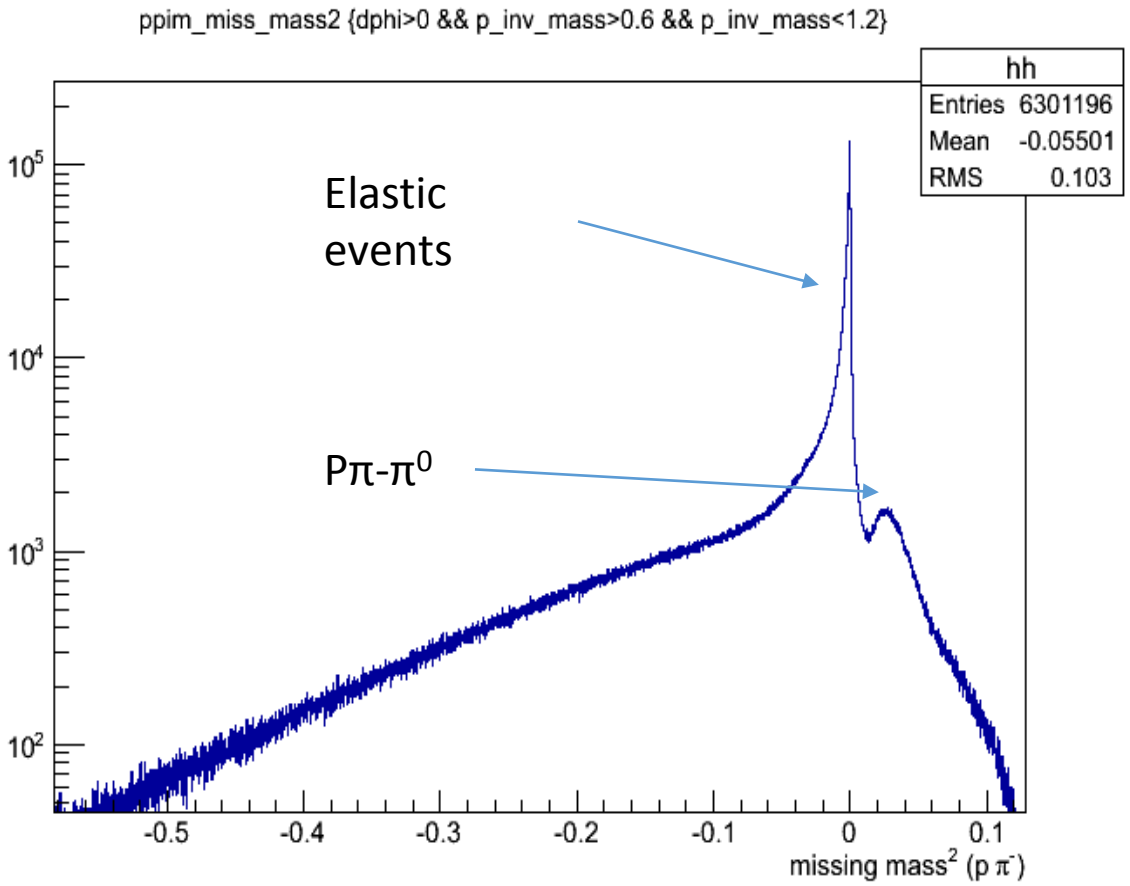
One,Two pion channels from PE target August 2014 (~10 hours of beam)

