

# BESIII Oxford Group Meeting

Martin Tat

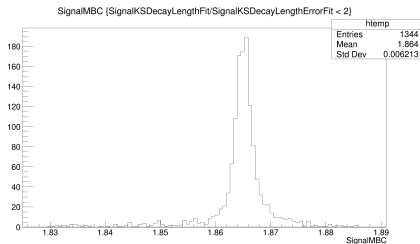
Oxford LHCb

25th February 2021

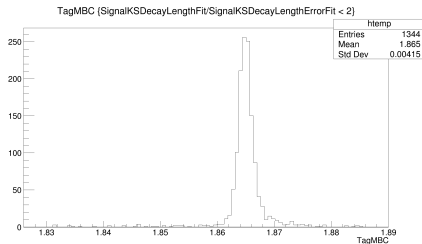


- Previously: Single tagged  $D \rightarrow K^+ K^- \pi^+ \pi^-$  events
- Current progress: Double tagged  $D \rightarrow K^+ K^- \pi^+ \pi^-$  events
- Tag modes:
  - $K\pi$ ,  $KK$ ,  $K_S\pi^0$ ,  $K\pi\pi^0$
- Ran over 50% of the 2010 MC  $D^0\bar{D}^0$  sample

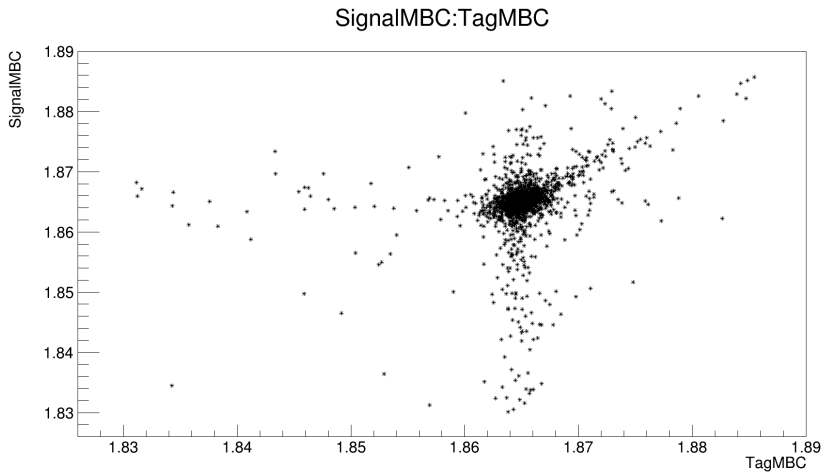
# $K\pi$ tag



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

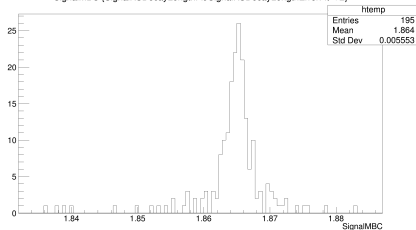


(b)  $m_{BC}, K\pi$



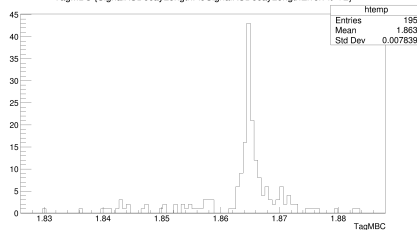
**Figure 2:**  $m_{BC} KK\pi\pi$  vs  $K\pi$

SignalMBC (SignalKSDecayLengthFit/SignalKSDecayLengthErrorFit < 2)

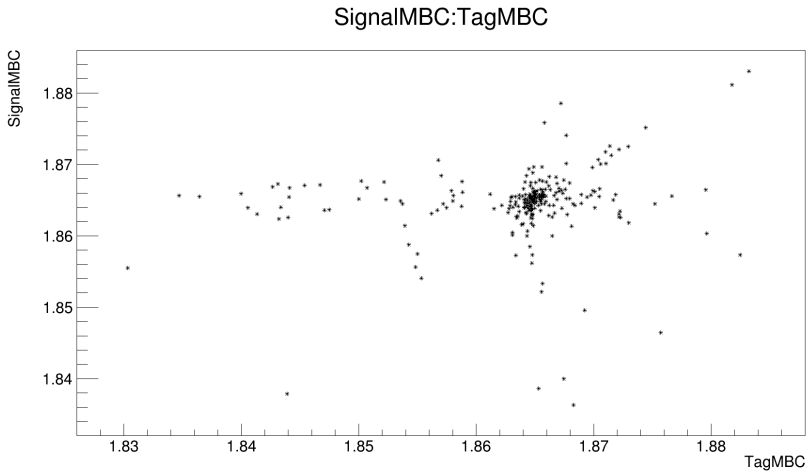


(a)  $m_{BC}, KK\pi\pi$

TagMBC (SignalKSDecayLengthFit/SignalKSDecayLengthErrorFit < 2)

