

BESIII Oxford Group Meeting

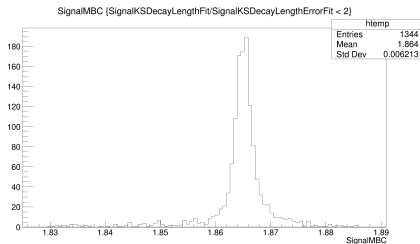
Martin Tat

Oxford LHCb

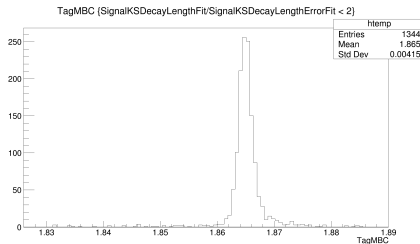
25th February 2021



- Previously: Single tagged $D \rightarrow K^+ K^- \pi^+ \pi^-$ events
- Current progress: Double tagged $D \rightarrow K^+ K^- \pi^+ \pi^-$ events
- Tag modes:
 - $K\pi$, KK , $K_S\pi^0$, $K\pi\pi^0$
- Ran over 50% of the 2010 MC $D^0\bar{D}^0$ sample



(a) $m_{BC}, KK\pi\pi$



(b) $m_{BC}, K\pi$

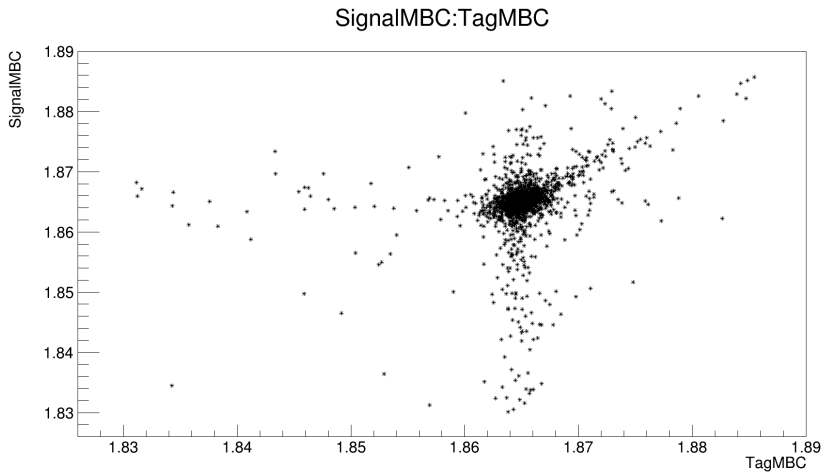
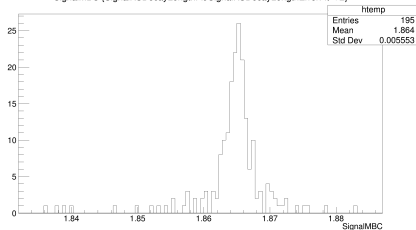


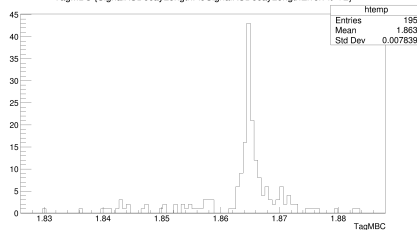
Figure 2: $m_{BC} KK\pi\pi$ vs $K\pi$

SignalMBC (SignalKSDecayLengthFit/SignalKSDecayLengthErrorFit < 2)



(a) $m_{BC}, KK\pi\pi$

TagMBC (SignalKSDecayLengthFit/SignalKSDecayLengthErrorFit < 2)



(b) m_{BC}, KK

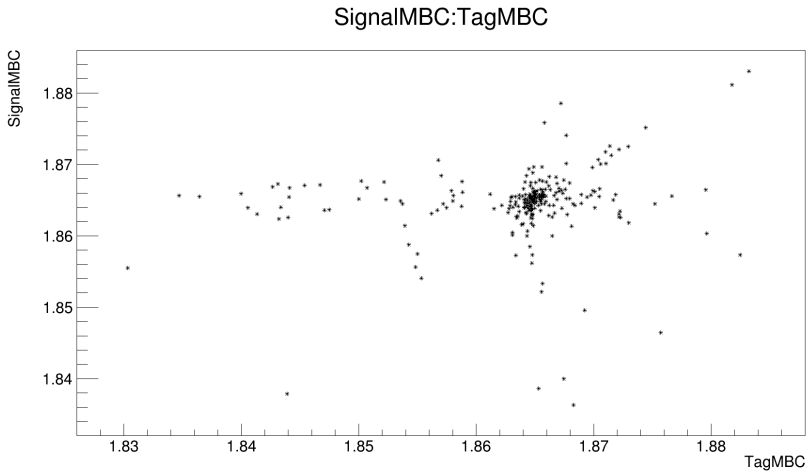
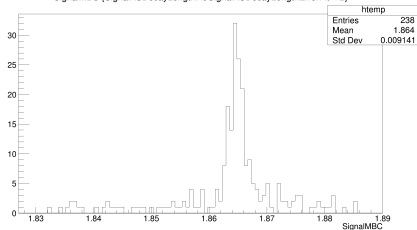


