First Task: VELO Tracks

Adrián Casais Vidal

Universidade de Santiago de Compostela

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Track Matching

Definition of kinematical variables:

$$R = \sqrt{\phi^2 + \eta^2} \tag{1}$$

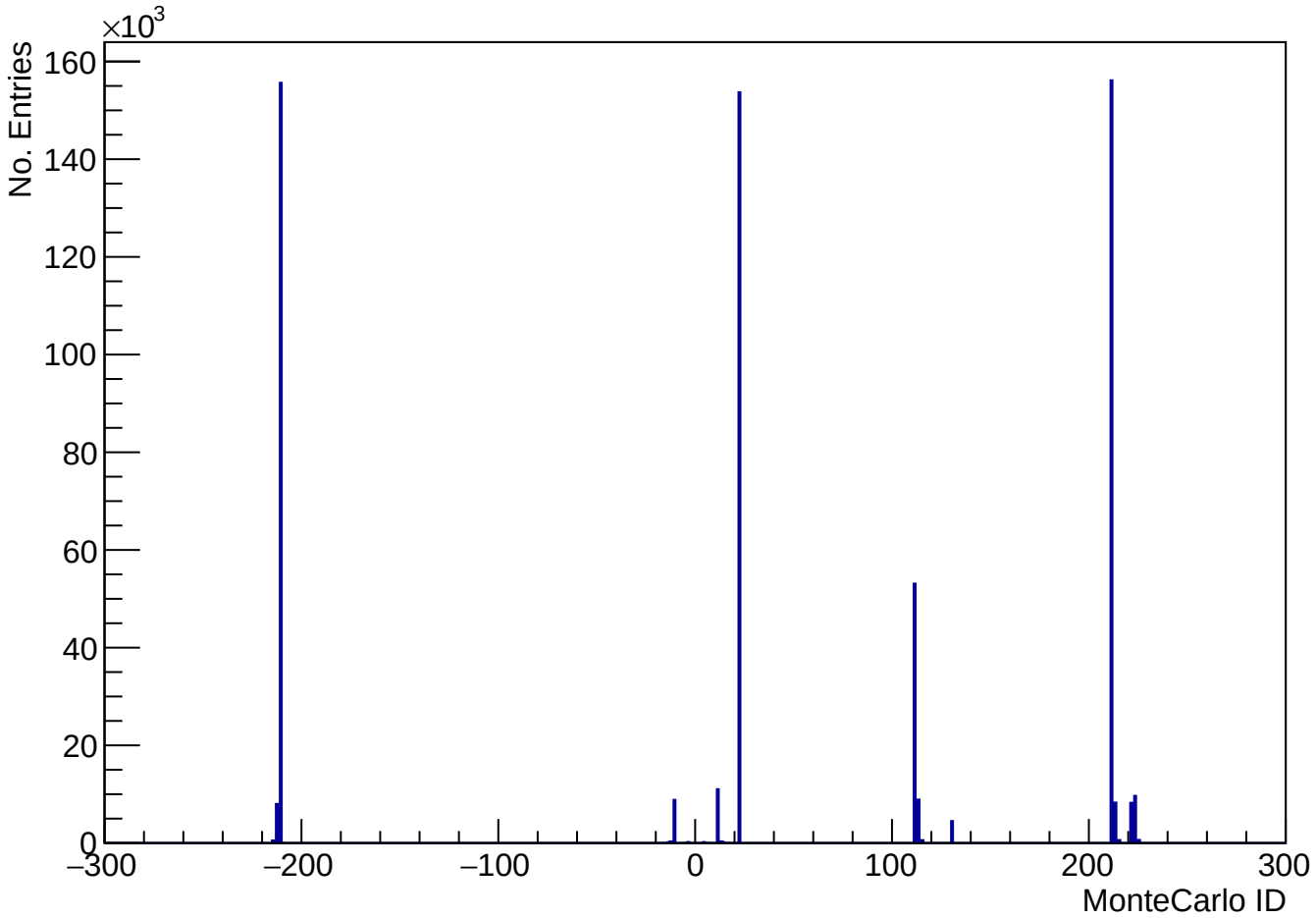
$$Z = \text{distance from PV} \tag{2}$$

- $\Delta R < 0.5$
- $\Delta Z < 100$ mm
- Particle-Track matching was performed with this criteria
- The data was stored in the corresponding ROOT files for further *analysis*.
- It was found that, of all tracks matched, the 37.99 % of them corresponds to VELO tracks, applying this criteria.

