

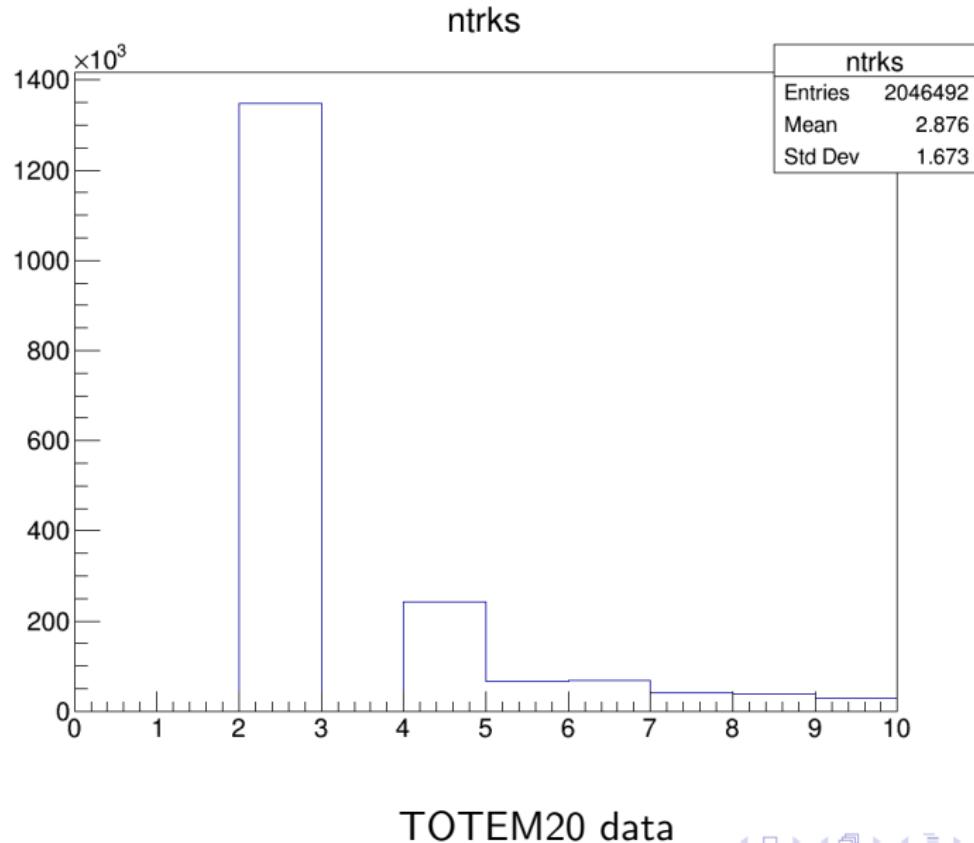
# Progress report

Jan Loder

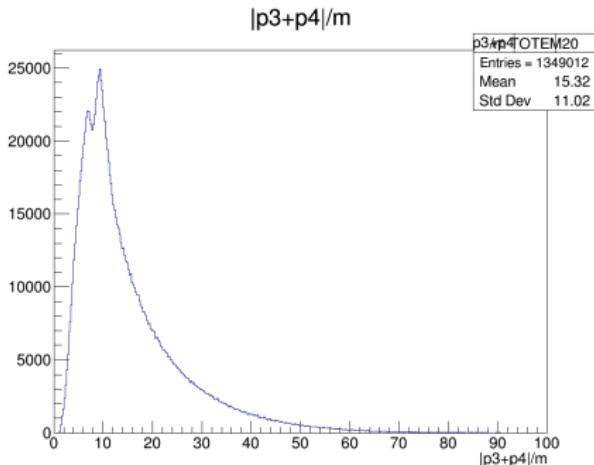
Helsinki Institute of Physics

10 July, 2025

# Loopers

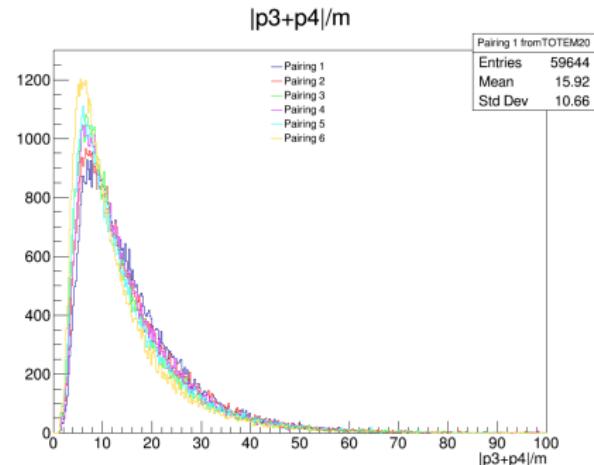


# Loopers



2 Tracks

No peaks around zero  $\Rightarrow$  no loopers

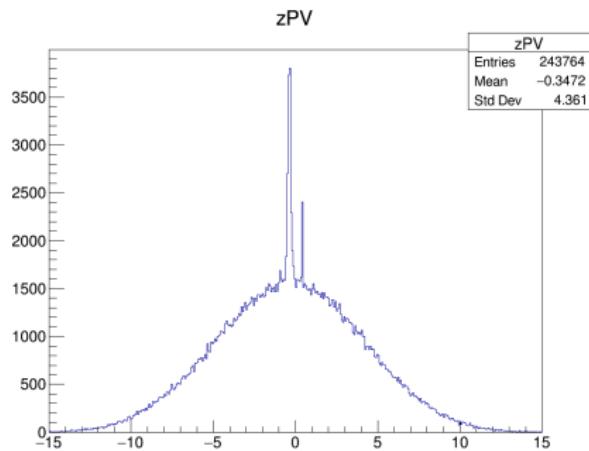


4 Tracks