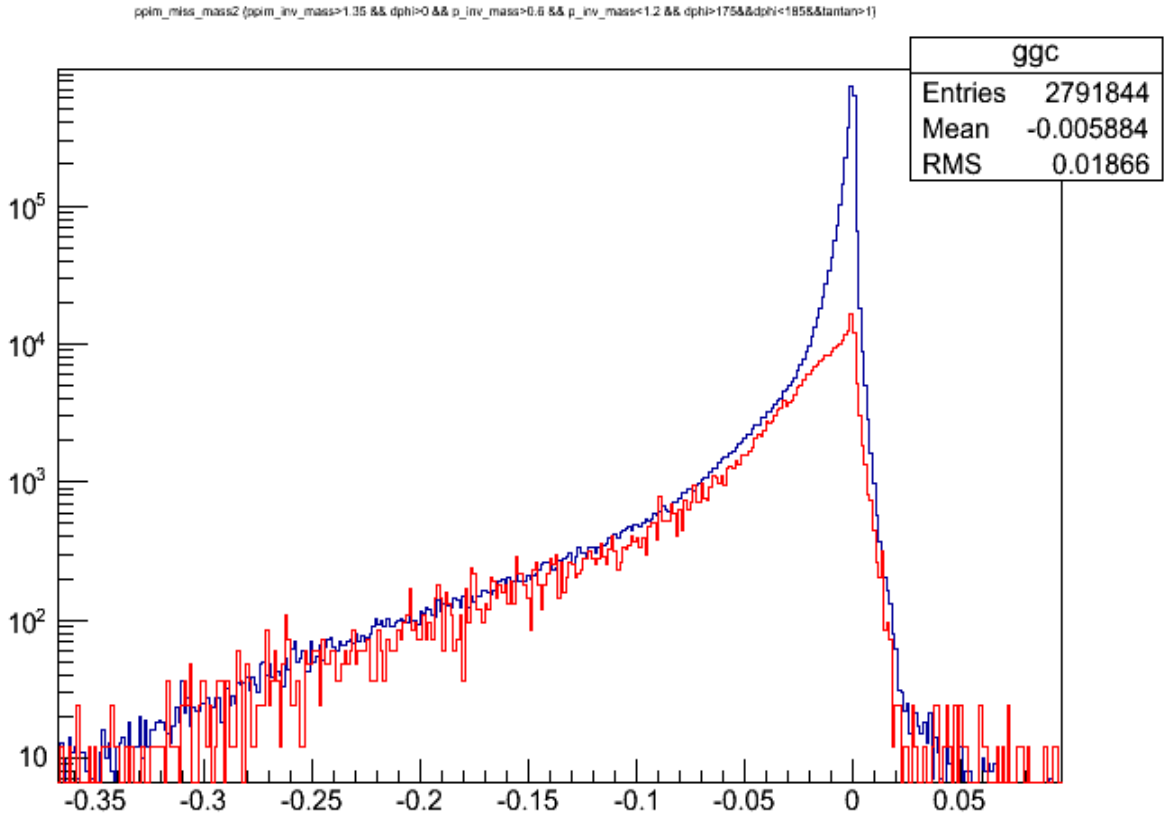
50 MLN events (1.2 shift)

