ID de la contribución : **297** Tipo : **Oral parallel contribution**

Measurement of the CP-violating weak phase φs in Bs0 ⟶ (K+π−)(K−π+) decays at LHCb

miércoles, 19 de julio de 2017 15:25 (30)

The huge abundance asymmetry between matter and antimatter present in our Universe remains as a mystery nowadays. Only the weak interaction (of the four fundamental ones) is known to mediate processes where the Charge-Parity (CP) symmetry is violated (this meaning different production rates for particles and antiparticles). However, the size of this effect is very small, and new sources of CP violation (outside the Standard Model) are searched for.

The LHCb experiment, at CERN, is designed to study CP violation in the decays of hadrons containing b (beauty) quarks, produced in proton-proton collisions in the Large Hadron Collider. New heavy particles may enter such processes via "quantum loops", modifying the properties of the transition and impacting the CP-violating observables. An accurate measurement of such observables can thus hint the presence of New Physics.

The decay Bs0 ⟶ K∗0(⟶ K+π−)K̄∗0(⟶ K−π+) is a golden channel for LHCb. The observable to be measured in this case is the weak phase φs, arising in the interference between the amplitudes of Bs0 mesons decaying directly into K∗0K̄∗0 and those decaying after Bs0 − B̄s0 oscillation. It is possible to generalise this framework to include other (non K∗0) Kπ components in the decay chain, increasing the available statistics and thus the accuracy of the measurement. In this talk, the first analysis aimed at measuring φs in Bs0 ⟶ (K+π−)(K−π+) decays, with the Kπ pairs arranged in different spin configurations (0, 1 and 2), is presented.

Primary author(s) : Sr. GARCÍA PARDIÑAS, Julián (Universidade de Santiago de Compostela)

Presenter(s) : Sr. GARCÍA PARDIÑAS, Julián (Universidade de Santiago de Compostela)

Clasificación de la sesión : Particle and Theoretical Physics I

Clasificación de temáticas : Particle and Theoretical Physics