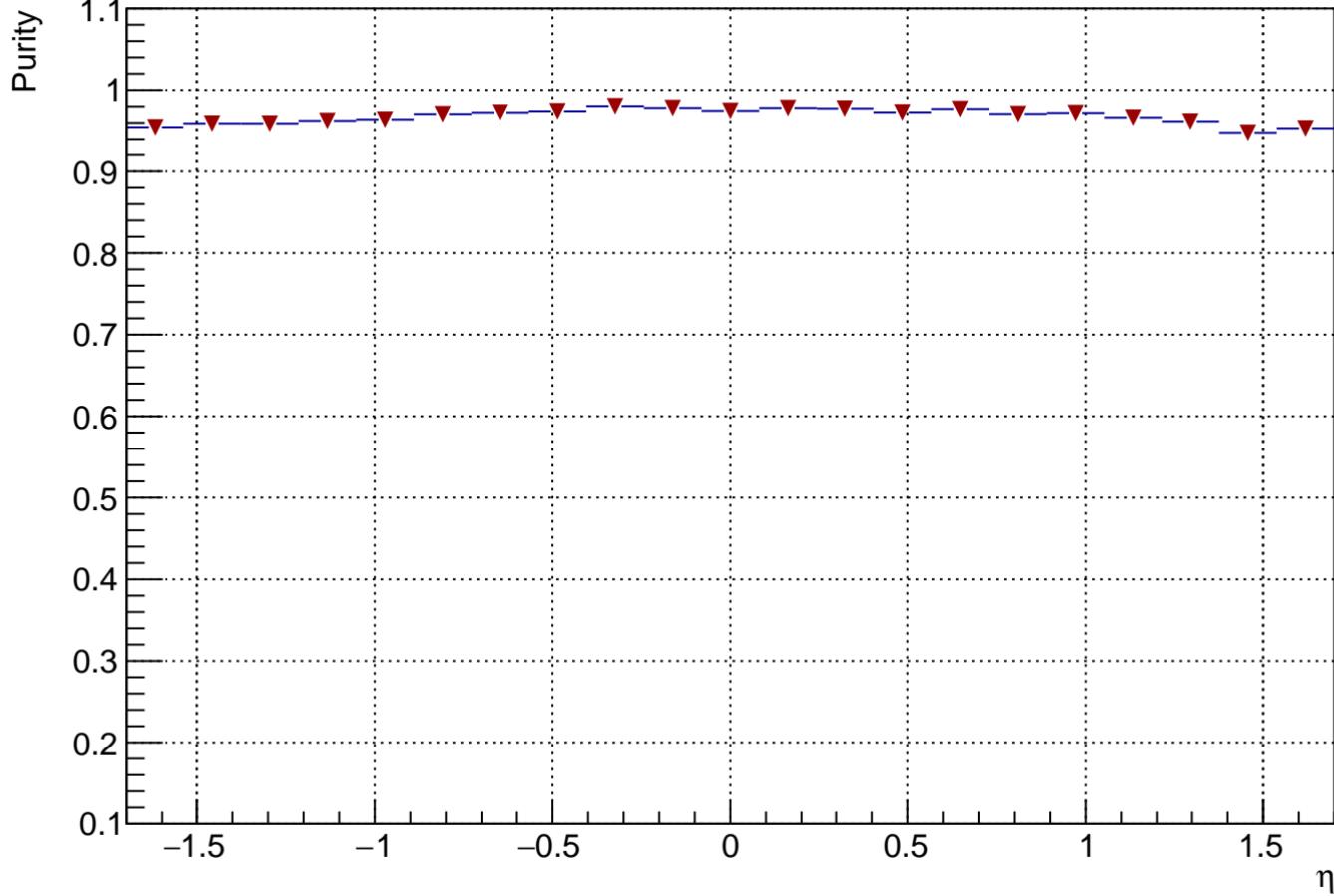
Purity vs η



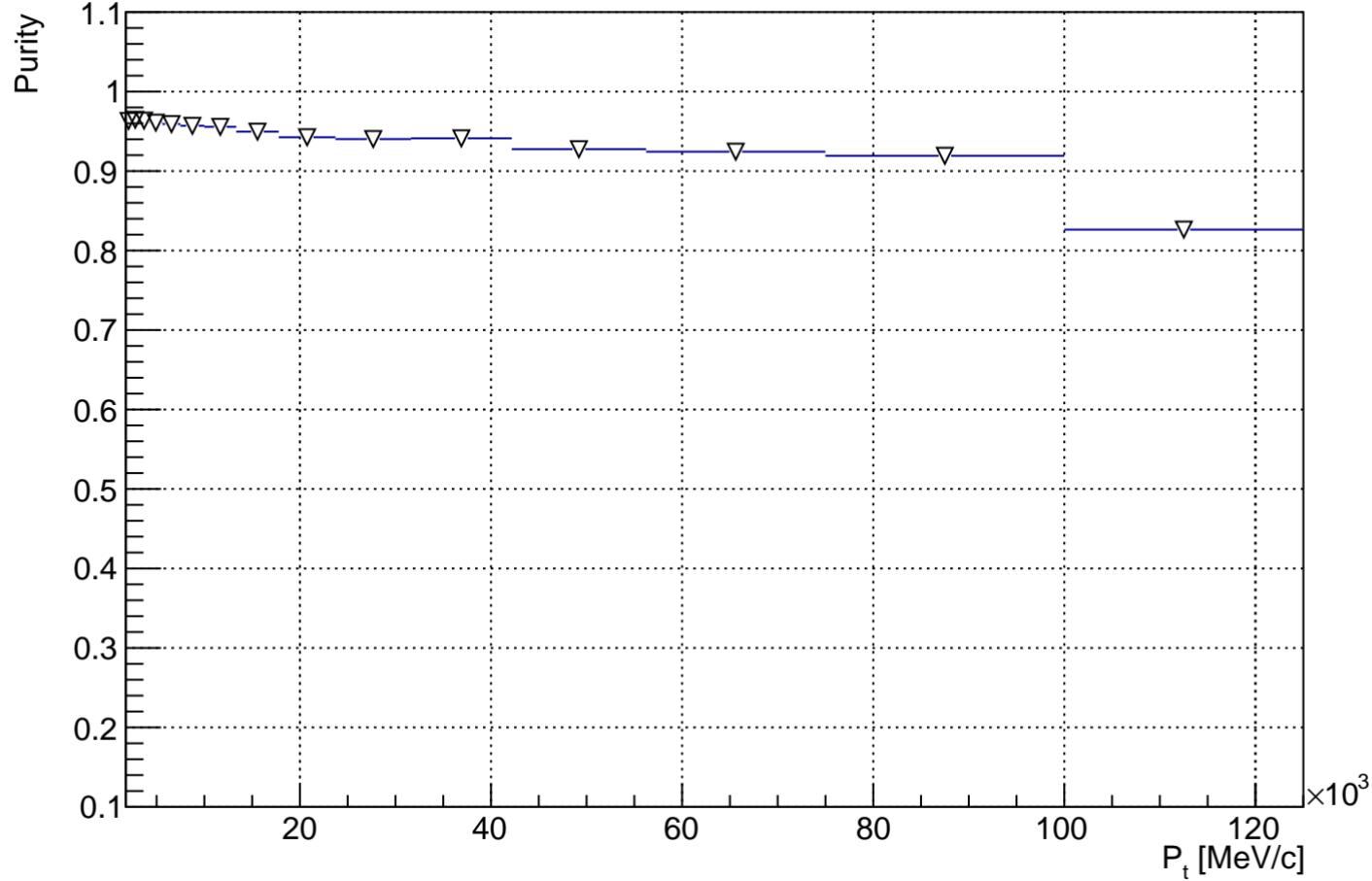
Purity vs η



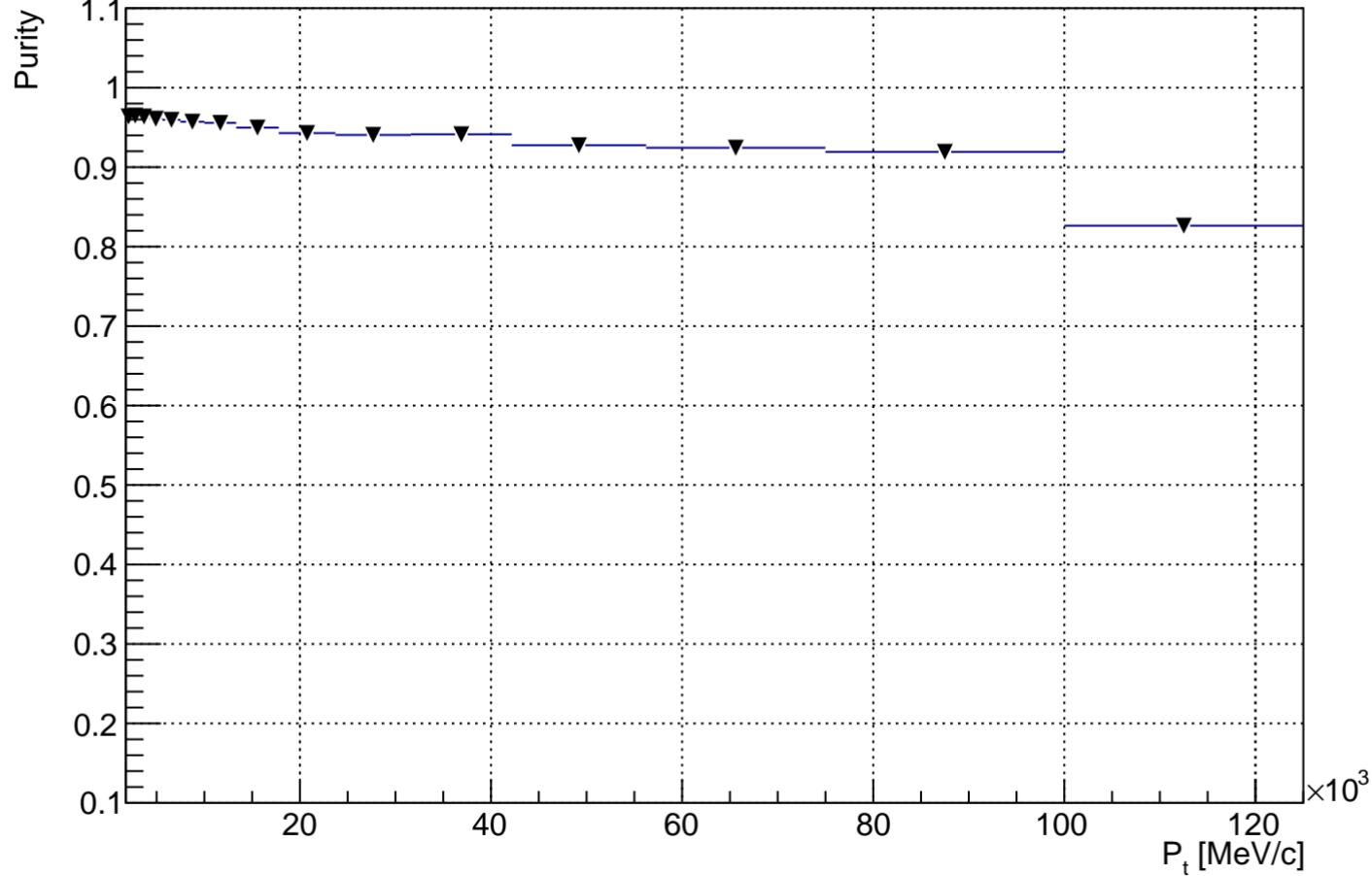
Purity vs η



Purity vs P_t

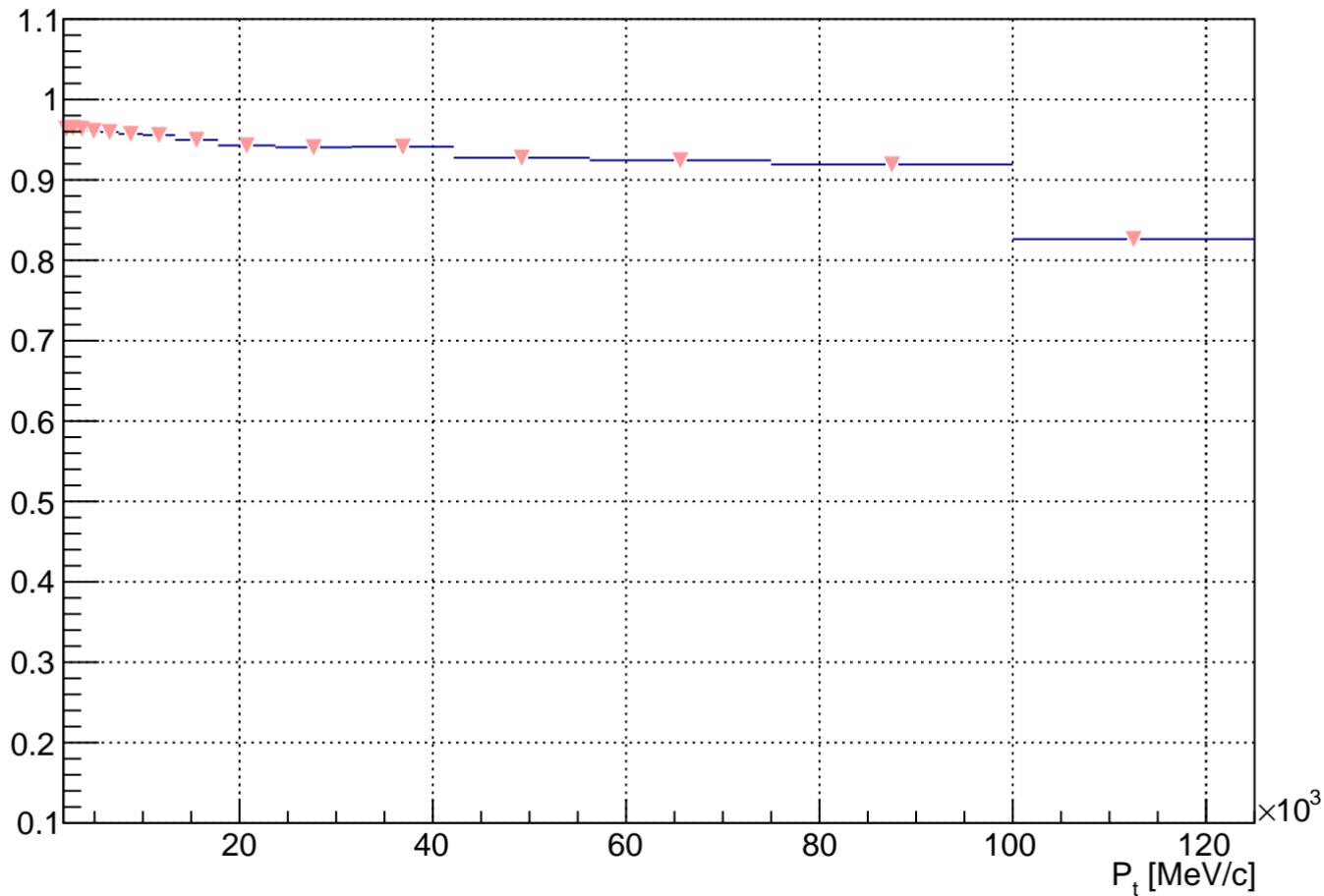


Purity vs P_t

