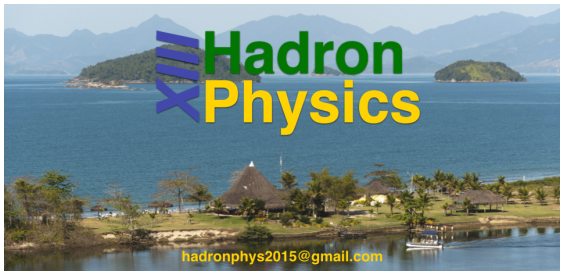

Contribution ID: **45** Type: **Poster**

CP Violation in three-body $B^{\pm}$ decay with final state interaction and CPT invariance

In three-body charmless $B^{\pm}$ meson decay CPT symmetry is an important constraint that must be obeyed by the decay amplitude. Consistent with this requirement the final state interaction (FSI) in the decay amplitude has a important relationship with the CP asymmetry pattern in the decay of
charge conjugates mesons $B^{\pm}$ as shown in [1]. Recent experiments of LHCb [2] bring results for the charged channels $K^{\pm}K^{+}K^{-}$, $K^{\pm}\pi^{+}\pi^{-}$, $\pi^{\pm}K^{+}K^{-}$ and $\pi^{\pm}\pi^{+}\pi^{-}$. In this work we propose an extension of the formalism of reference [1], which was the final state interaction introduced in the decay of $B^{\pm}$ in the coupled channels $K^{\pm}\pi^{+}\pi^{-}$ and $K^{\pm}K^{+}K^{-}$. In this previous work it was considered only two interacting mesons and the other meson $K^{\pm}$ was acting only as a spectator.
In the present contribution we symmetrize the decay amplitude in the $K^{\pm}K^{+}K^{-}$ channel based on the two-body formalism presented in [1] but including interference effects due to the dynamical role of the third meson. The new experimental data of reference [2] suggests the presence of such interference in different regions of the Dalitz plot.

[1] I. Bediaga, O. Lourenço, T. Frederico. Phys. Rev. D89, 094013 (2014).

[2] R. Aaij et al. The LHCb Collaboration. arXiv: 1408.5373 [hep-ex]. To appear in Phys. Rev. D (2014).

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