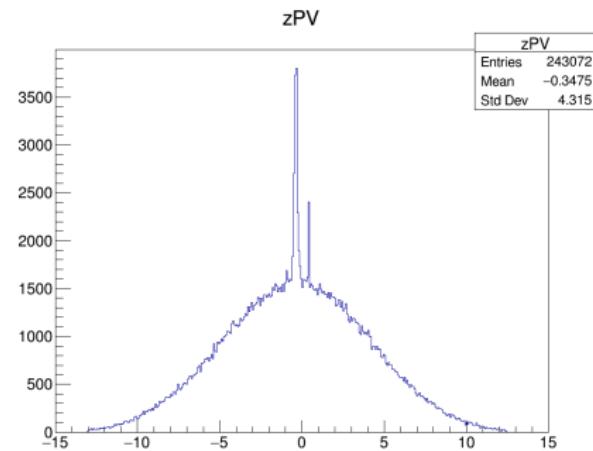
# Cutting

- cutted on zPV, 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

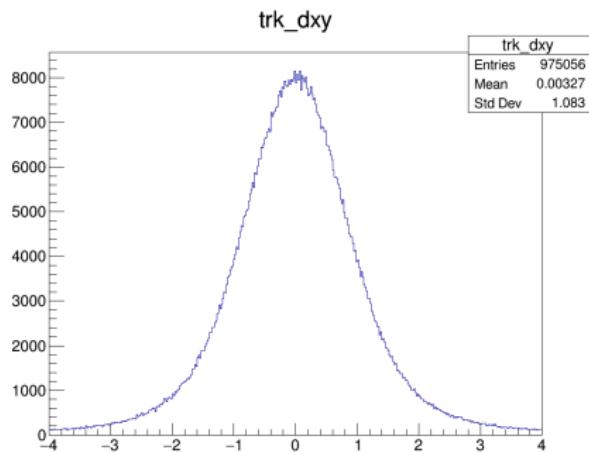


zPV ncut

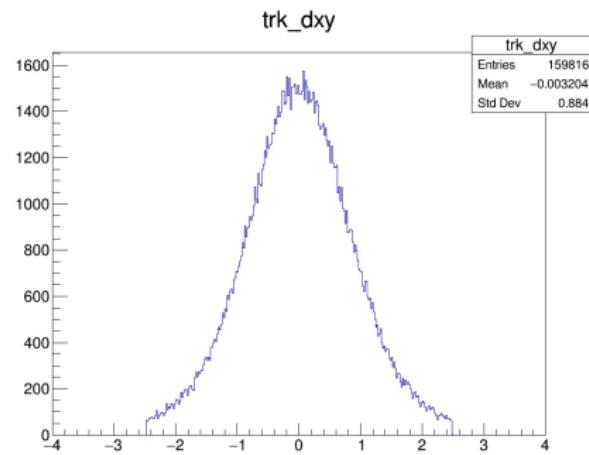


zPV cut

# Cutting

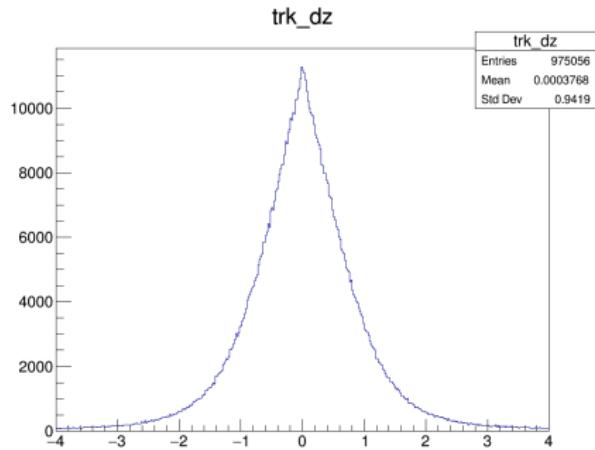


trk\_dxy/trk\_dxyerr uncut

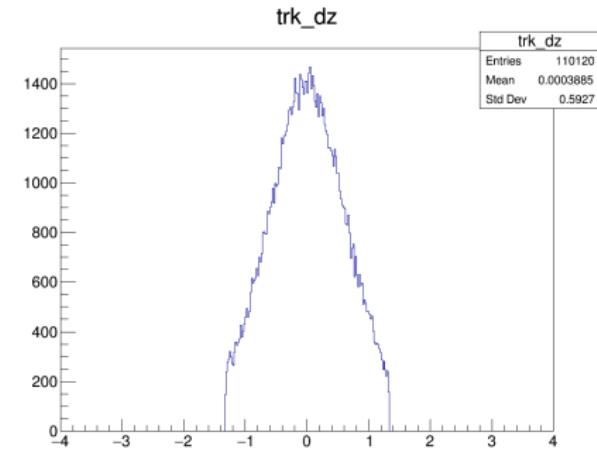


trk\_dxy/trk\_dxyerr cut