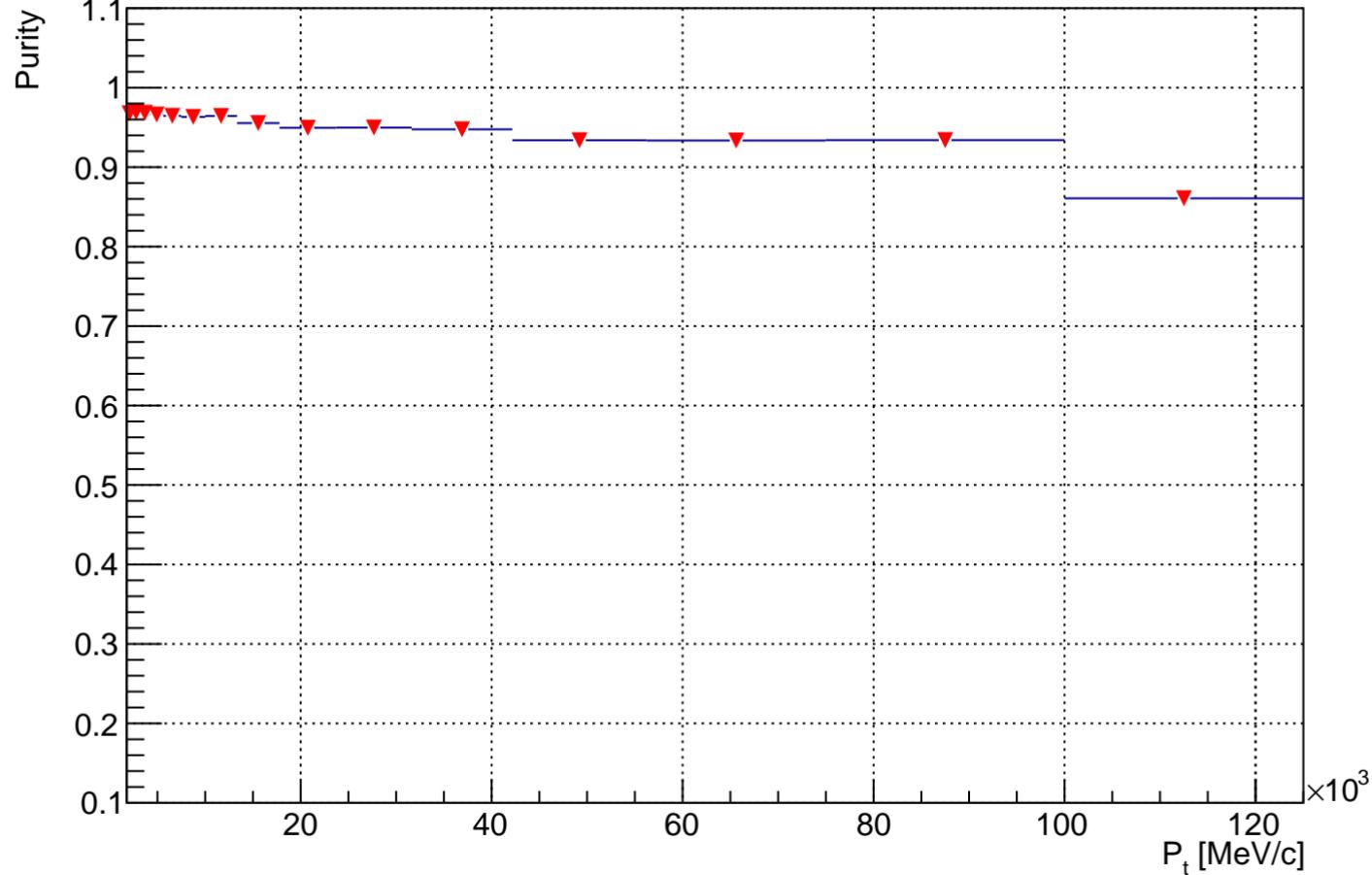


Purity vs P_t

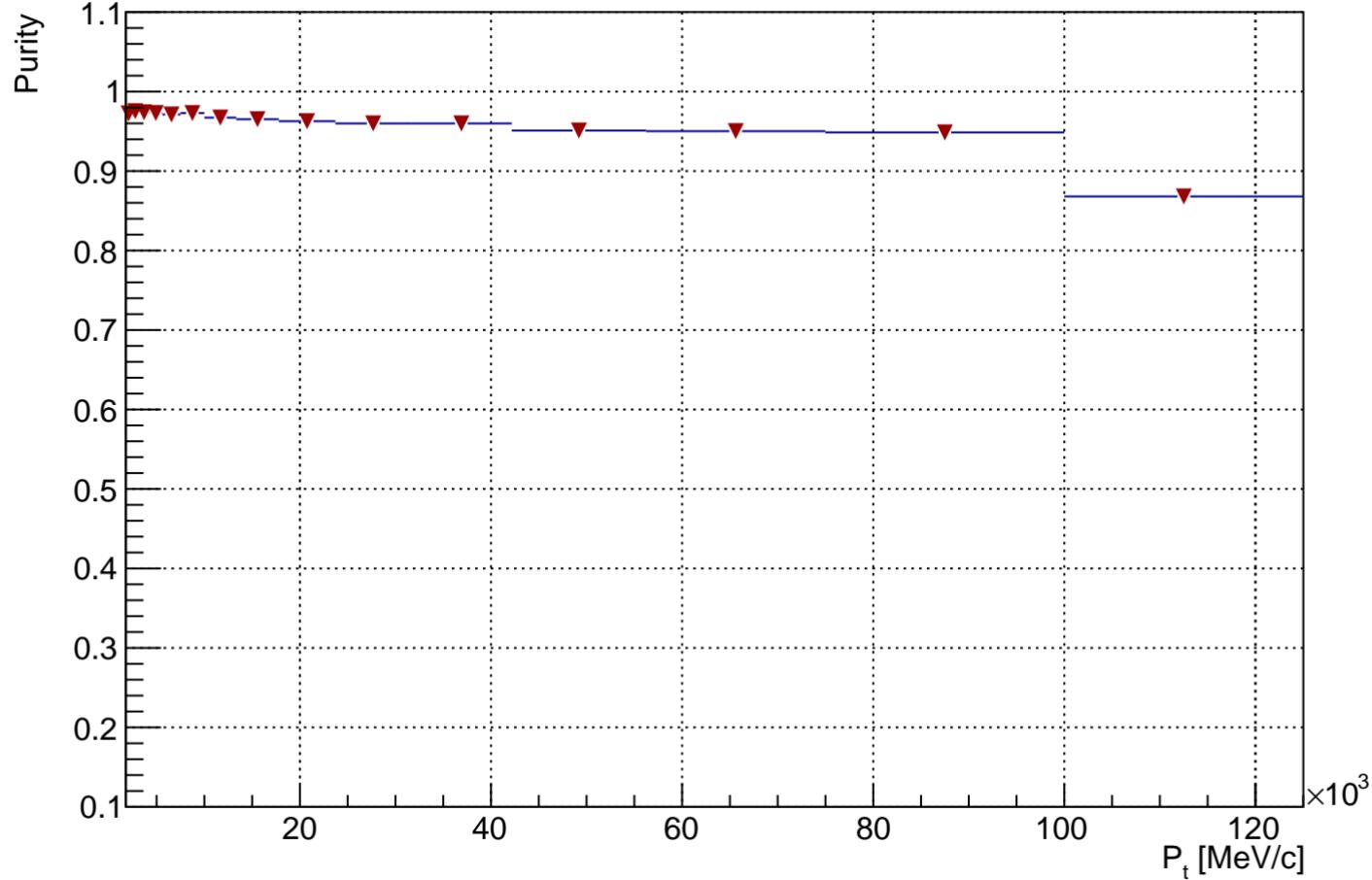
Purity



Purity vs P_t

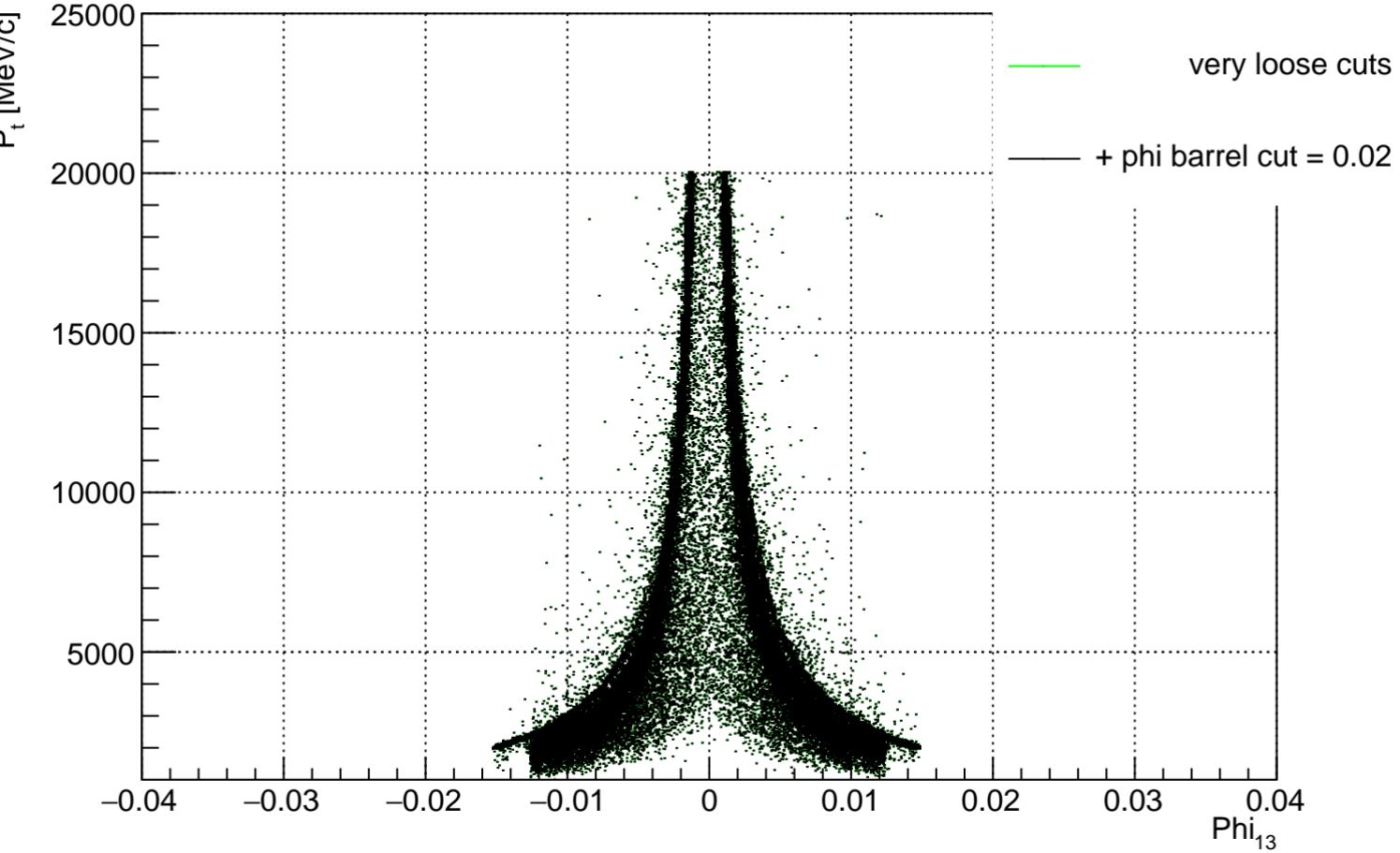


Purity vs P_t

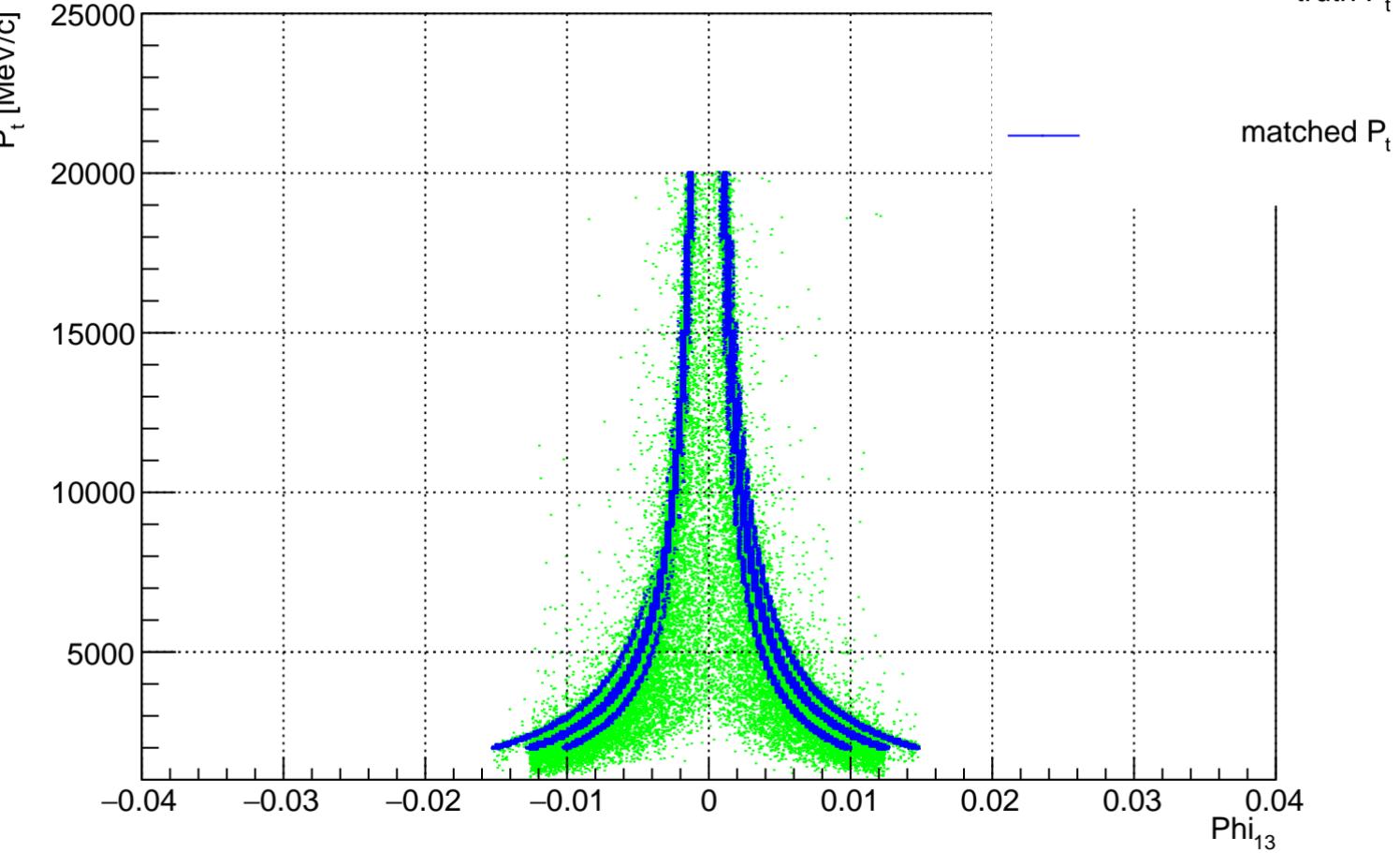


P_t Vs Φ_{13}