Day 232/233

Piotr & Witek

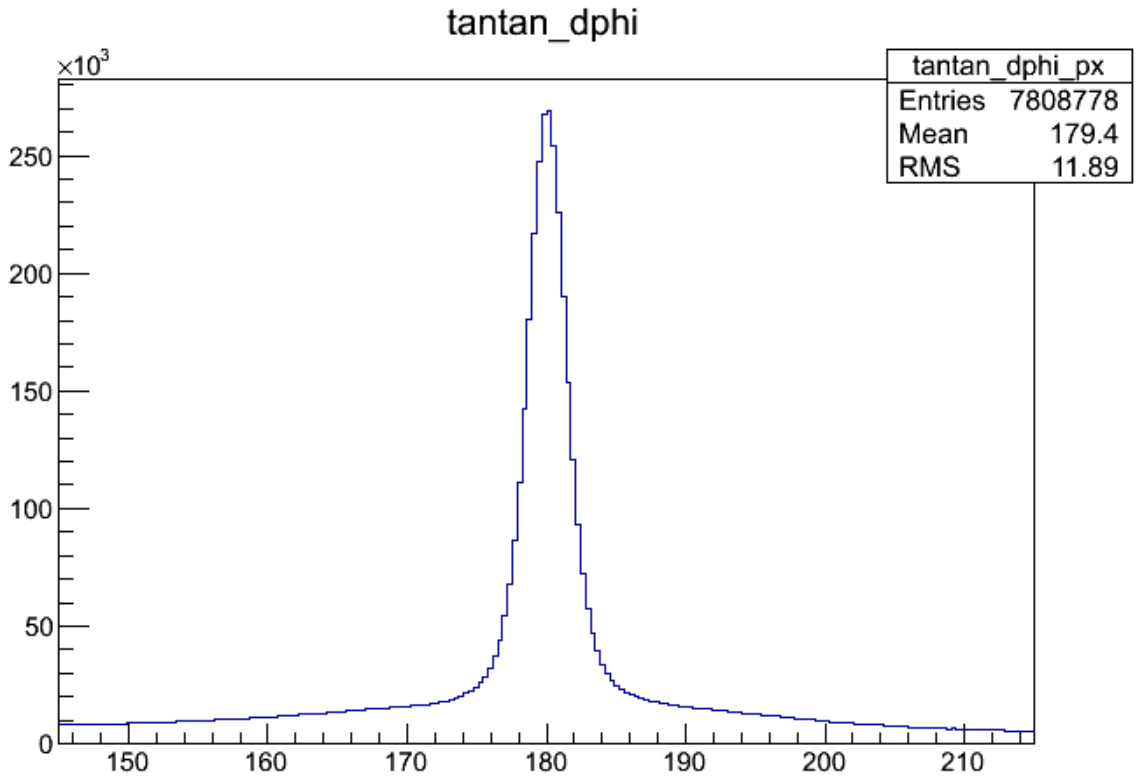
Pπ⁻ events with PID



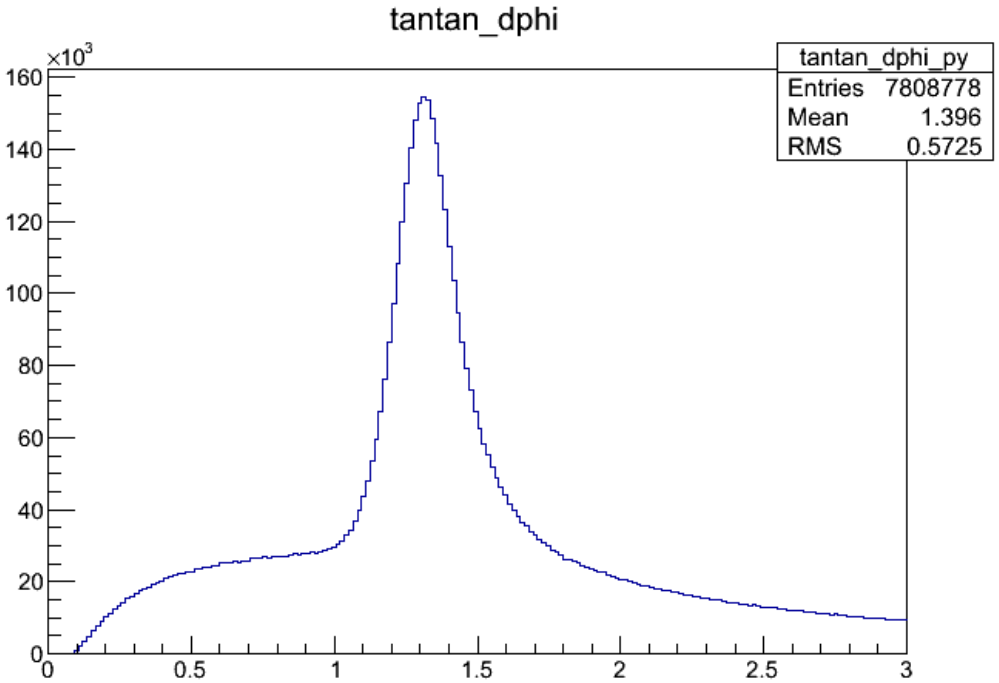


- Elastic events selected by condition on azimuthal and polar angle correlation (see next slide)
- Red line – background from Carbon scaled from 2MLN events collected on carbon target in July