Matching VELO tracks to Long tracks

Some VELO tracks could have been mismatched also as long tracks and for that reason a matching procedure involving a similar approach was performed, this time the cut value is chosen as $\Delta R = 0.3$.

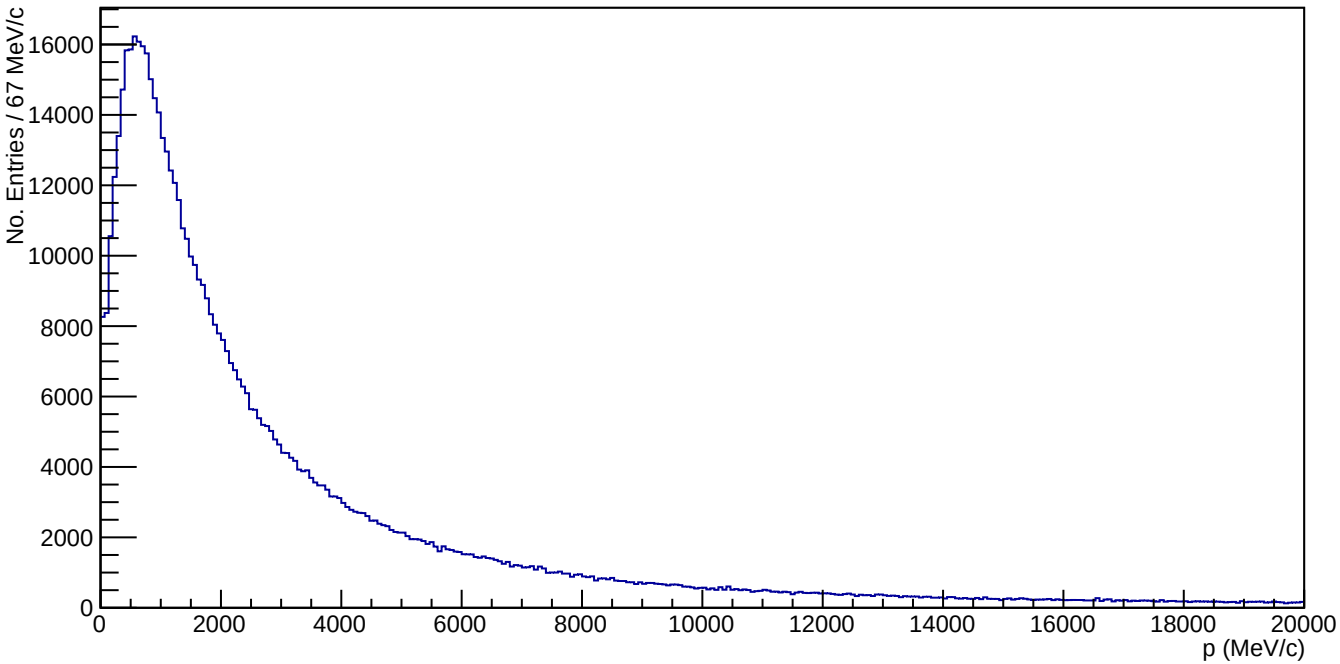
Distribution of ID's