truth P_t

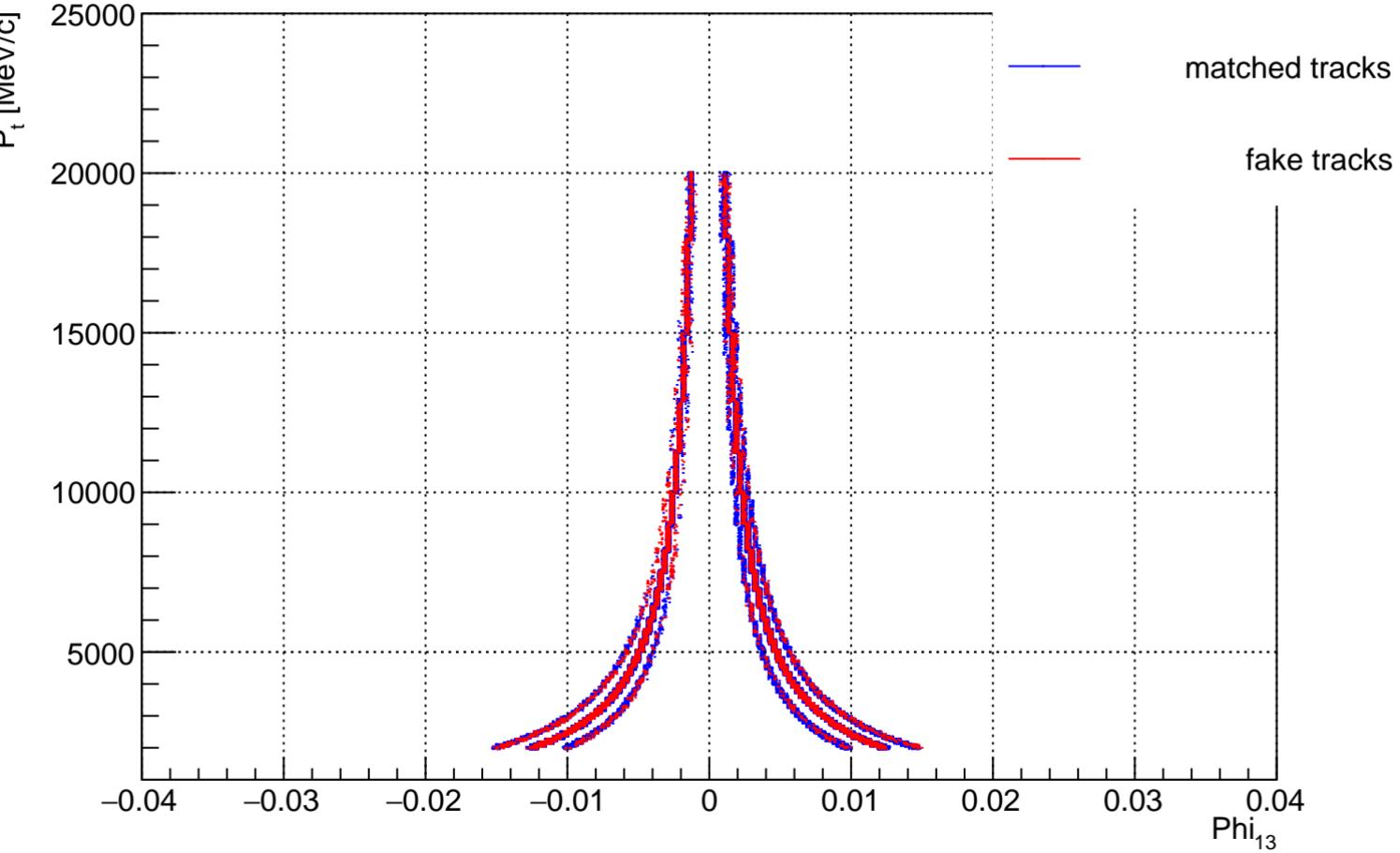


P_t Vs Φ_{13}

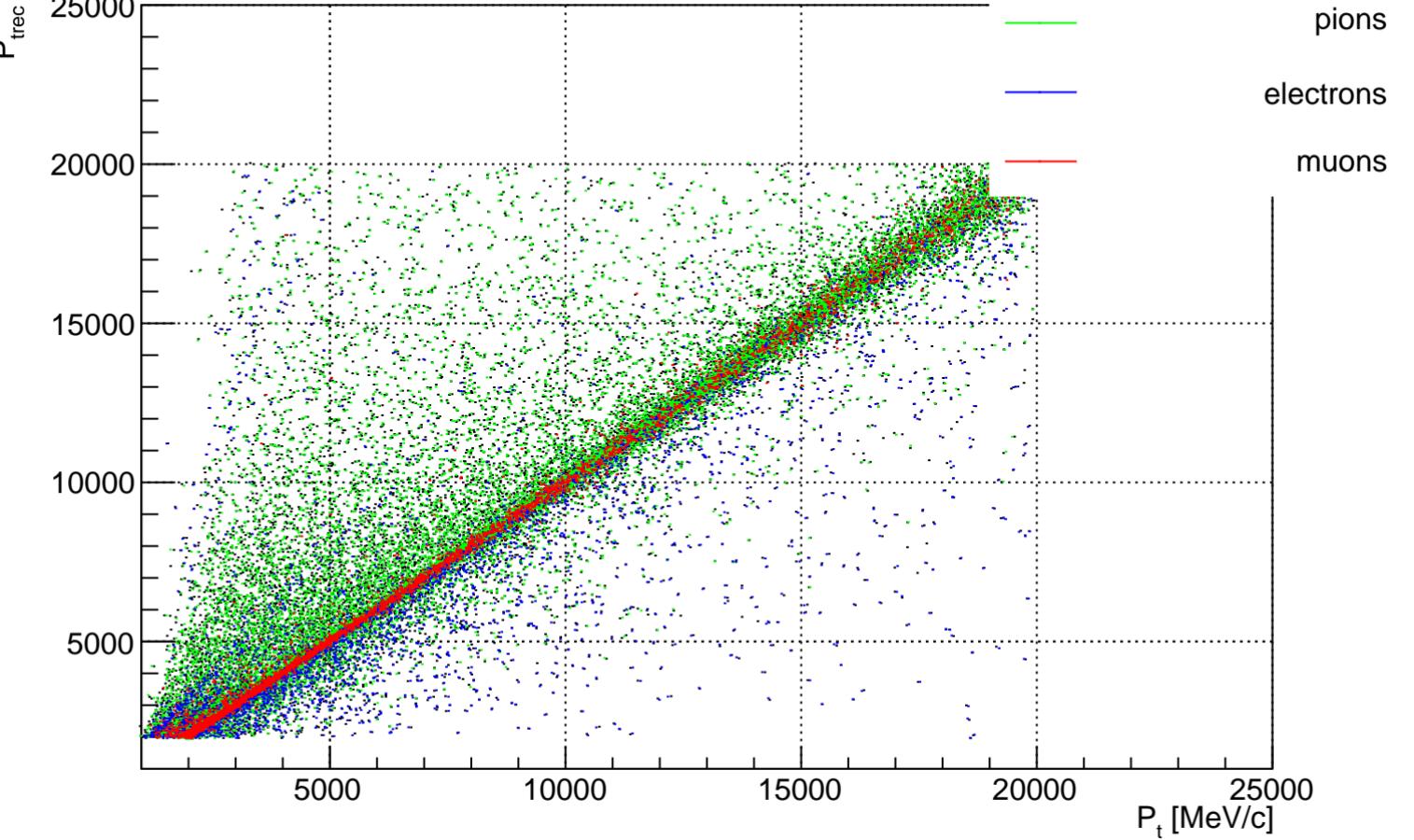


P_t Vs Φ_{13}

rec P_t

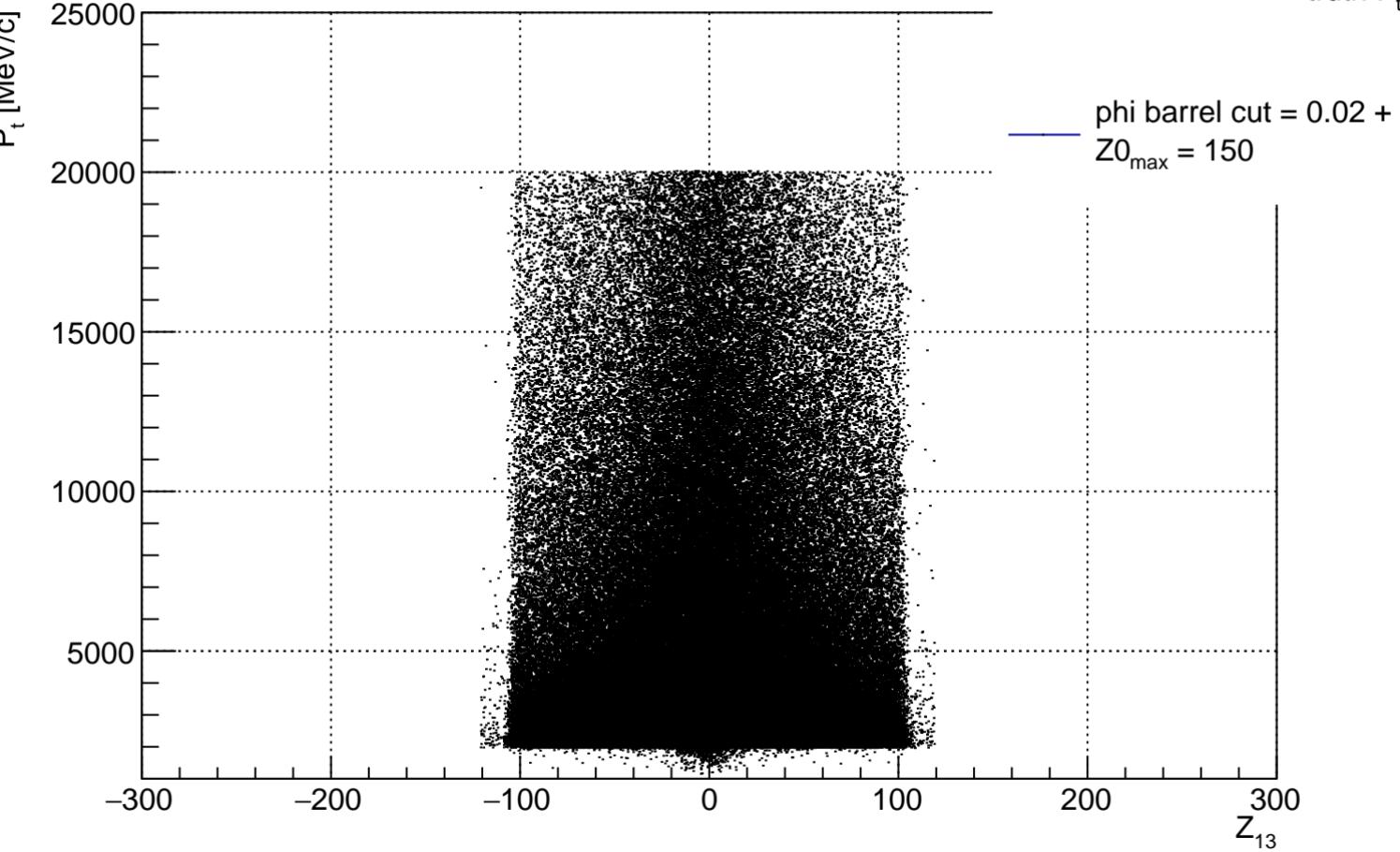


P_{trec} Vs P_t



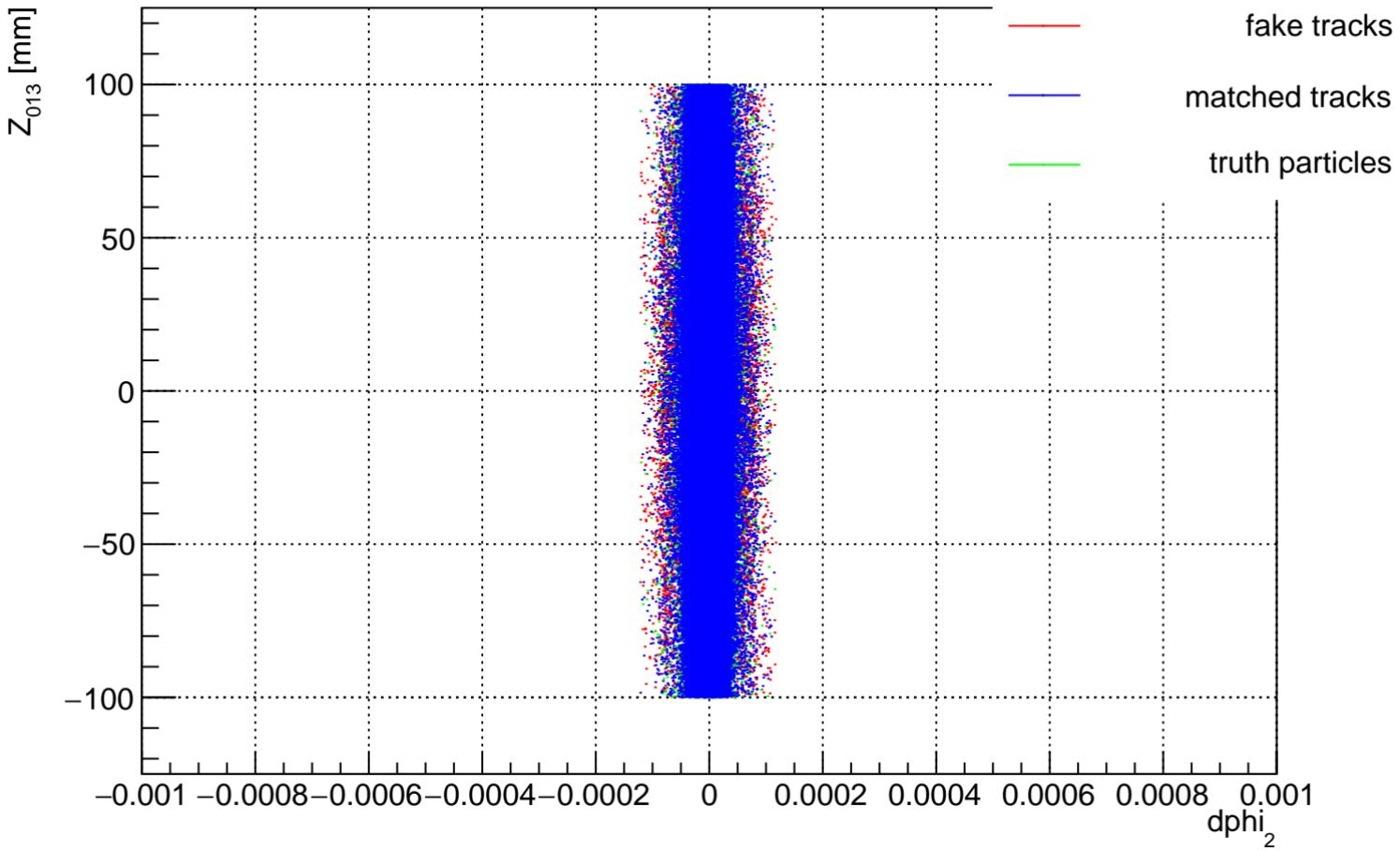
P_t Vs Z_{13}