# Cutting

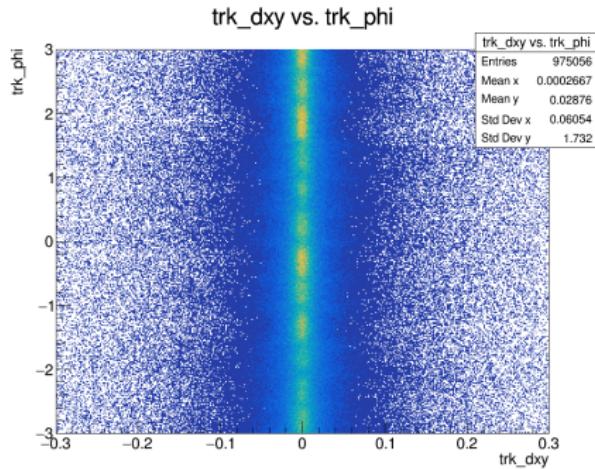


trk\_dz/trk\_dzerr uncut

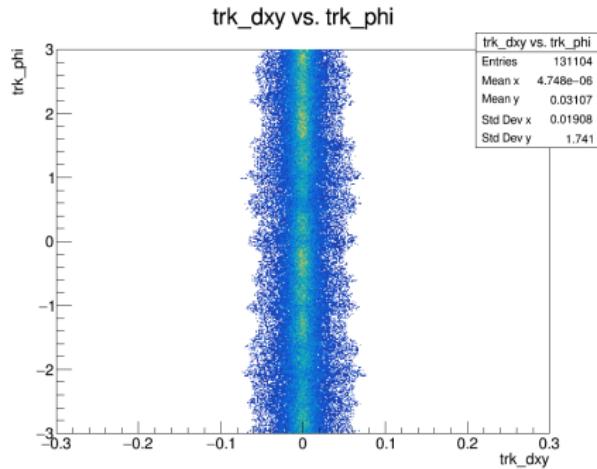


trk\_dz/trk\_dzerr cut

# Cutting

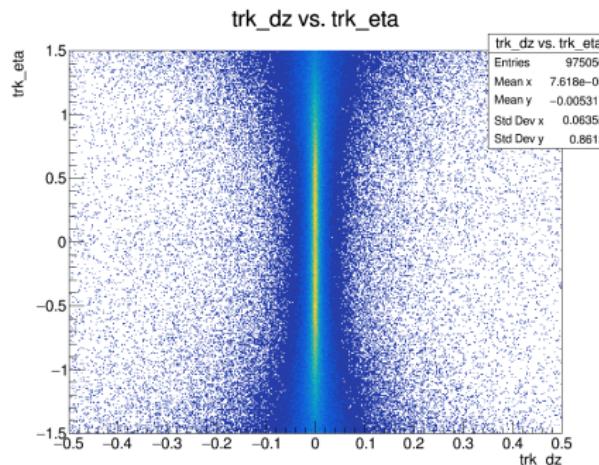


trk\_dxy vs trk\_phi uncut

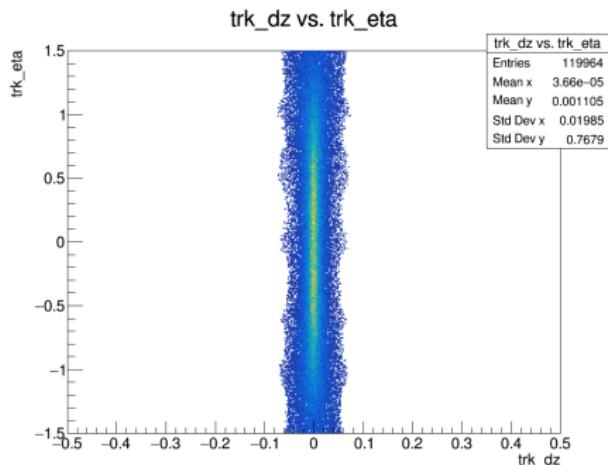


trk\_dxy vs trk\_phi cut

# Cutting

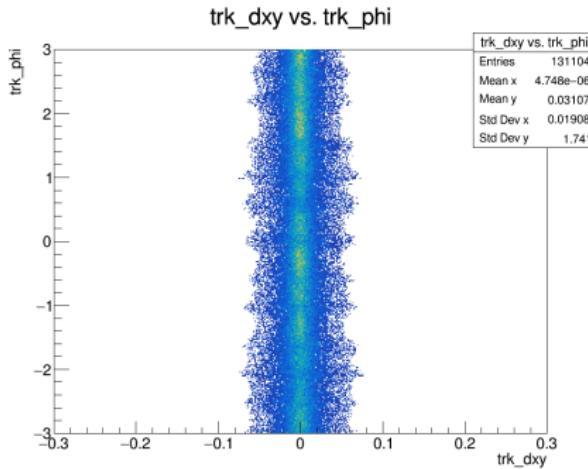