Pπ⁻ elastic events



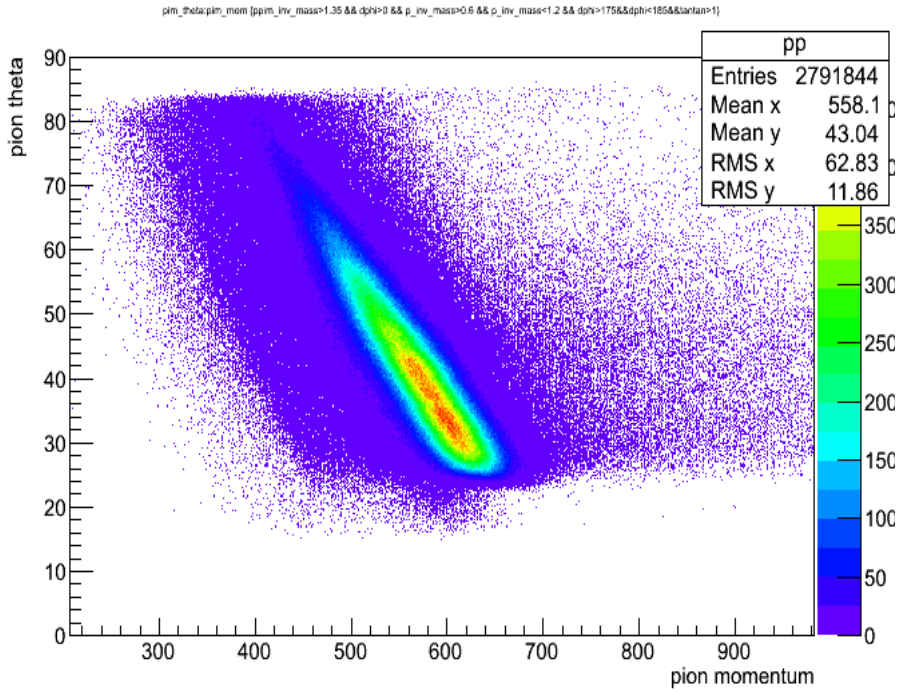
Cooplanarity of two tracks

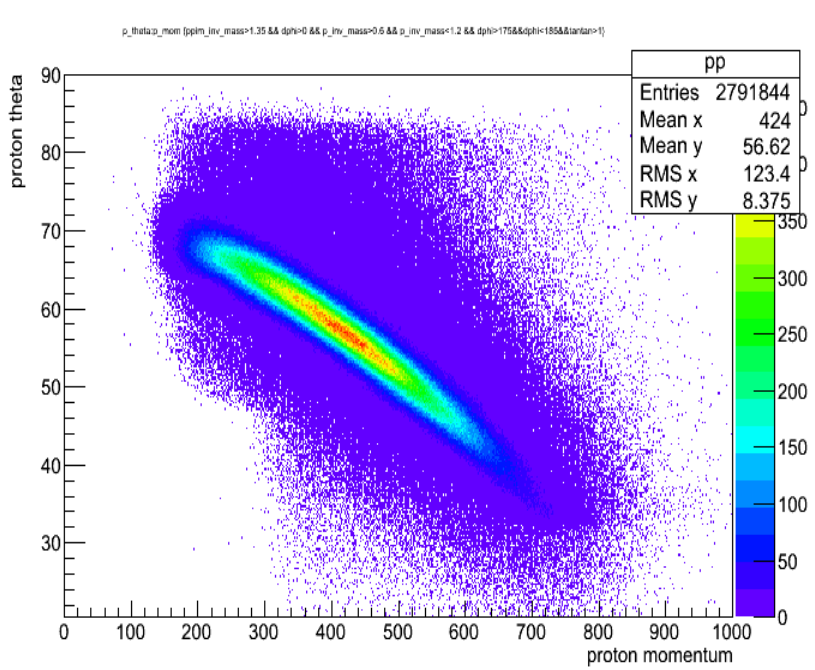


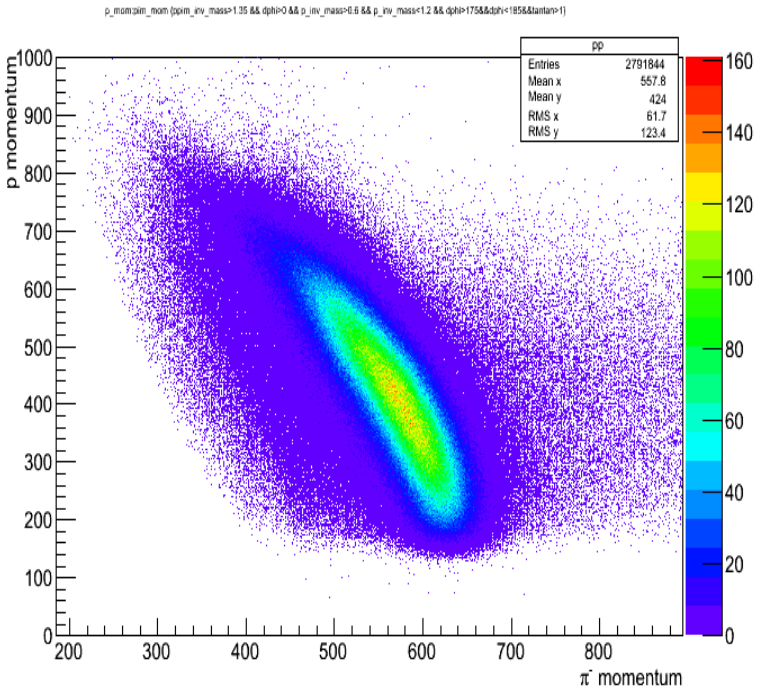
$\tan \vartheta_1 * \tan \vartheta_2$ distribution

Remark ; can be used to determine pion beam momentum or alternatively to check pion momentum reconstruction with Tracker
Width depends on pion momentum !