truth P_t



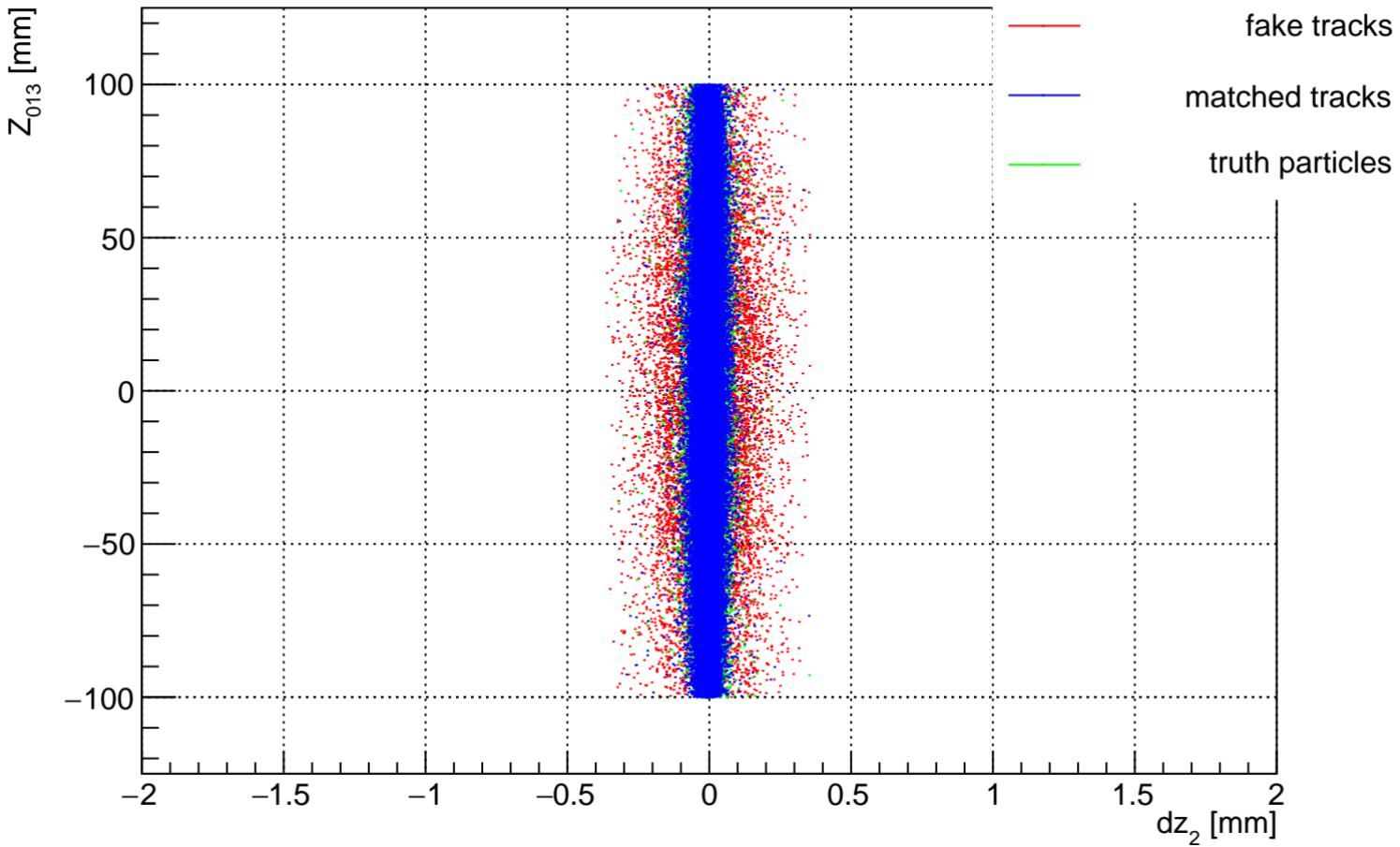
Z_{013} Vs $d\phi_{_2}$

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



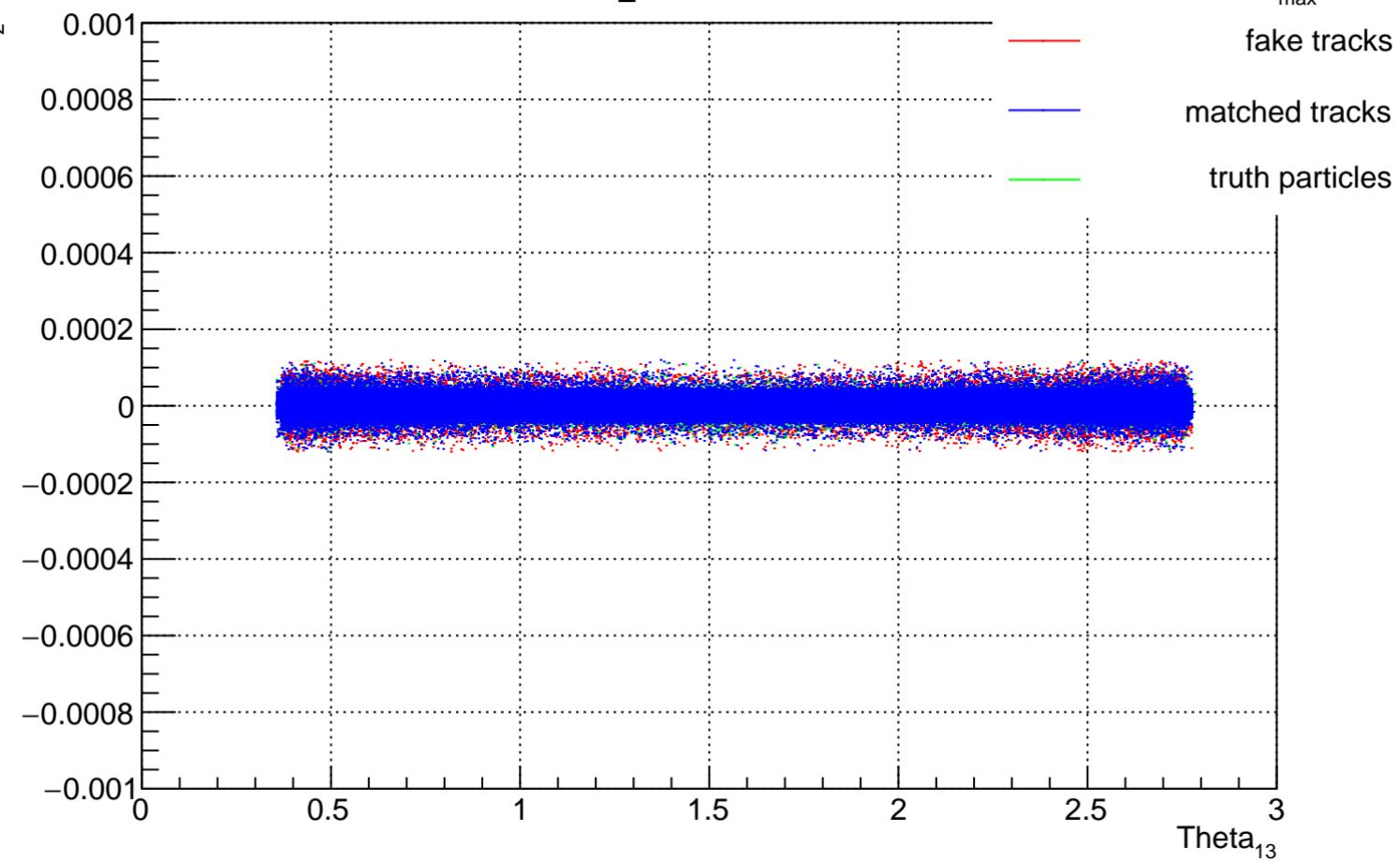
Z_{013} Vs dz_2

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



