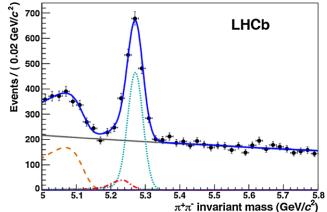


Fig. 2 Invariant mass distribution for $B \to h^+h^-$ decays [6] in the LHCb data before the use of the RICH information (*left*), and after applying RICH particle identification (*right*). The signal under study is the decay $B^0 \to \pi^+\pi^-$, represented by the turquoise *dotted line*. The contributions from different *b*-hadron decay modes ($B^0 \to K\pi$ red dashed-dotted line, $B^0 \to 3$ -body orange dashed-dashed line,



 $B_s \to KK$ yellow line, $B_s \to K\pi$ brown line, $\Lambda_b \to pK$ purple line, $\Lambda_b \to p\pi$ green line), are eliminated by positive identification of pions, kaons and protons and only the signal and two background contributions remain visible in the plot on the right. The grey solid line is the combinatorial background (Color figure online)