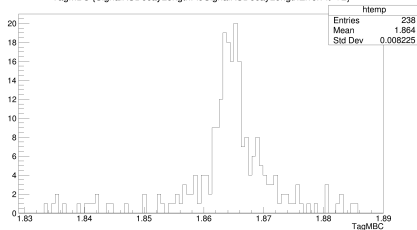
Figure 4: m_{BC} $KK\pi\pi$ vs KK

SignalMBC (SignalKSDecayLengthFit/SignalKSDecayLengthErrorFit < 2)



(a) $m_{BC}, KK\pi\pi$

TagMBC (SignalKSDecayLengthFit/SignalKSDecayLengthErrorFit < 2)



(b) $m_{BC}, K_S\pi^0$

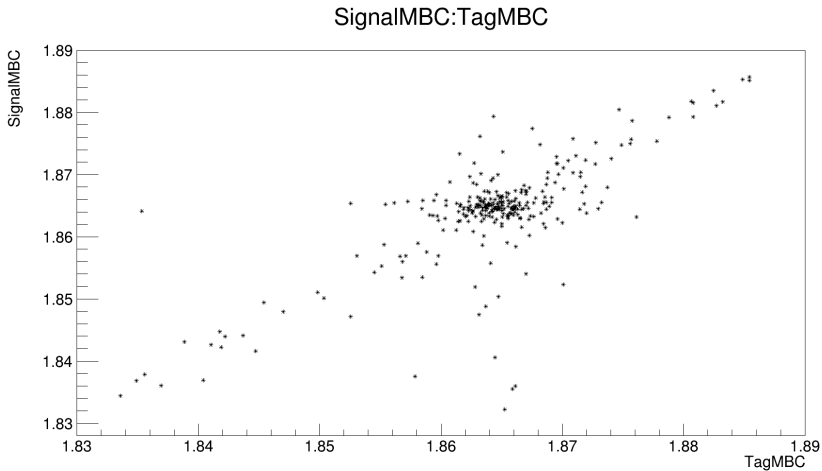
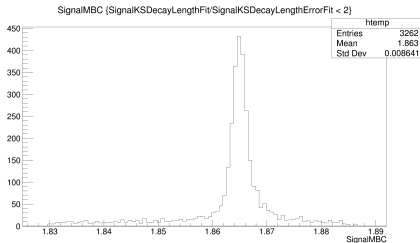
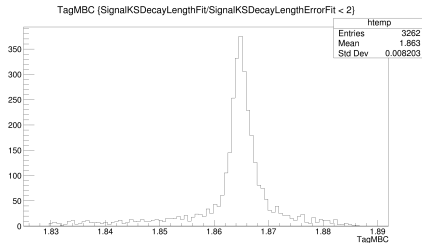


Figure 6: $m_{BC} KK\pi\pi$ vs $K_S\pi^0$

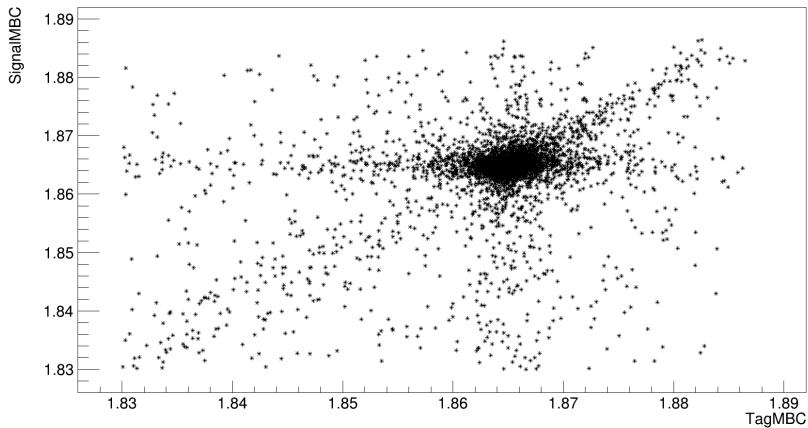


(a) $m_{BC}, KK\pi\pi$

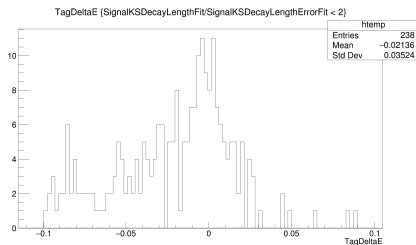


(b) $m_{BC}, K\pi\pi^0$

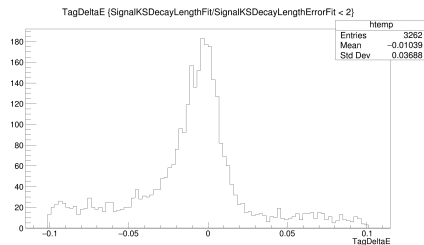
SignalMBC:TagMBC

**Figure 8:** $m_{BC} KK\pi\pi$ vs $K\pi\pi^0$

ΔE tails



(a) $\Delta E, K_S \pi^0$



(b) $\Delta E, K \pi \pi^0$

Next steps

- Include the following modes:
 - $\pi\pi$, $\pi\pi\pi^0$, $K_S\pi^0\pi^0$, $K_S\eta$, $K_S\omega$
 - $K_L\pi^0$, $K_L\omega$, $K_L\pi^0\pi^0$
- Run over data