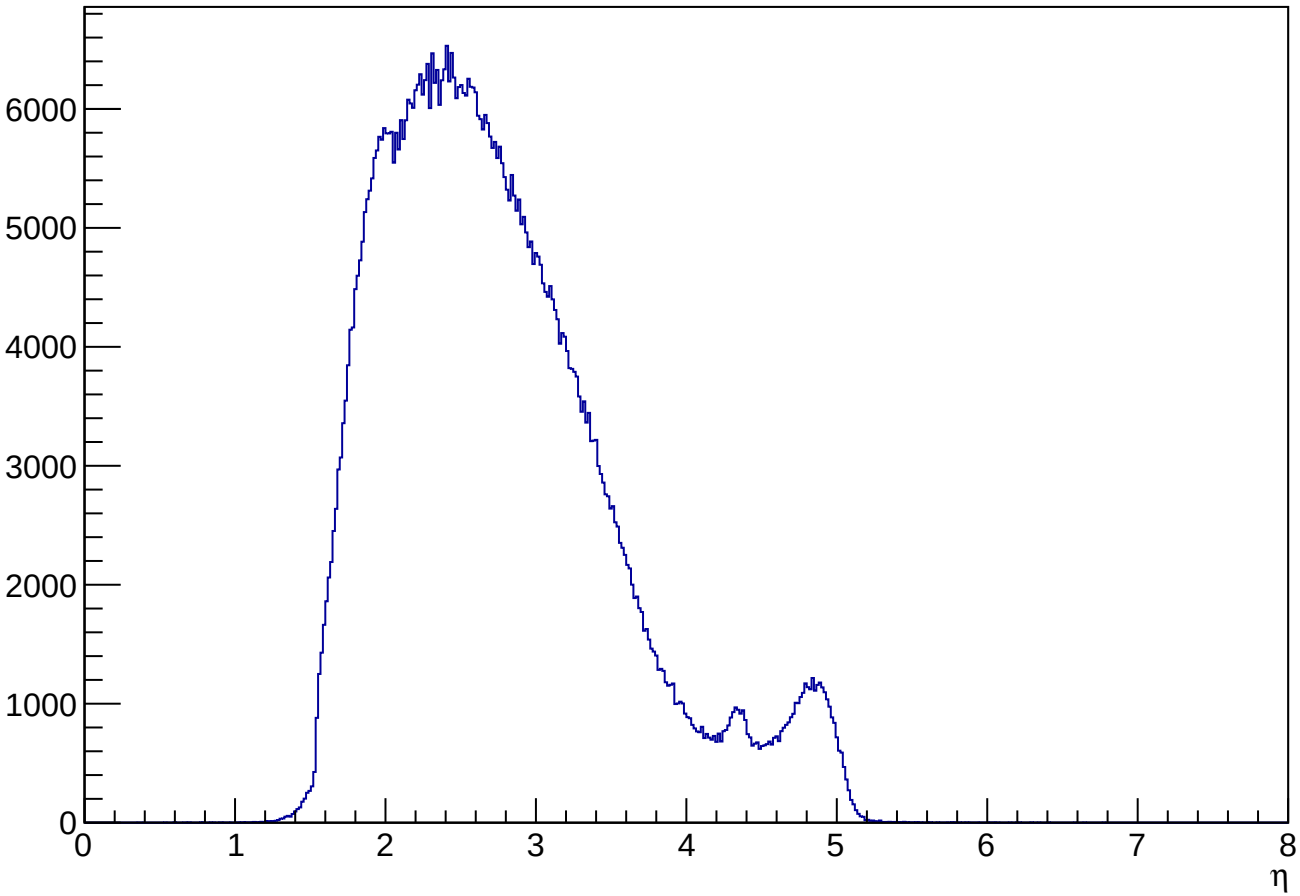
Distribution of ID's

- 84 % of events in the range [-300,300], if we extend the range to [-2212,2212], 96 % of the events are contained there.
- 21.88 % of γ's.
- 44.46% of $\pi^{\pm}$
- 1.57% of e^{-}
- 1.26% of e^{+} (different eff ?)
- 0.64% of K^{0}_{S}
- 1.64% of p
- 1.37% of p^{-}
- 0.64% of n

