

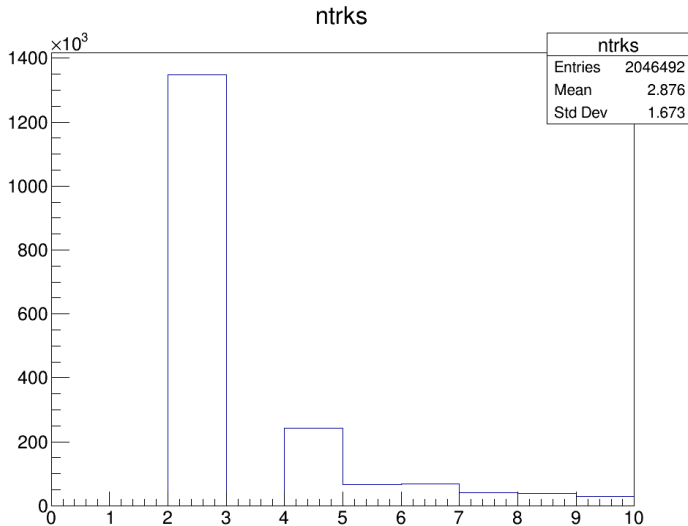
Progress report

Jan Loder

Helsinki Institute of Physics

10 July, 2025

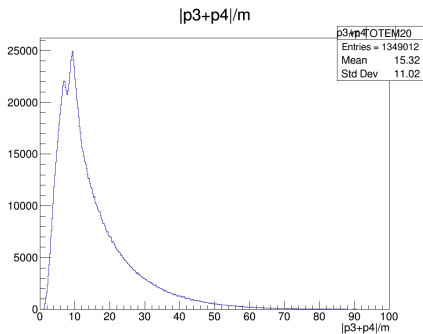
Loopers



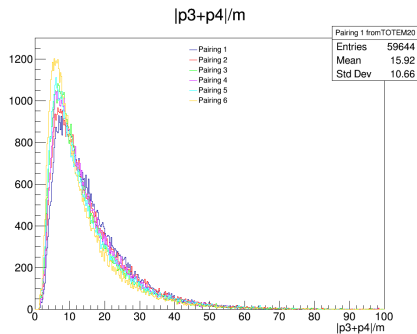
From

TOTEM20 data

Loopers



2 Tracks

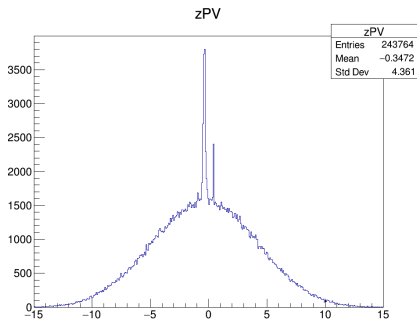


4 Tracks

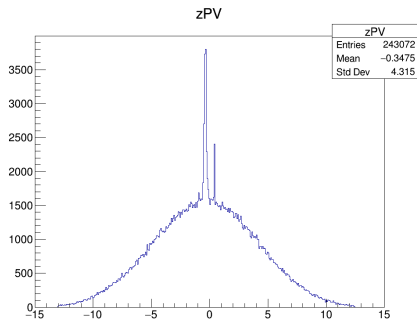
No peaks around zero \Rightarrow no loopers

- cutted on z_{PV} , trk_dxy , trk_dz , trk_dxy/trk_dxyerr , trk_dz/trk_dzerr
- Made gaussian fits and cut around 3 sigma of mean
- For 2d plots fitted along slice for every slice