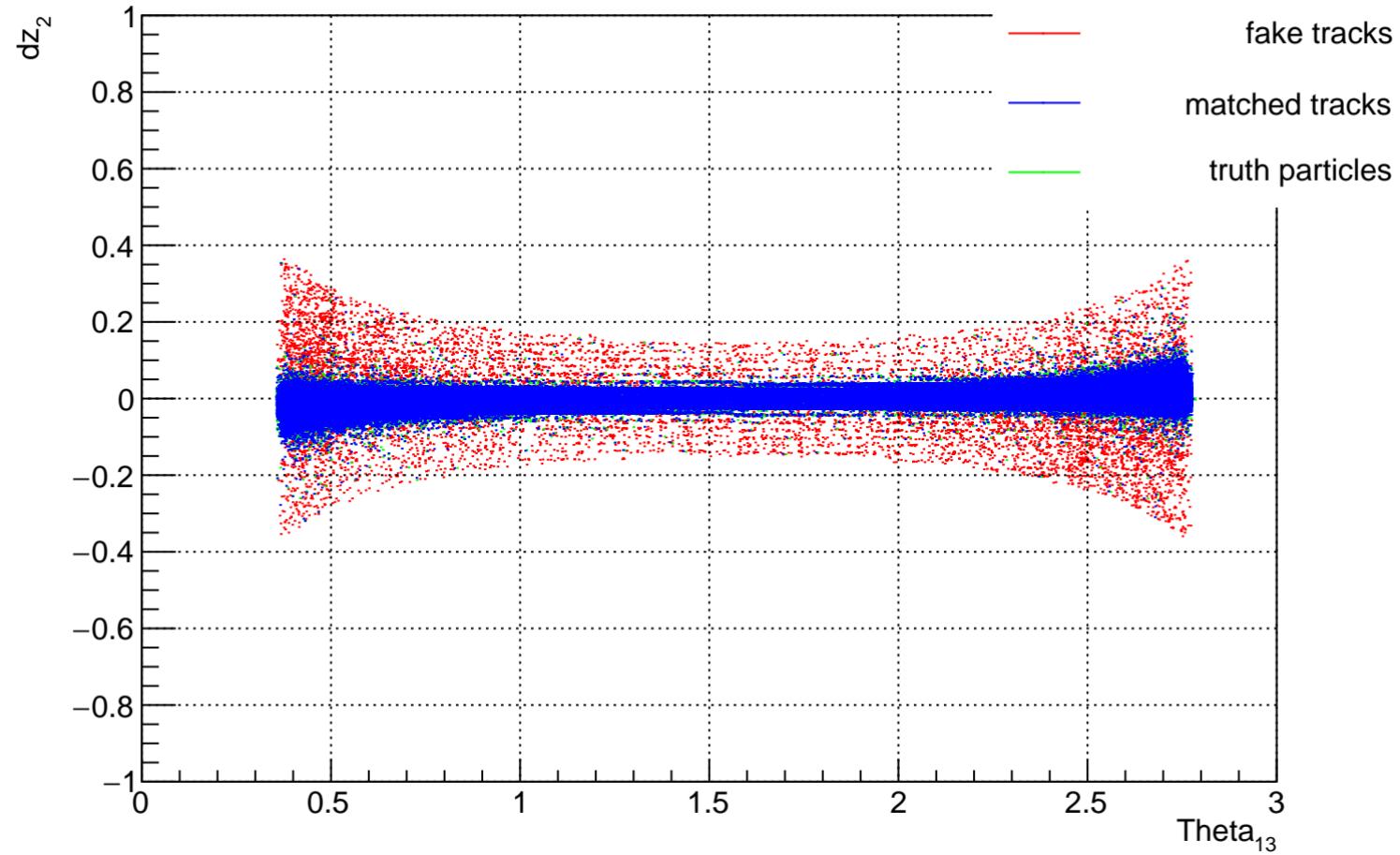
$d\phi_{2}$ Vs Θ_{13}

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



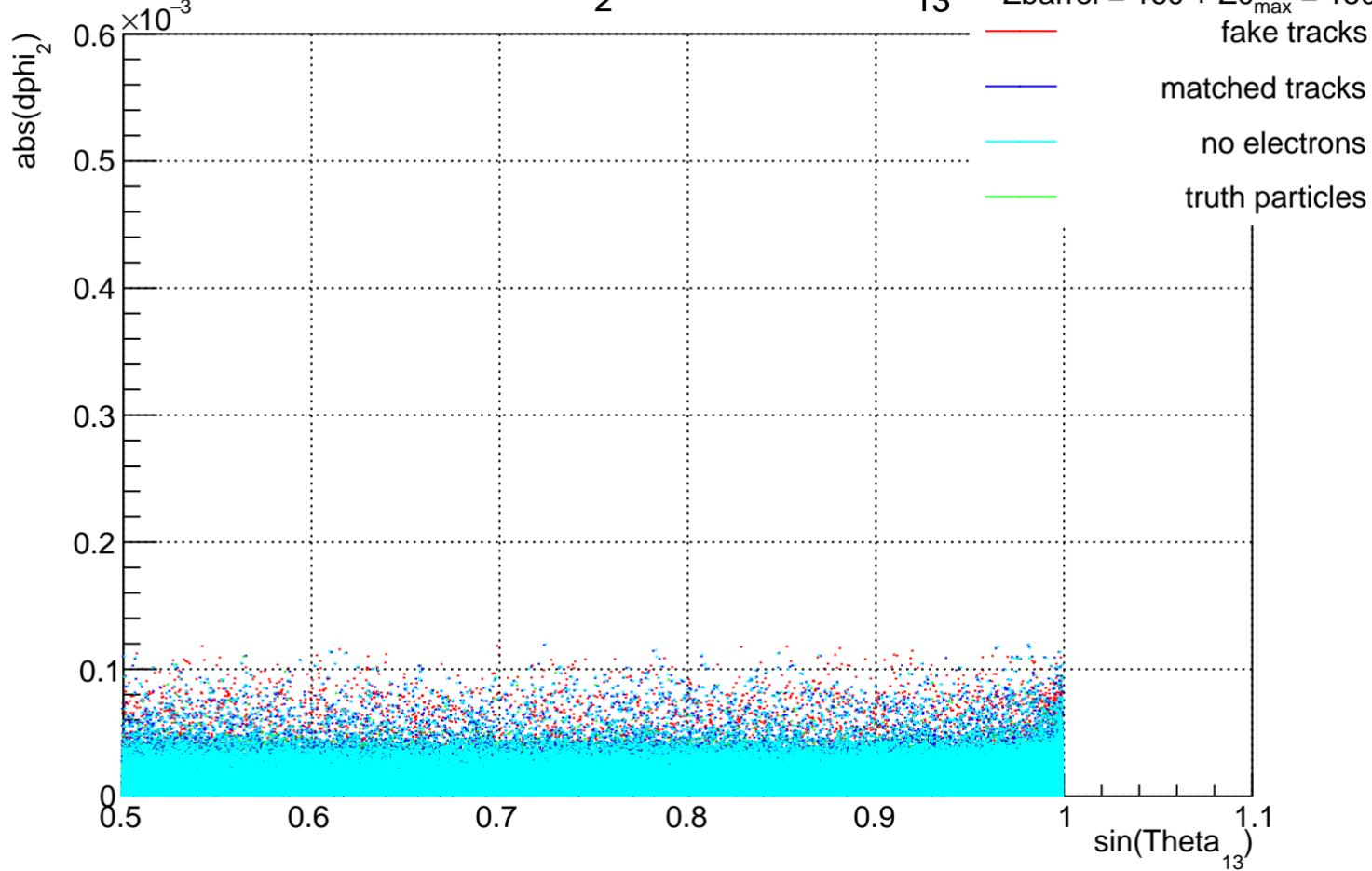
dz_2 Vs Θ_{13}

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