Pπ⁻ elastic events : selected via angular correlations



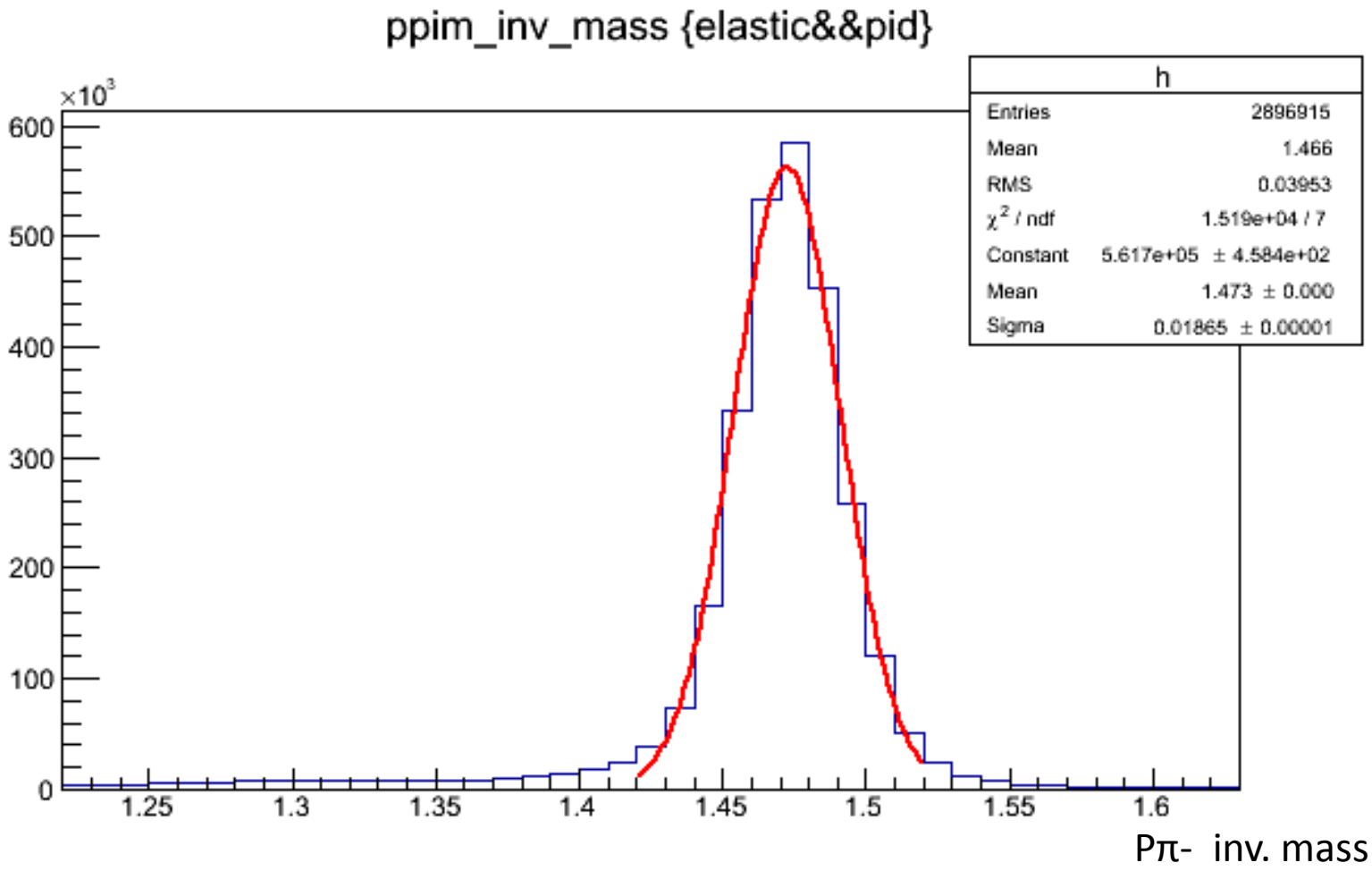




Pion – proton correlations

- ~ 2.7 MLN elastic events

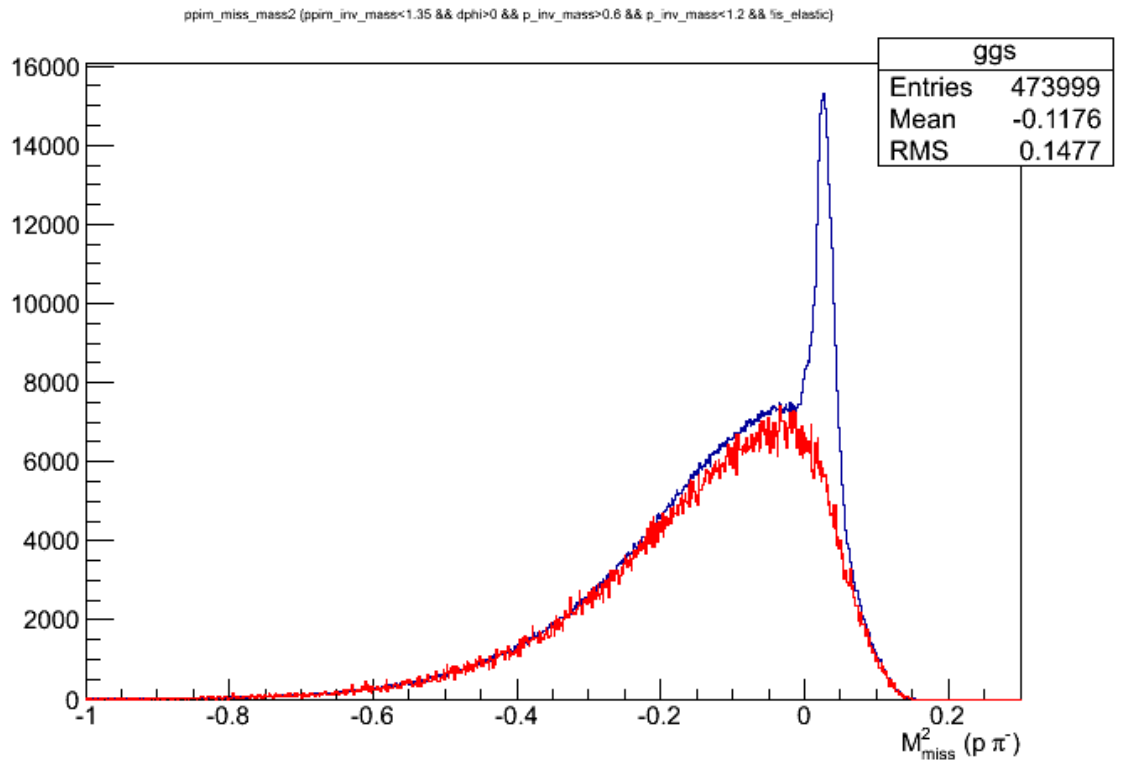
TOTAL CMS of elastic events