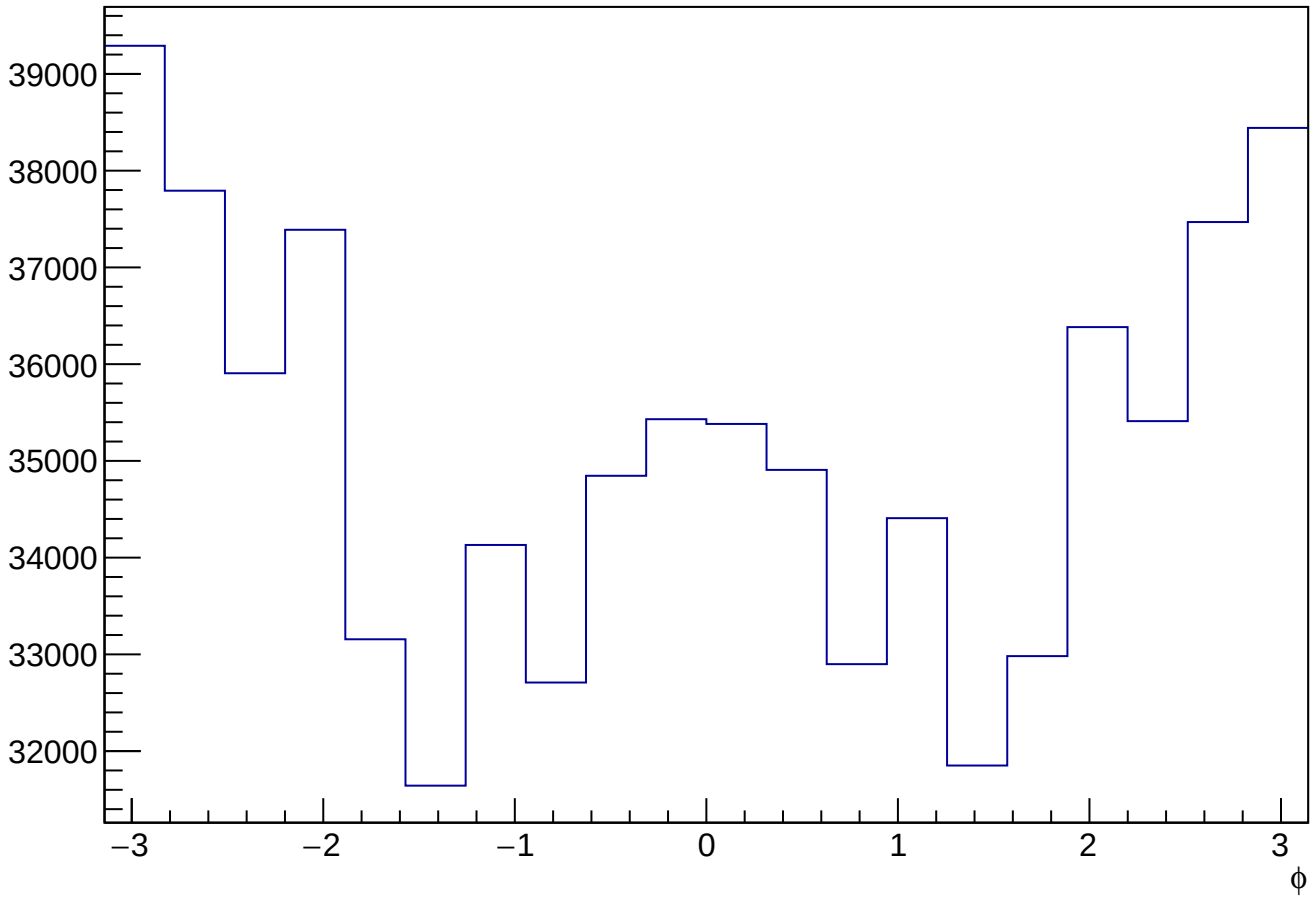
Distribution of Momentum



Distribution of η



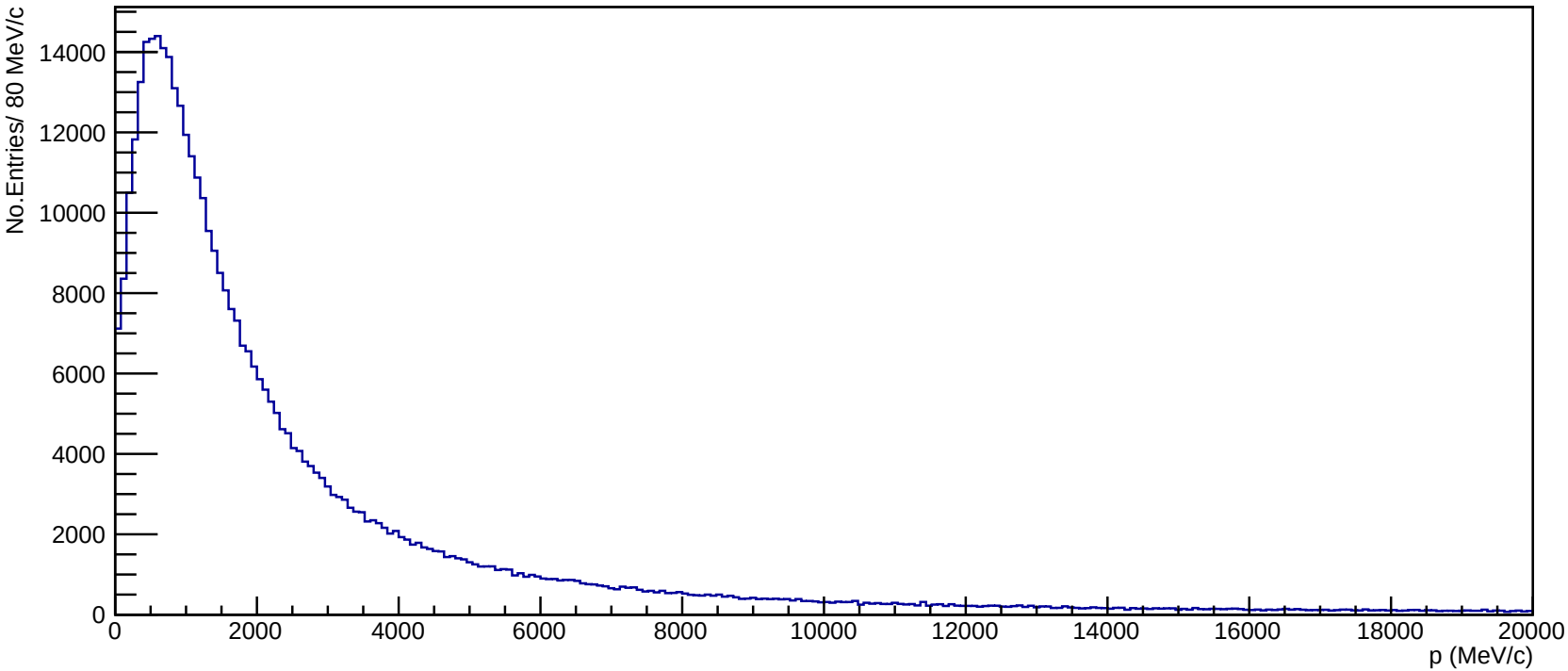
Distribution of ϕ