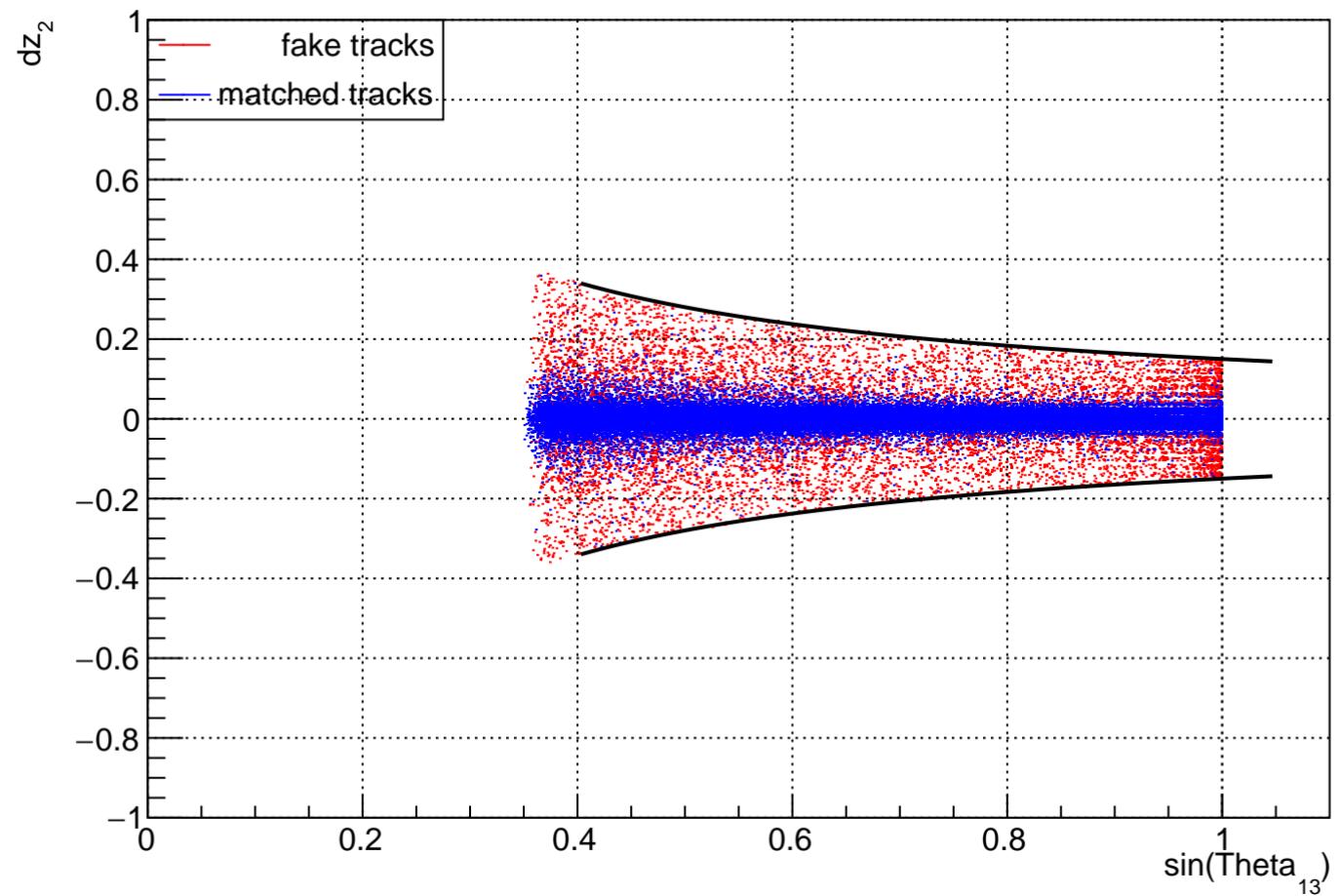


$\text{abs}(\text{dphi}_2)$ Vs $\sin(\text{Theta}_{13})$

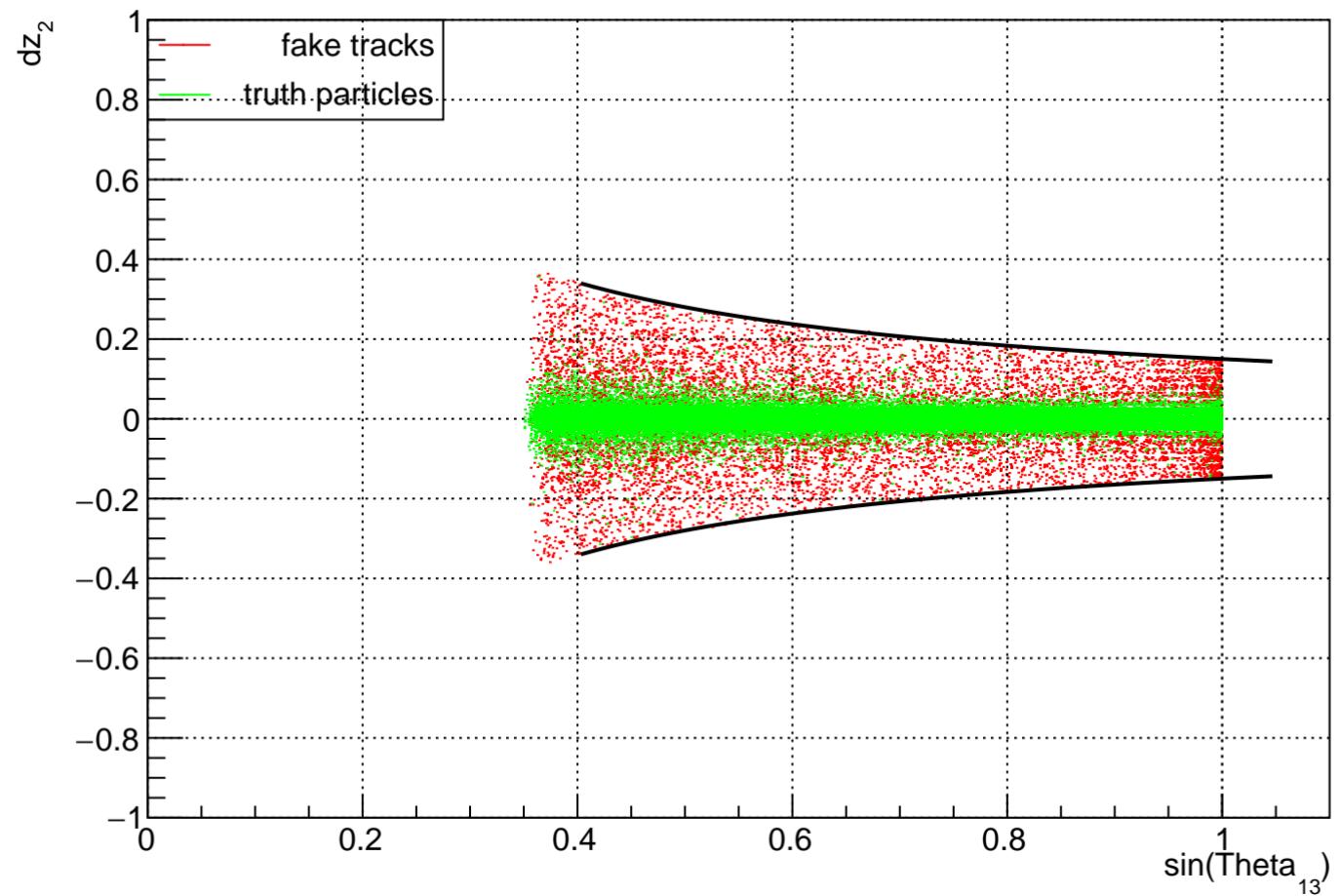
$\text{phi Barrel} = 0.02 +$
 $Z_{\text{barrel}} = 160 + Z_{0,\text{max}} = 150$
fake tracks