Cutting

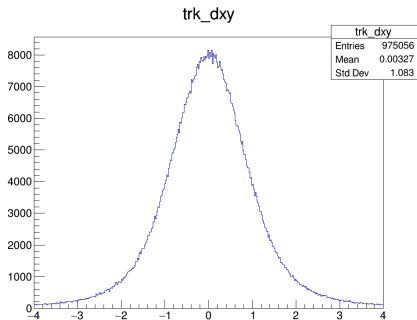


zPV ncut

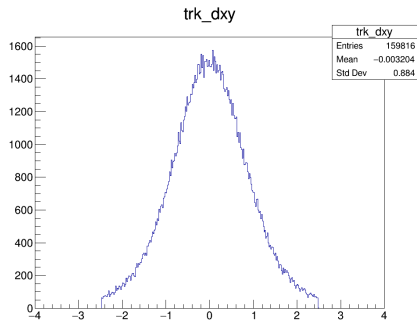


zPV cut

Cutting

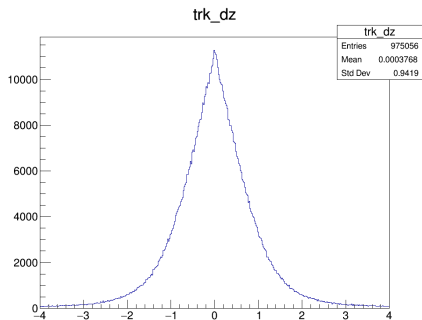


$\text{trk_dxy}/\text{trk_dxyerr}$ uncut

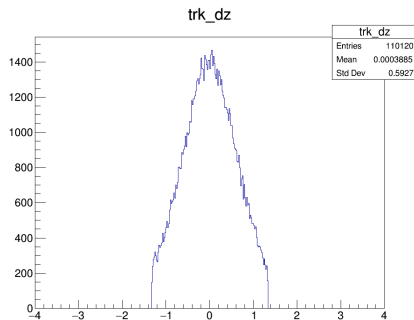


$\text{trk_dxy}/\text{trk_dxyerr}$ cut

Cutting

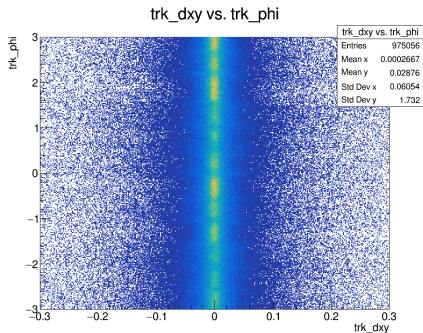


trk_dz/trk_dzerr uncut

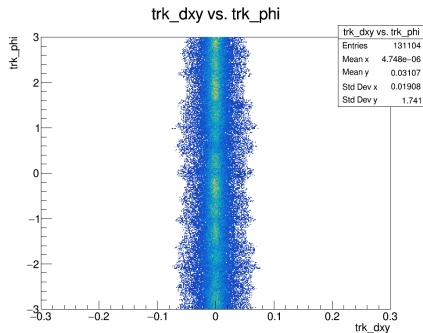


trk_dz/trk_dzerr cut

Cutting

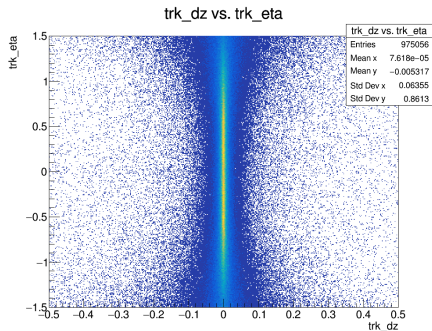


trk_dxy vs trk_phi uncut

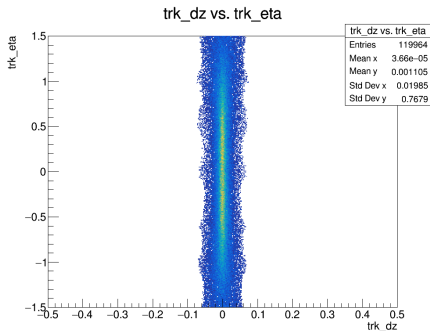


trk_dxy vs trk_phi cut

Cutting

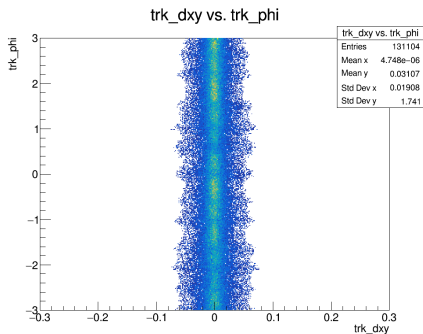


trk_dz vs trk_eta uncut

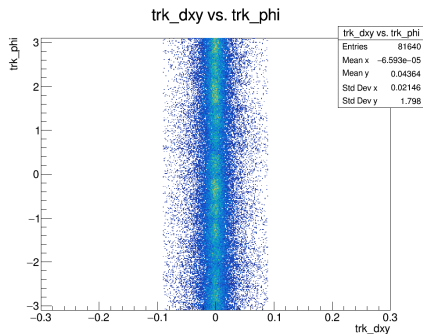


trk_dz vs trk_eta cut

Simplified cutting



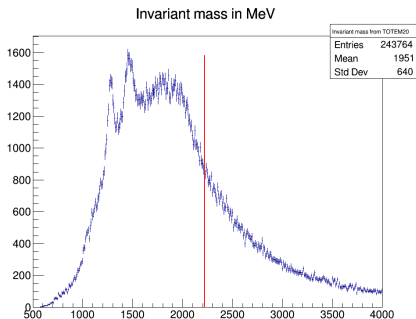
Slice specific



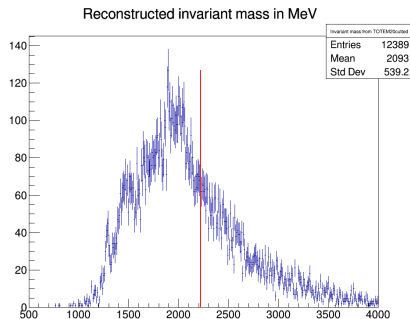
