



Contribution ID: 266

Type: Talk

## **【343】 Amplitude analysis of $B^0 \rightarrow (\pi^+\pi^-)(K^+\pi^-)$ decays**

*Wednesday 28 August 2019 17:30 (15 minutes)*

The amplitudes describing the decays of neutral b-hadrons to charmless (quasi)-two-body final states receive contributions from  $b \rightarrow u$  tree and  $b \rightarrow d,s$  penguin topologies. This rich landscape of interfering amplitudes allows interesting CP-violation measurements to be performed. In the case of B decays to two vector particles, a full amplitude analysis also provides insight in the so-called polarisation puzzle. In this work, a set of CP-violating observables is measured using  $B^0$  meson decays reconstructed from the  $(^+\ ^-)(K^+\pi^-)$  quasi-two-body final state. The CP-averaged polarisation fractions and phase differences among the contributing amplitudes are also reported. The analysis uses  $3\text{fb}^{-1}$  of data collected during LHCb Run I and consists of the first full amplitude study of this decay mode.

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**Session Classification:** Nuclear, Particle- & Astrophysics

**Track Classification:** Nuclear, Particle- and Astrophysics (TASK)