~16 MeV below nominal CMS for 0.69 GeV/c pions

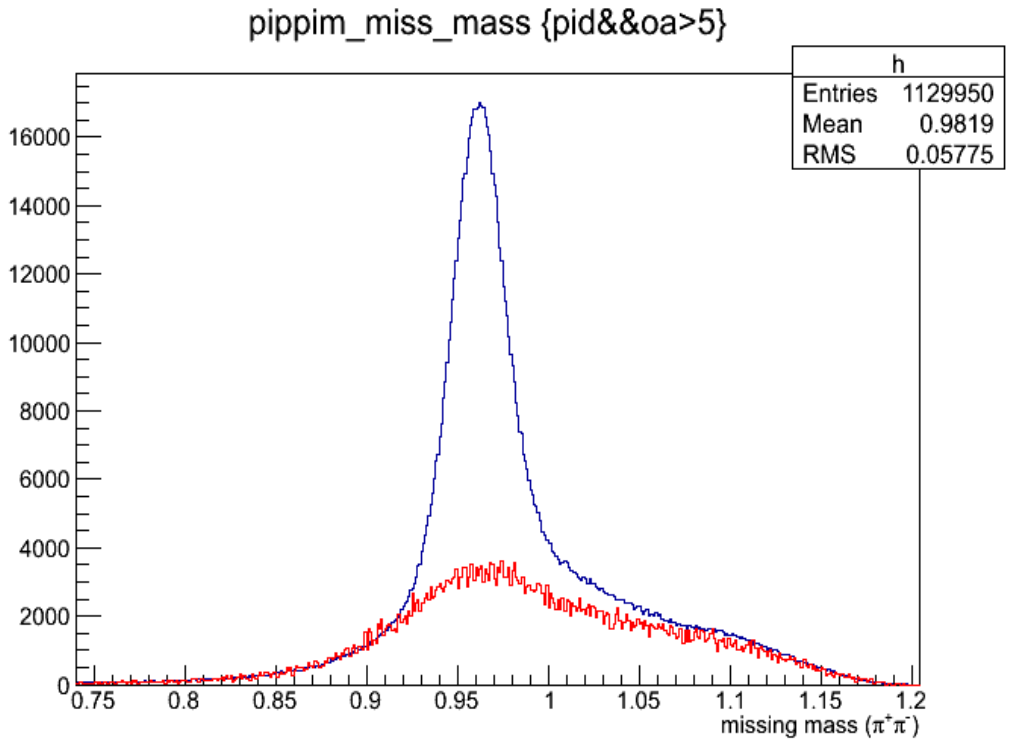
1.2% resolution from HADES reconstruction AND spread of pion incoming momentum

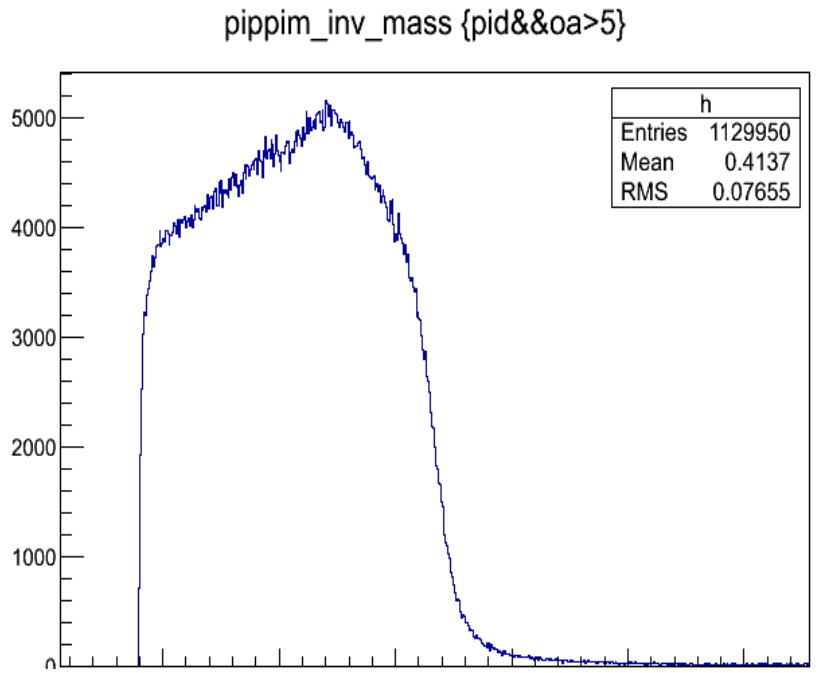
P $\pi^- \pi^0$ elastic events: selected vie veto on elastic