simple

Invariant mass reconstruction, assuming pions

Without intermediate step through rhos



Uncut data

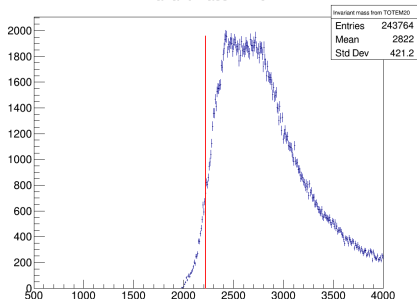


Cut data

Invariant mass reconstruction, assuming Kaons

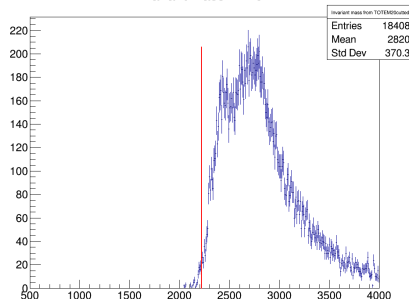
Without intermediate step through ϕ

Invariant mass in MeV



Uncut data

Invariant mass in MeV

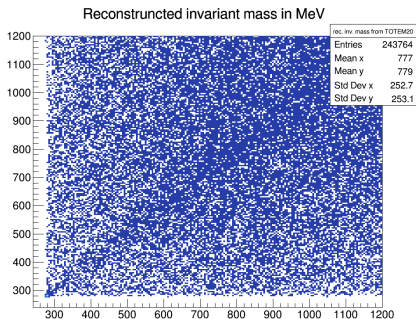


Cut data

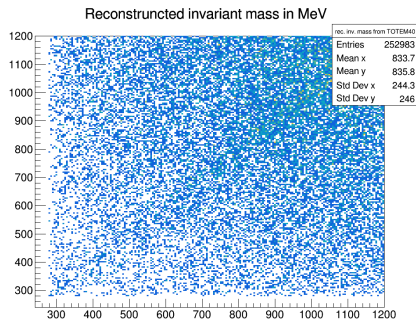
Next steps

- Reconstruct rho invariant mass
- Make 2d histogramm with 2 different pairings as x and y axis
- Make cuts to remove wrong pairings

Rho Invariant mass reconstruction, assuming Pions

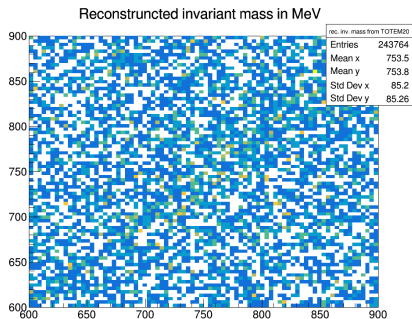


TOTEM20

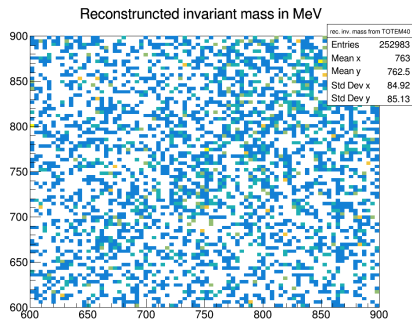


TOTEM40

Rho Invariant mass reconstruction, assuming Pions



TOTEM20



TOTEM40