

0.1 K^\pm Track Selection

Charged kaons are identified using the AliFemtoESDTrackCutNSigmaFilter class. The specific cuts used in this analysis are as follows:

Track Selection:

- Kinematic range:
 - $0.14 < p_T < 1.5$
 - $|\eta| < 0.8$
- FilterBit(7)
 - TPC tracks
- Track Quality
 - Minimum number of clusters in the TPC (fminTPCncls) = 80
 - Maximum allowed χ^2/N_{DOF} for ITS clusters = 3.0
 - Maximum allowed χ^2/N_{DOF} for TPC clusters = 4.0
- Primary Particle Selection:
 - Maximum XY impact parameter = 2.4
 - Maximum Z impact parameter = 3.0
- Remove particles with any kink labels (fRemoveKinks = true)
- Maximum allowed sigma to primary vertex (fMaxSigmaToVertex) = 3.0

K^\pm Identification:

- PID Probabilities:
 - K: > 0.2
 - π : < 0.1
 - μ : < 0.8
 - p: < 0.1
- Most probable particle type must be Kaon (fMostProbable=3)
- TPC and TOF N_σ cuts:
 - $p < 0.4$ GeV/c: $N_{\sigma K, TPC} < 2$
 - $0.4 < p < 0.45$ GeV/c: $N_{\sigma K, TPC} < 1$
 - $0.45 < p < 0.8$ GeV/c: $N_{\sigma K, TPC} < 3$ & $N_{\sigma K, TOF} < 2$
 - $0.8 < p < 1.0$ GeV/c: $N_{\sigma K, TPC} < 3$ & $N_{\sigma K, TOF} < 1.5$
 - $p > 1.0$ GeV/c: $N_{\sigma K, TPC} < 3$ & $N_{\sigma K, TOF} < 1$
- Electron Rejection: Reject if $N_{\sigma e^-, TPC} < 3$
- Pion Rejection: Reject if:
 - $p < 0.65$

- * if TOF and TPC available: $N_{\sigma\pi,TPC} < 3$ & $N_{\sigma\pi,TOF} < 3$
- * else
 - $p < 0.5$: $N_{\sigma\pi,TPC} < 3$
 - $0.5 < p < 0.65$: $N_{\sigma\pi,TPC} < 2$
- $0.65 < p < 1.5$: $N_{\sigma\pi,TPC} < 5$ & $N_{\sigma\pi,TOF} < 3$
- $p > 1.5$: $N_{\sigma\pi,TPC} < 5$ & $N_{\sigma\pi,TOF} < 2$

The purity of the K^\pm collections was estimated using the MC data, for which the true identity of each reconstructed K^\pm particle is known. Therefore, the purity may be estimated as:

$$Purity(K^\pm) = \frac{N_{true}}{N_{reconstructed}} \quad (1)$$

$$Purity(K^+) \approx Purity(K^-) \approx 97\%$$