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

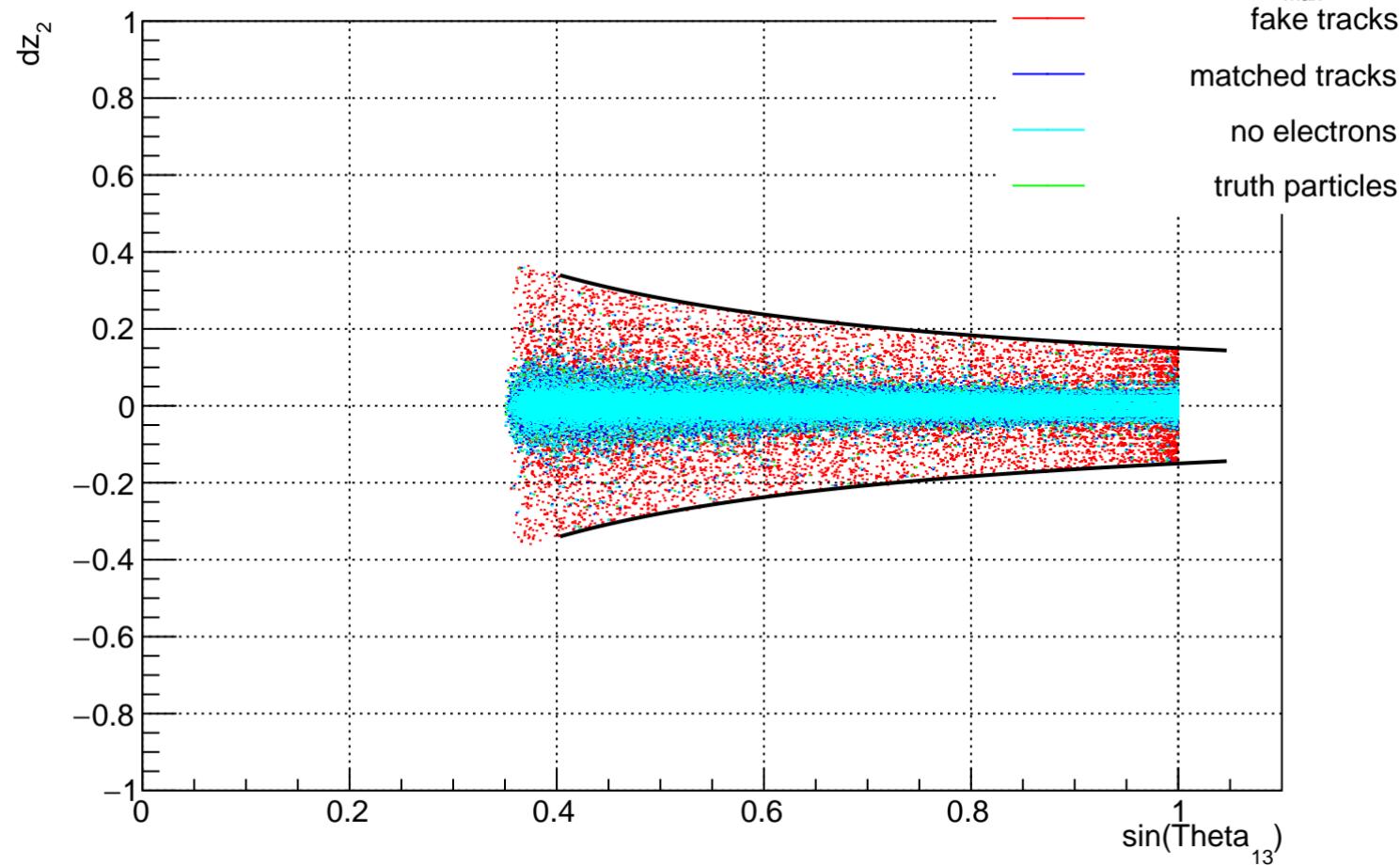


dz_2 Vs $\sin(\Theta_{13})$



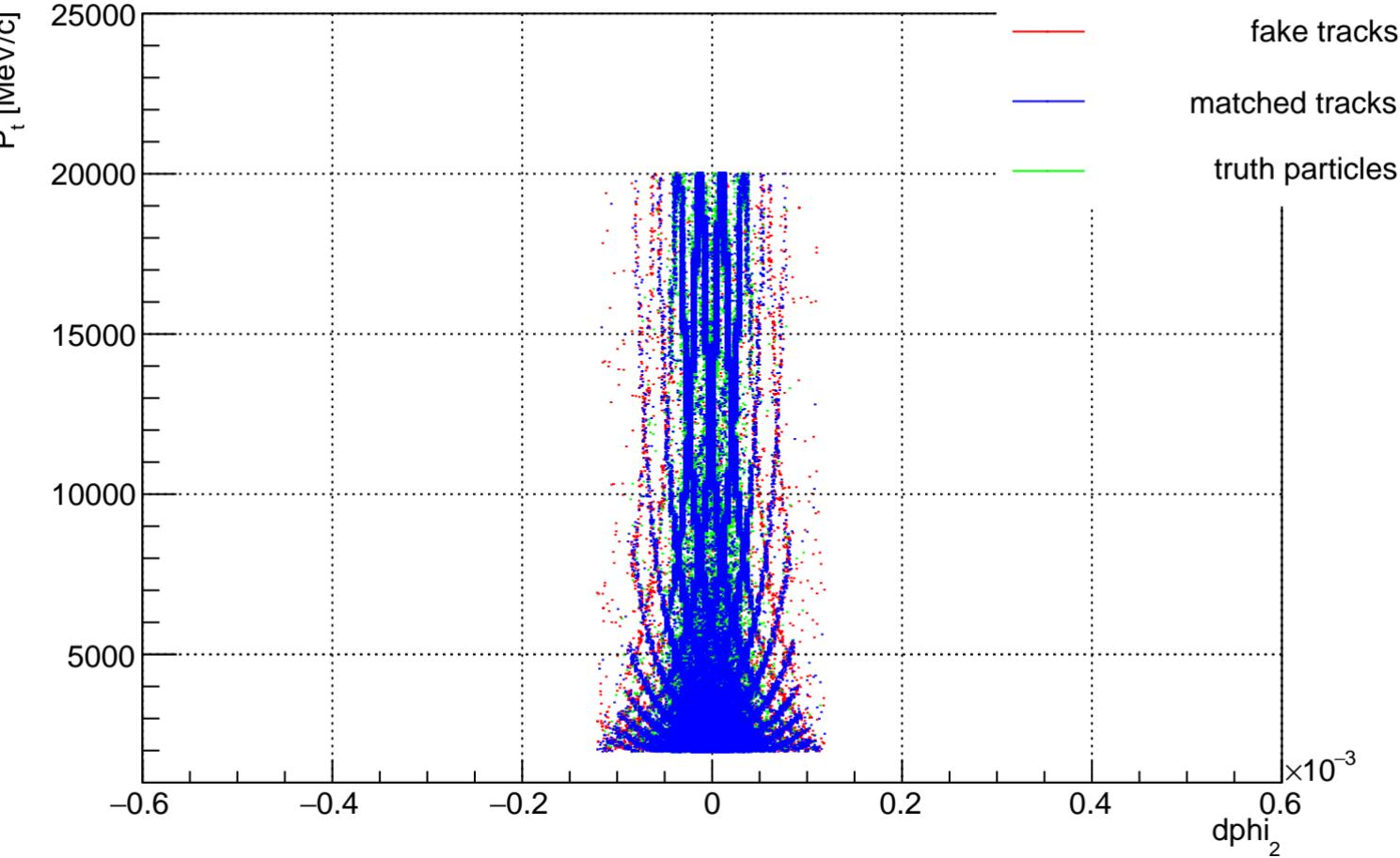
dz_2 Vs $\sin(\Theta_{13})$

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



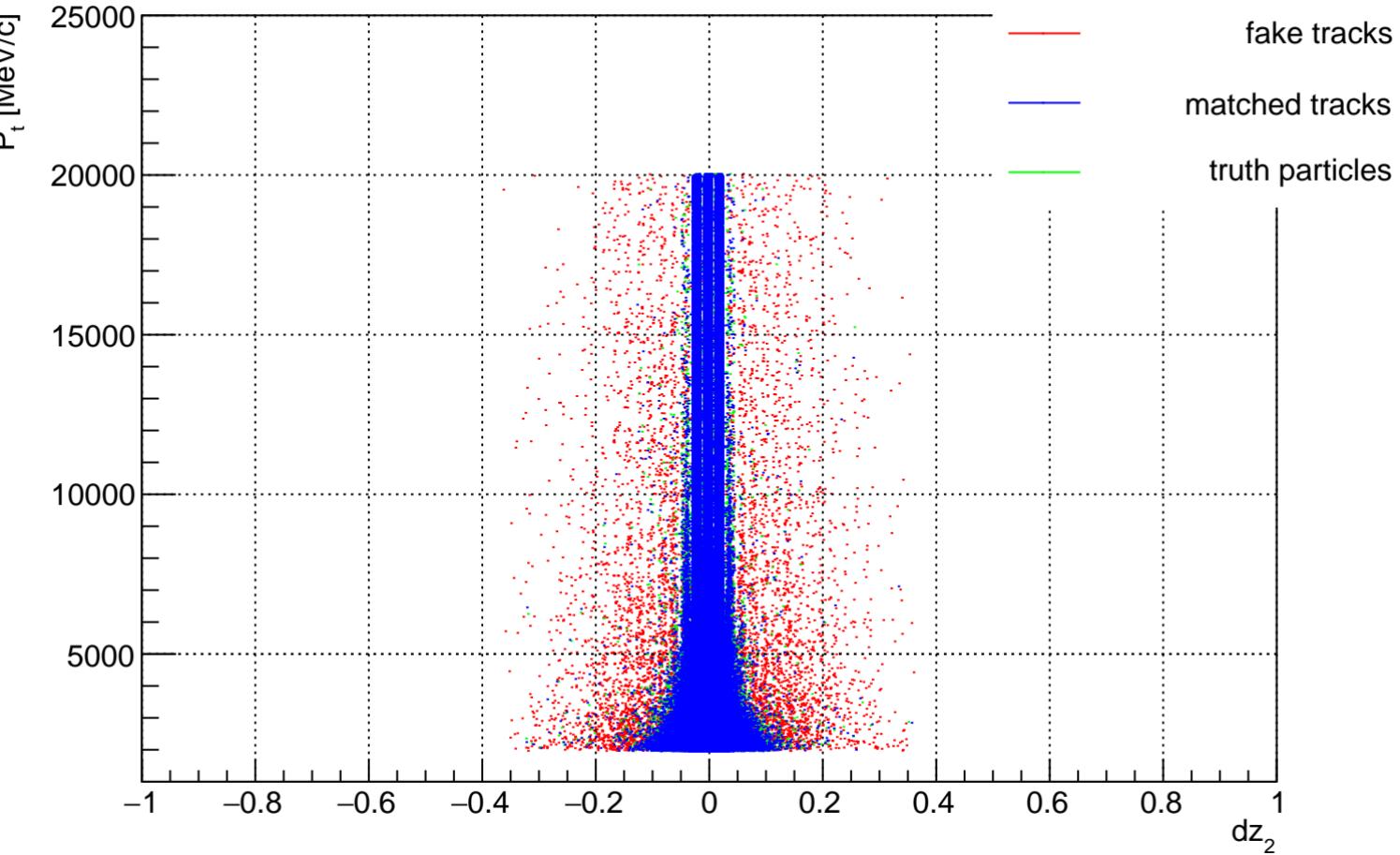
P_t Vs $d\phi_{2}$