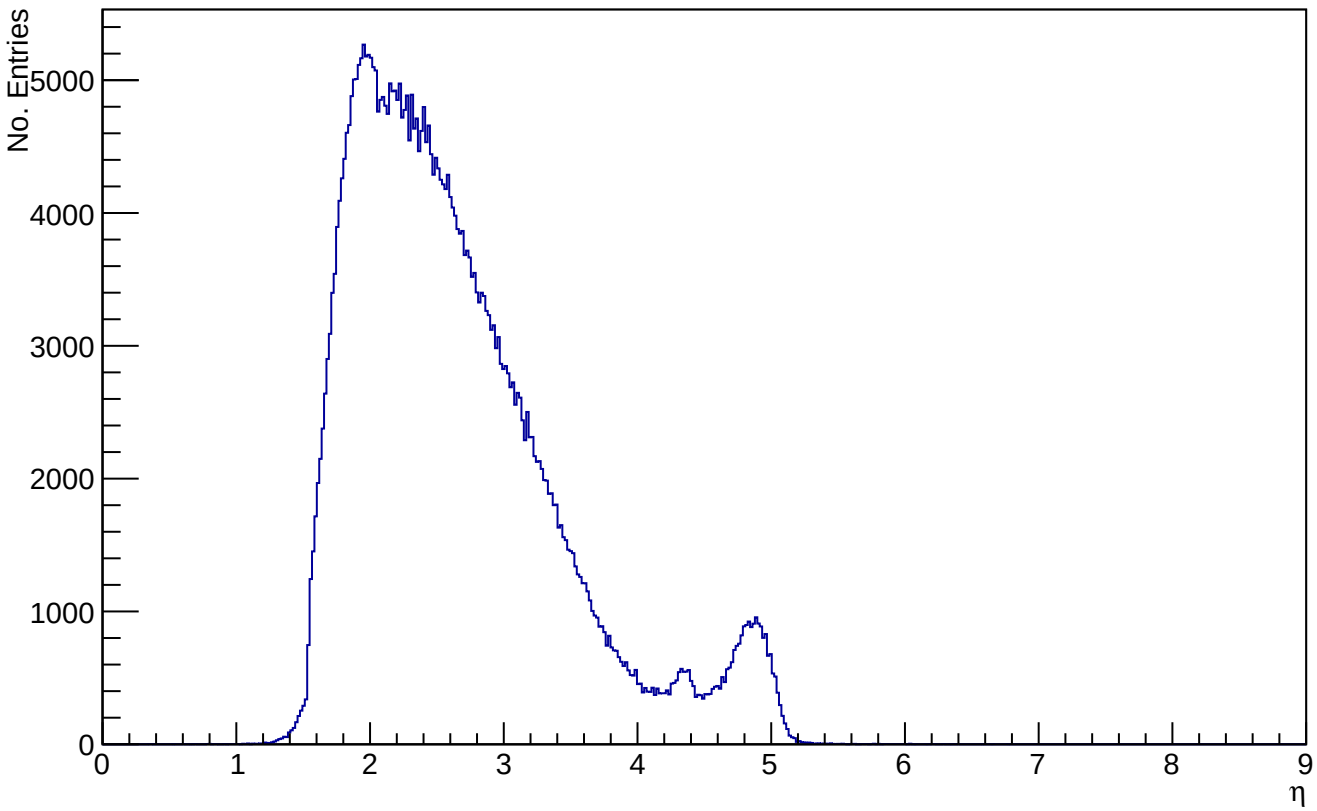
Exclusion of ghosts

Now the same distributions will be shown excluding those MCParticles whose associated VELO track