trk\_dz vs trk\_eta uncut

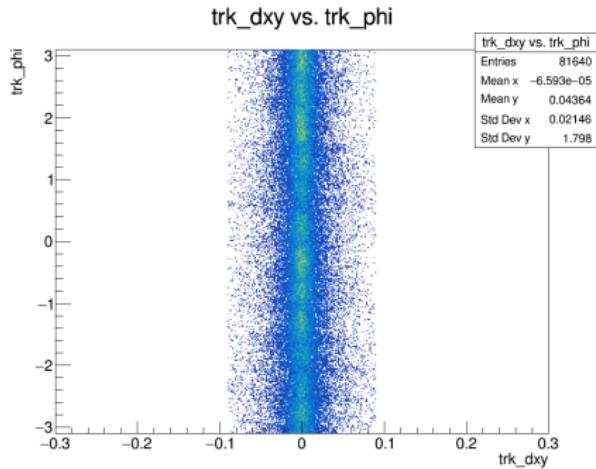


trk\_dz vs trk\_eta cut

# Simplified cutting



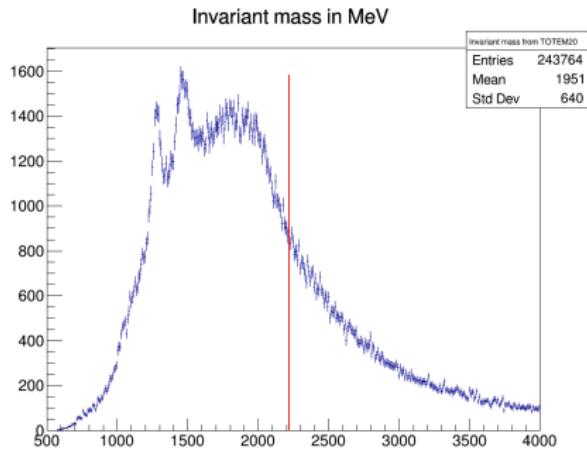
Slice specific



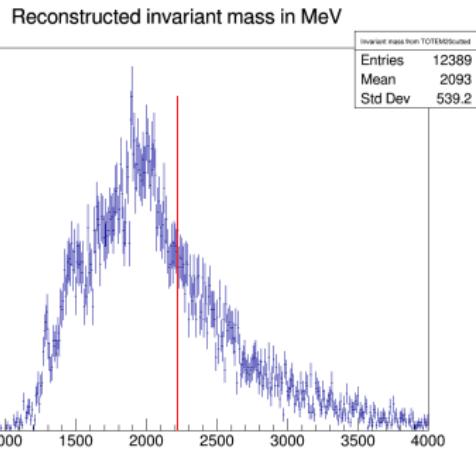
simple

# Invariant mass reconstruction, assuming pions

## Without intermediate step through rhos



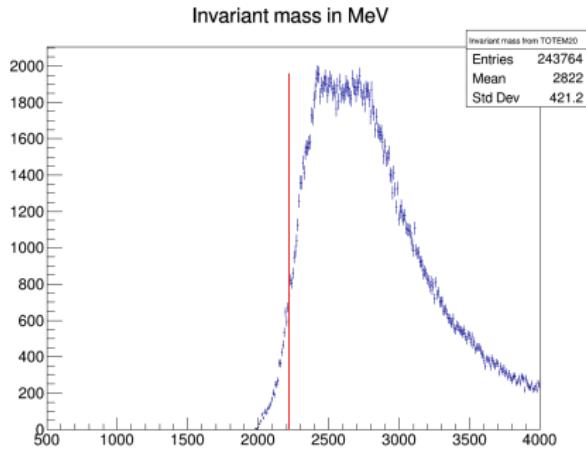
