



Contribution ID: 183

Type: not specified

New Physics Models of Direct CP Violation in Charm Decays

Monday 7 May 2012 16:45 (15 minutes)

Abstract:

In view of the recent LHCb measurement of ΔA_{CP} , the difference between the time-integrated CP asymmetries in $D \rightarrow K+K^-$ and $D \rightarrow \pi+\pi^-$ decays, we perform a comparative study of the possible impact of New Physics degrees of freedom on the direct CP asymmetries in singly Cabibbo suppressed D meson decays. We systematically discuss scenarios with a minimal set of new degrees of freedom that have renormalizable couplings to the SM particles and that are heavy enough such that their effects on the D meson decays can be described by local operators. We take into account both constraints from low energy flavor observables, in particular D^0 - D^0 bar mixing, and from direct searches. While models that explain the large measured value for ΔA_{CP} with chirally enhanced chromomagnetic penguins are least constrained, we identify a few viable models that contribute to the D meson decays at tree level or through loop induced QCD penguins. We emphasize that such models motivate direct searches at the LHC.

Author: PRIMULANDO, Reinard (College of William and Mary)

Co-authors: YU, Chiu-Tien (UW-Madison); YU, Felix (Fermilab); Dr ALTMANNSHOFER, Wolfgang (Fermilab)

Presenter: PRIMULANDO, Reinard (College of William and Mary)

Session Classification: Flavor II