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



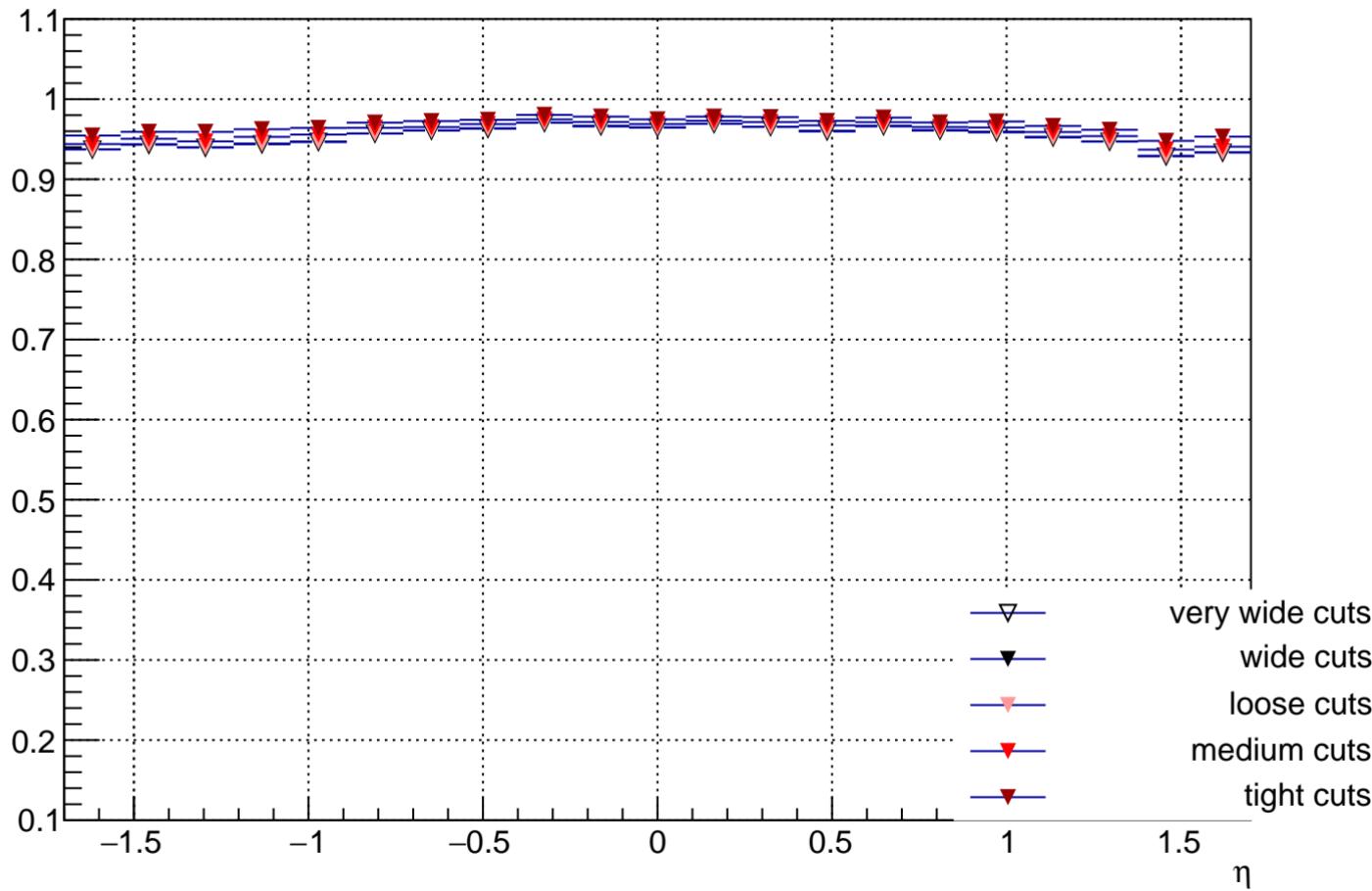
P_t Vs dz_2

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

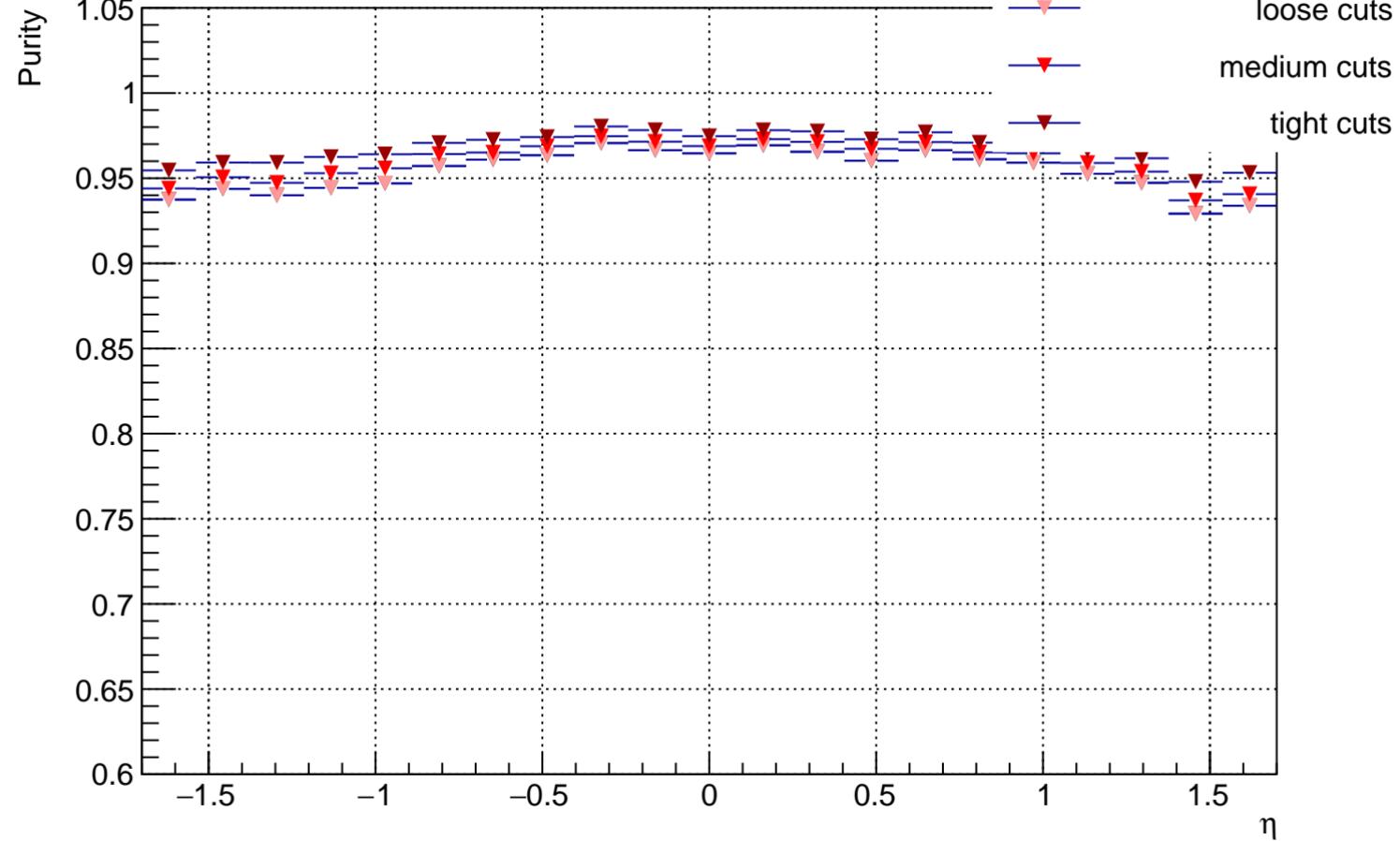


Purity vs η

Purity

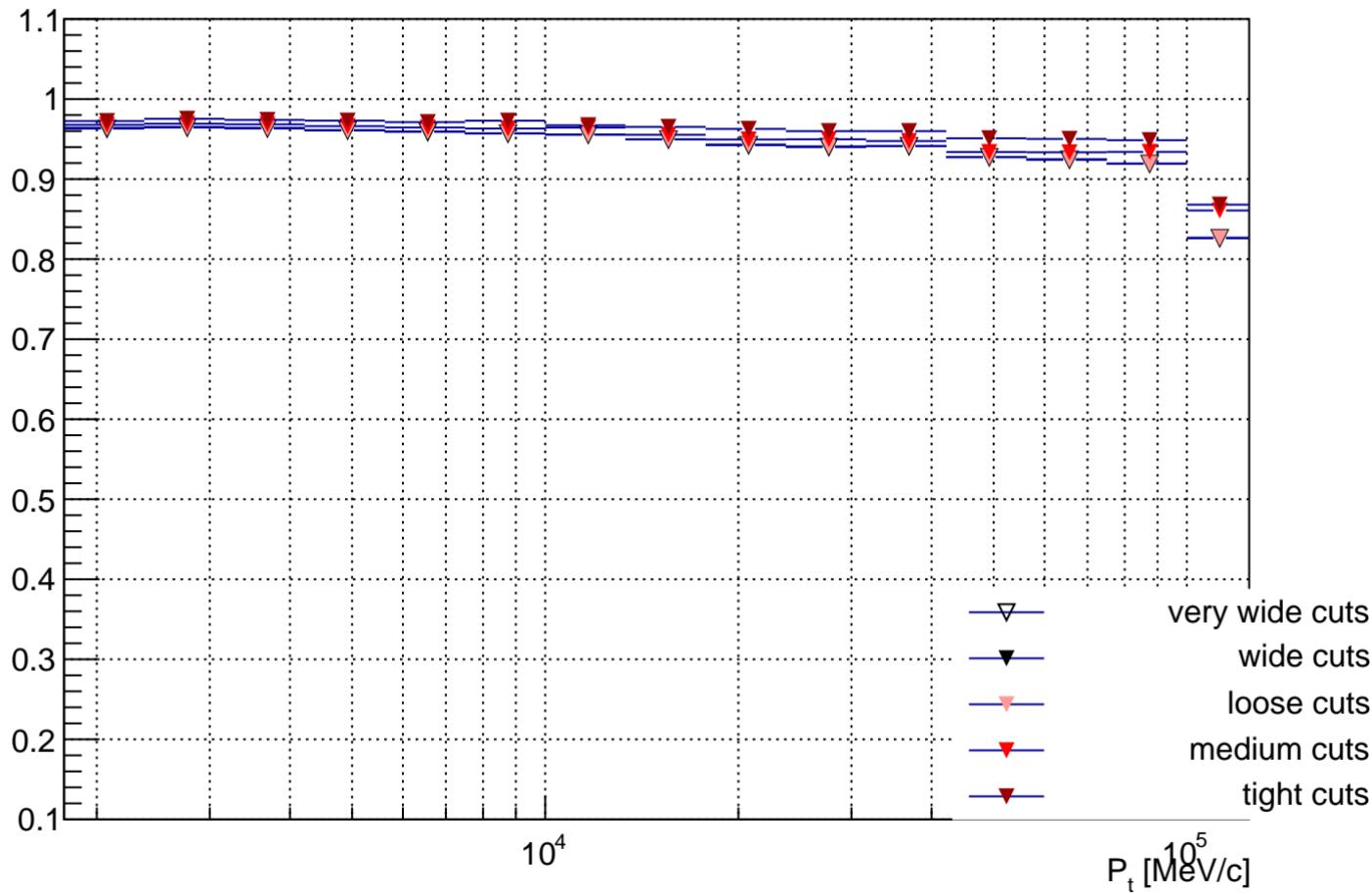


Purity vs η



Purity vs P_t

Purity



Purity vs P_t