Uncut data



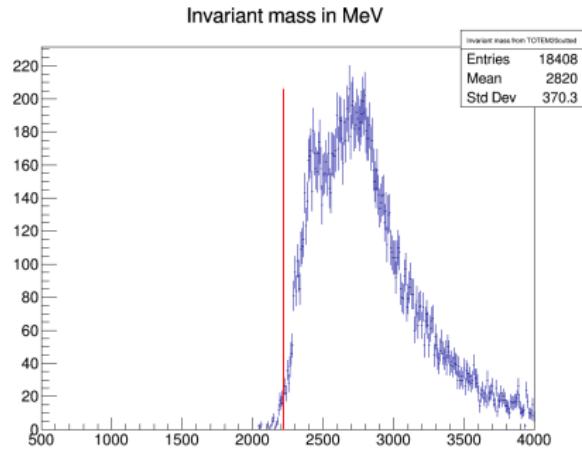
Cut data

# Invariant mass reconstruction, assuming Kaons

Without intermediate step through phis



Uncut data



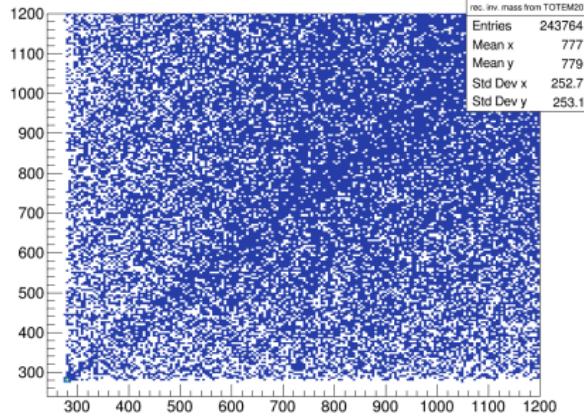
Cut data

# Next steps

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

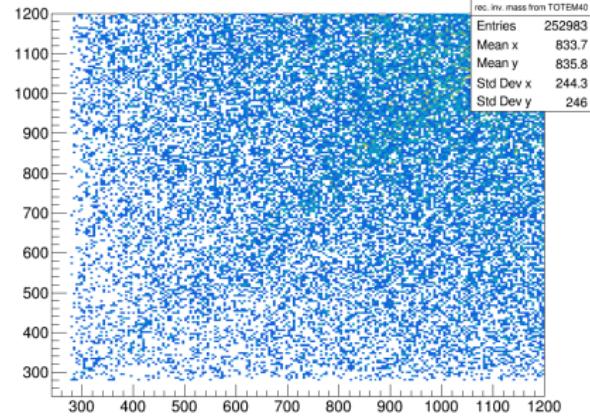