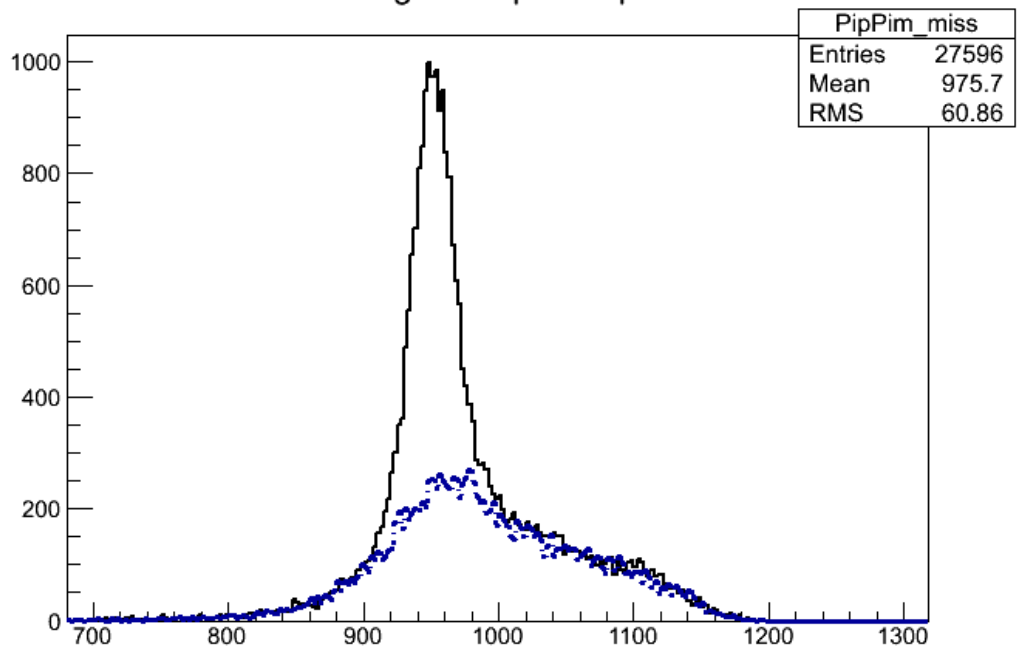


- 0.33 MLN $\pi^- \pi^0$ events (after background subtraction)
- background (red) taken from carbon run in July (not completely perfect becuse of slight difference in time calibration- to be improved). Nevertheless, fits quite good

