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:
  - $0.14 < p_{\mathrm{T}} < 1.5$ GeV/c
  - $|\eta| < 0.8$
- 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 cm
  - Maximum Z impact parameter = 3.0 cm
- 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:
  - $p < 0.65$ GeV/c

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

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:

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

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