# Rho Invariant mass reconstruction, assuming Pions

Reconstructed invariant mass in MeV



TOTEM20

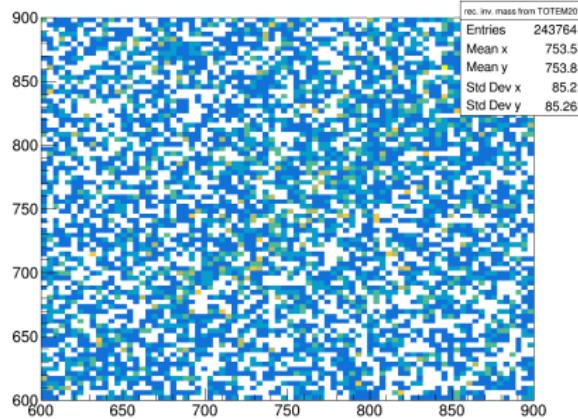
Reconstructed invariant mass in MeV



TOTEM40

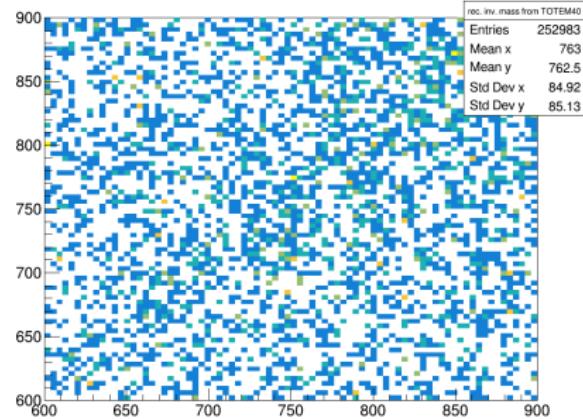
# Rho Invariant mass reconstruction, assuming Pions

Reconstructed invariant mass in MeV



TOTEM20

Reconstructed invariant mass in MeV



TOTEM40