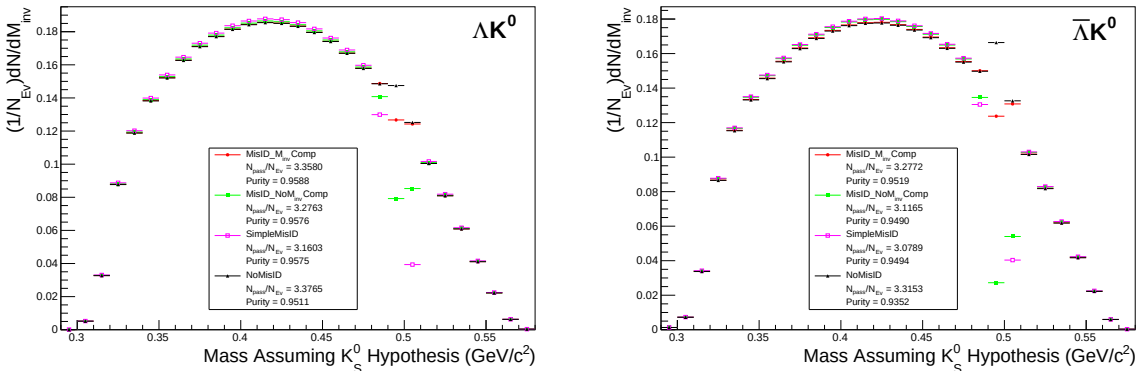
0.0.1 Λ *Reconstruction*

The following cuts were used to select good Λ ($\bar{\Lambda}$) candidates:

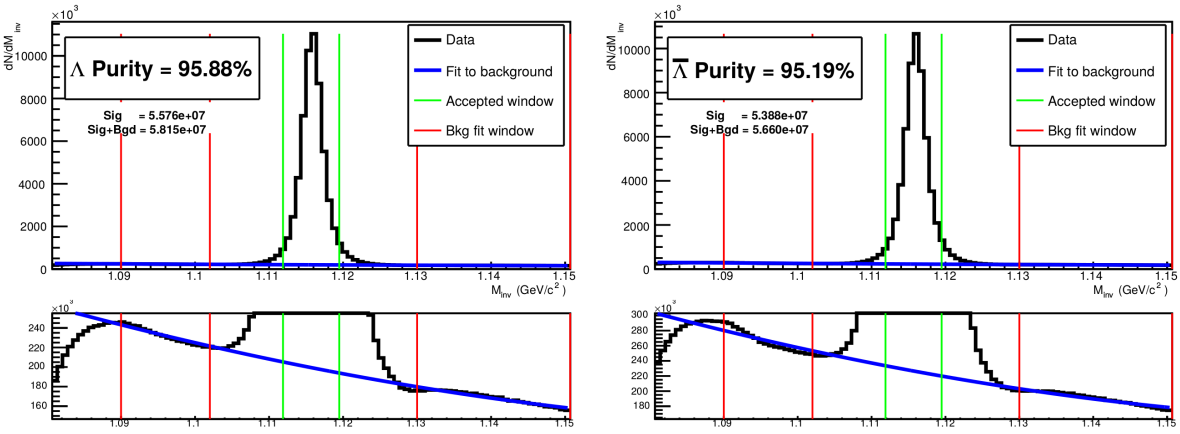
1. Daughter Particle Cuts
   (a) Cuts Common to Both Daughters
      i. $|\eta| < 0.8$
      ii. SetTPCnclsDaughters(80)
      iii. SetStatusDaughters(AliESDtrack::kTPCrefic)
      iv. SetMaxDcaV0Daughters(0.4)
   (b) Pion Specific Daughter Cuts
      i. $p_T > 0.16$
      ii. DCA to prim vertex > 0.3
   (c) Proton Specific Daughter Cuts
      i. $p_T > 0.5(p)$ [$0.3(\bar{p})$] GeV/c
      ii. DCA to prim vertex > 0.1
2. V0 Cuts
   (a) $|\eta| < 0.8$
   (b) $p_T > 0.4$
   (c) $|m_{inv} - m_{PDG}| < 3.8$ MeV
   (d) Cosine of pointing angle > 0.9993
   (e) OnFlyStatus = false
   (f) Decay Length < 60 cm



(a) Mass assuming K^0_S-hypothesis for Λ collection, i.e. assume the daughters are $\pi^+\pi^-$ instead of $p^+\pi^-$.

(b) Mass assuming K^0_S-hypothesis for $\bar{\Lambda}$ collection, i.e. assume the daughters are $\pi^+\pi^-$ instead of $\pi^+\bar{p}^-$.

Fig. 1: Mass assuming K^0_S-hypothesis for V0 candidates passing all Λ (1a) and $\bar{\Lambda}$ (1b) cuts. The "NoMisID" distribution (black triangles) uses the V0 finder without any attempt to remove misidentified K^0_S. The slight peak in the "NoMisID" distribution around $m_{inv} = 0.5$ GeV/c^2 likely contains misidentified K^0_S particles in our Λ collection. "SimpleMisID" (pink squares) simply cuts out the entire peak, which throws away some good Λ and $\bar{\Lambda}$ particles. "MisID_NoM$_{inv}$Comp" (green squares) uses the misidentification cut outlined in the text, but does not utilize the invariant mass comparison method. "MisID_M$_{inv}$Comp" (red circles) utilizes the full misidentification methods, and is currently used for this analysis. "N$_{pass}$/N$_{ev}$" is the total number of $\Lambda(\bar{\Lambda})$ particles found, normalized by the total number of events. The purity of the collection is also listed. If one simply cuts out the entire peak, good Λ particles will be lost. Ideally, the Λ selection and K^0_S misidentification cuts are selected such that the peak is removed from this plot while leaving the distribution continuous.



(a) Λ Purity

(b) $\bar{\Lambda}$ Purity

Fig. 2: Invariant mass (M$_{inv}$) distribution of all $\Lambda(\bar{\Lambda})$ candidates immediately before the final invariant mass cut. These distributions are used to calculate the collection purities, Purity(Λ) $\approx$ Purity($\bar{\Lambda}$) $\approx$ 95%.