Charmless *b*-hadron decays (BnoC)

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USC

UNIVERSIDADE DE SANTIAGO DE COMPOSTELA

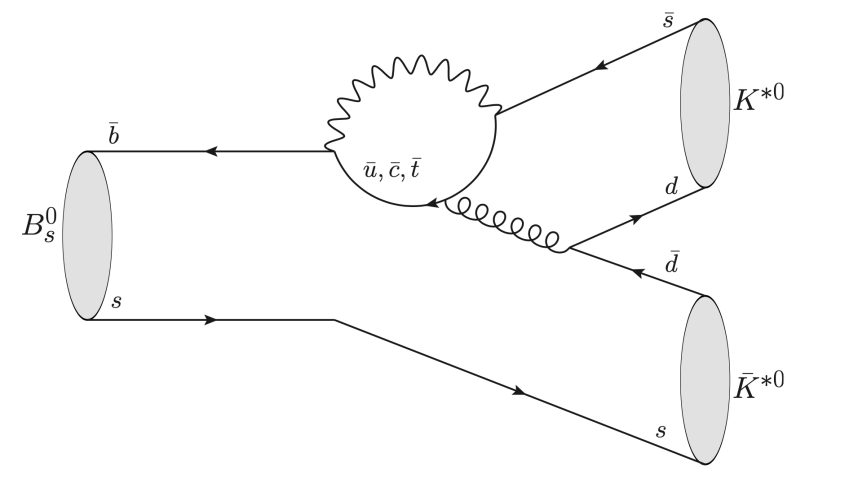
XUNTA DE GALICIA

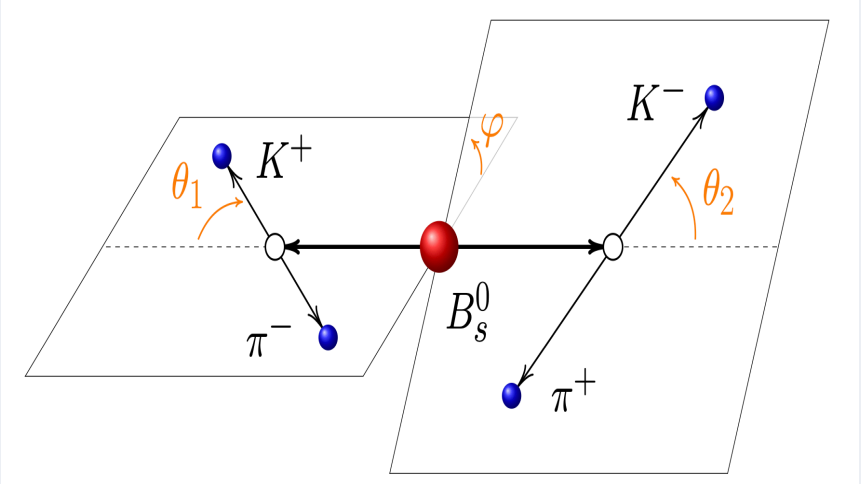
The IGFAE participates in 5 BnoC analyses:

1. $B_s^0 \to K^{*0}\overline{K}^{*0}$
   IGFAE: B. Adeva, J. Dalseno, A. Pereiro
   Milano-Biccoca: J. García Pardiñas
   Warwick: M. Kenzie
2. $B^+ \to K_S^0\, \pi^+\pi^-\pi^+$
   IGFAE: J. Dalseno, P. Baladrón
3. $B^0 \to \pi^+\pi^-\pi^+\pi^-$
   IGFAE: J. Dalseno
   Glasgow: L. Eklund, D. Friday, P. Soler
4. $B^+ \to K^+\pi^+\pi^-$
   IGFAE: J. Dalseno
   UCAS: W. Qian, Y. Yang
   Warwick: T. Gershon, T. Latham
5. $B^+ \to K^+K^-K^+$
   IGFAE: J. Dalseno
   CBPF: M. Cruz Torres, J. De Miranda, A. dos Reis
   UFRJ: J. Otalora Goicochea

» $B_s^0 \to K^{*0}(892)\overline{K}^{*0}(892)$

$b \to s d \bar{d}$ transition through gluonic penguin diagram at LO.





Final states reconstructed from kaons and pions: $K^{*0} \to K^+\pi^-$, $\overline{K}^{*0} \to K^-\pi^+$

LHCb measured a high scalar contribution! Main contribution from very wide spin-0 resonances, such as $K_0^*(700)$ and $K_0^*(1430)$.

The aim is to perform a time-dependent flavour-tagged amplitude analysis.

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* Previous results show a potential flavour anomaly (2.6σ) in the comparison of A_0 between $B_s^0 \to K^{*0}\overline{K}^{*0}$ and $B_d^0 \to K^{*0}\overline{K}^{*0}$.

» Development of HLT2 lines

We are also developing and optimising High Level Trigger lines for the Run 3.

Jeremy:

* $B^+ \to h^+h^-h^+\pi^0$

Pablo:

* $B^+ \to K^0_S h^+h^-h^+$

Asier:

* $B^0_s \to h^+h^-h^+h^-$
* $B^0 \to h^+h^-h^+h^-$

With $h^\pm = K^\pm, \pi^\pm$