is matched to a LONG track.

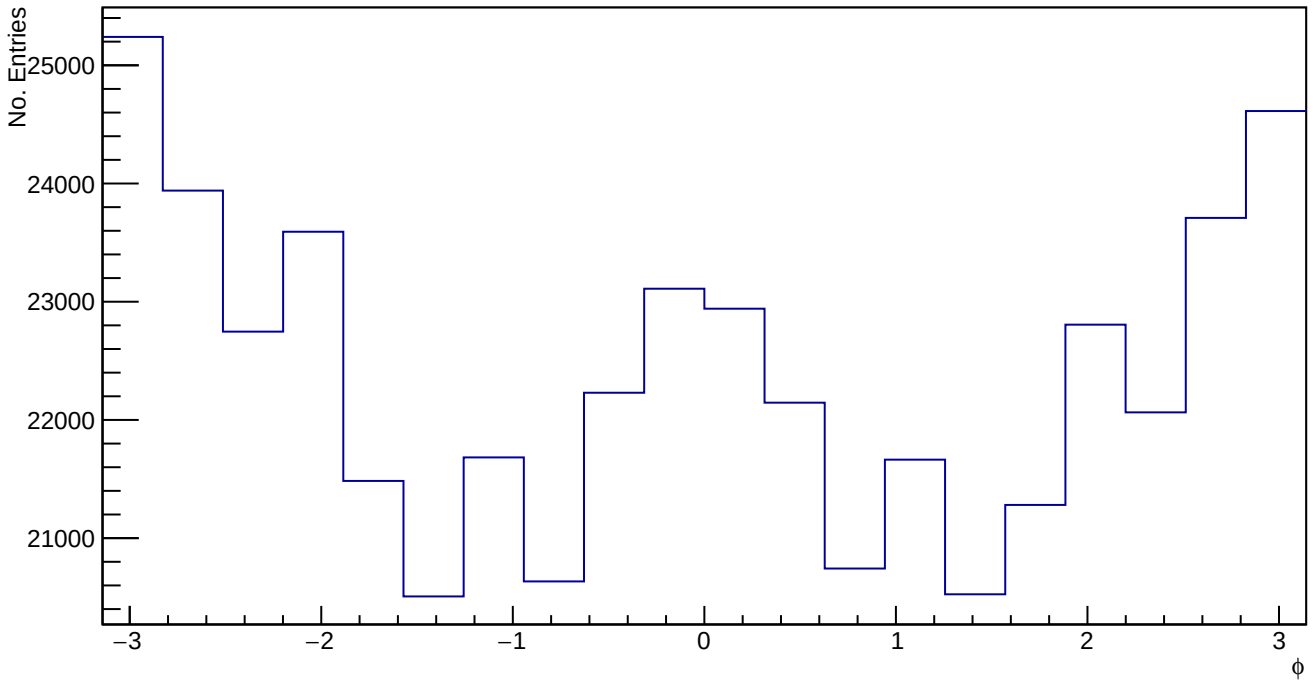
Distribution of Momentum



Distribution of η



Distribution of ϕ



ΔR Background