n $\pi^-\pi^+$ selected with PID



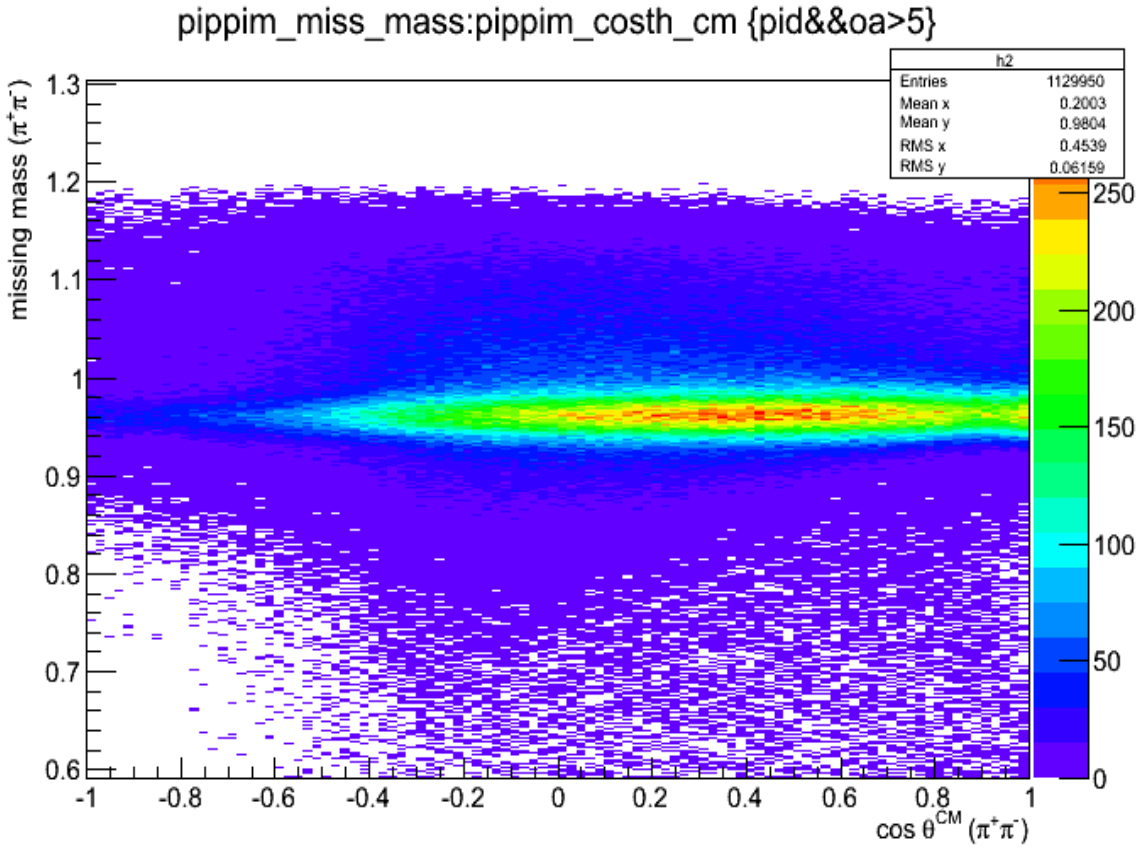


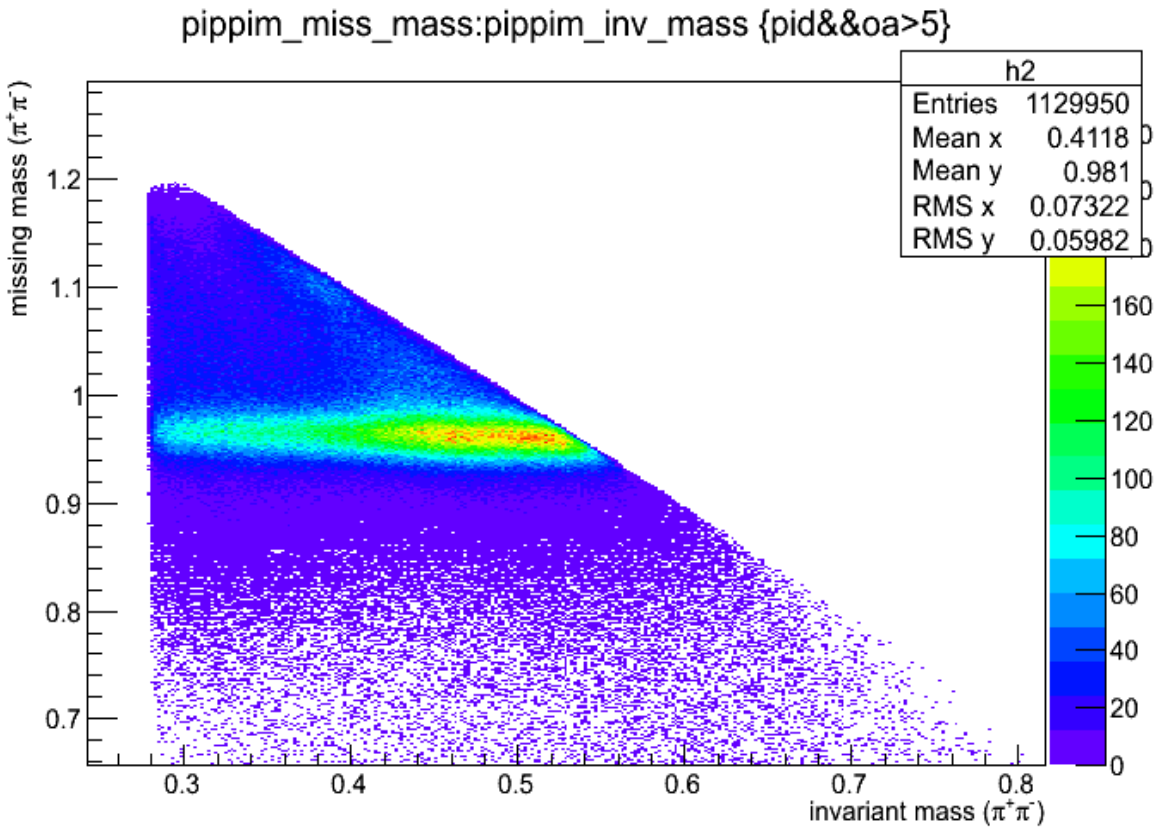


Agust data and Background from July (carbon) not quite yet perfect for August data (time calibration affects PID cuts..)

For comparison: right same but both data samples from July with same time calibration and PID cuts

n $\pi^-\pi^+$ selected with PID & missing mass cut





- 0.56 MLN 2 pion events after background subtraction from 52 MLN events- as expected from JULY 1 MLN needs 100 MLN (2 shifts)
- background not easy to subtract from PE data alone, would be much easier to have dedicated run with carbon target for background sunbtraction