Contribution ID: **941** Type: **Parallel Talk**

Incorporating final-state interactions in the prediction of the measured CP-asymmetry of D-meson two-body decays

Thursday, 7 July 2022 12:40 (17 minutes)

The Cabibbo-Kobayashi-Maskawa (CKM) mechanism predicts that a single parameter must be responsible for CP-violating phenomena in different quark sectors of the Standard Model (SM). Despite this minimal picture, challenged by non-SM physics, the CKM mechanism has been so-far verified in the bottom and strange sectors, but lacks tests in the complementary charm sector. For the sake of this, urgent theoretical progress is needed in order to provide an estimate in the SM of the recent measurement by LHCb of direct CP-violation in charm-meson two-body decays, which will be largely improved by new data expected along this decade from LHCb and Belle II. Re-scattering effects are particularly relevant for a meaningful theoretical account of the amplitudes involved in such observable, as signaled by the presence of large strong phases. I discuss the computation of the latter effects based on dispersion relations, and perform a global fit combination with the CKMfitter statistical package of available data on branching ratios and CP-asymmetries in order to assess the size of CP-violating contributions in the SM to charm-meson decays into $\pi\pi$ and KK.

In-person participation

Yes

Primary author: VALE SILVA, Luiz (IFIC, UV - CSIC)

Co-authors: PICH, Antonio (Valencia University, IFIC); SOLOMONIDI, Eleftheria

Presenter: VALE SILVA, Luiz (IFIC, UV - CSIC)

Session Classification: Quark and Lepton Flavour Physics

Track Classification: Quark and Lepton Flavour Physics