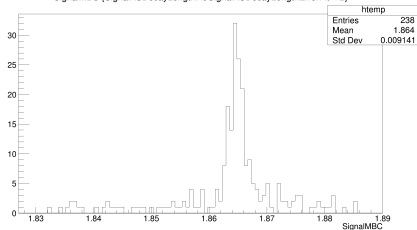


(b)  $m_{BC}, KK$



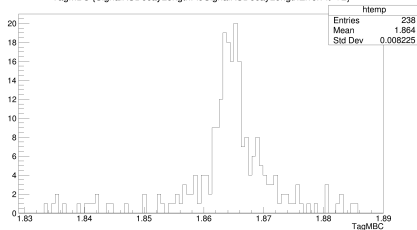
**Figure 4:**  $m_{BC}$   $KK\pi\pi$  vs  $KK$

SignalMBC (SignalKSDecayLengthFit/SignalKSDecayLengthErrorFit < 2)

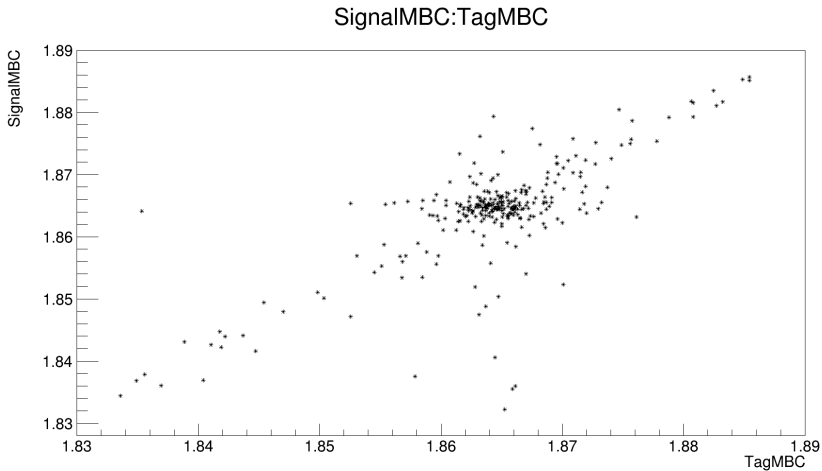


(a)  $m_{BC}, KK\pi\pi$

TagMBC (SignalKSDecayLengthFit/SignalKSDecayLengthErrorFit < 2)

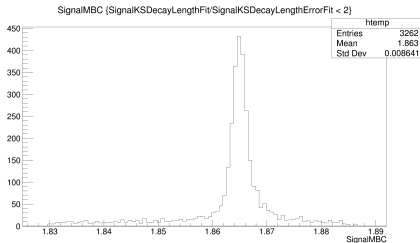


(b)  $m_{BC}, K_S\pi^0$

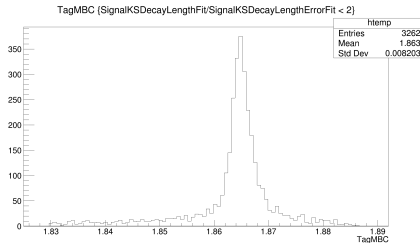


**Figure 6:**  $m_{BC} KK\pi\pi$  vs  $K_S\pi^0$



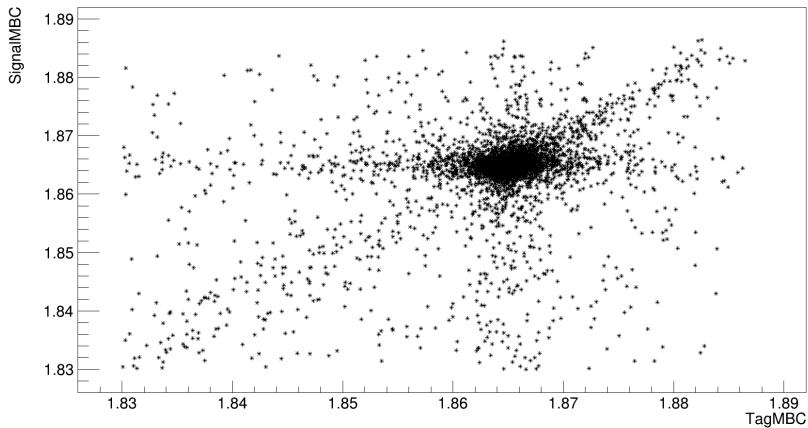


(a)  $m_{BC}, KK\pi\pi$

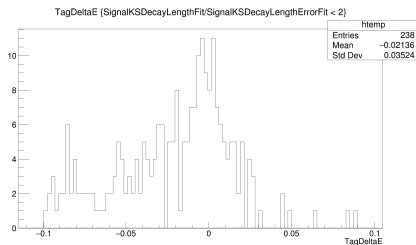


(b)  $m_{BC}, K\pi\pi^0$

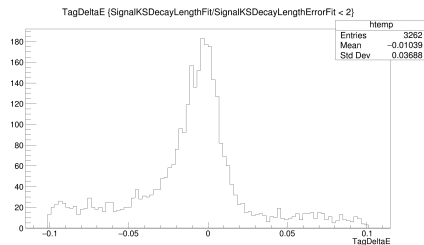
SignalMBC:TagMBC

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

# $\Delta E$ 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