



Contribution ID: 59

Type: Oral presentation using Zoom

CP asymmetries of B to $X_{\{s,d\}}$ gamma in models with three Higgs doublets

Thursday, 28 October 2021 19:20 (20 minutes)

We study the prediction of the direct CP asymmetry in the inclusive decays of B to X_s gamma and B to $X_{\{s,d\}}$ gamma in the context of a three-Higgs-doublet model (3HDM). The 3HDM is the simplest multi-doublet model such that the charged Higgs mixing includes a physical CP phase.

We show that the CP asymmetries can be as significant as the current experimental limit. In particular, the asymmetry for B to $X_{\{s,d\}}$ gamma, which is effectively zero in the Standard Model, is interesting. A measurement of 2.5% or more for this observable with the full BELLE II data would give 5σ evidence for physics beyond the SM. We display parameter space in the 3HDM for which such a clear signal is possible.

The presentation is essentially based on the paper, A. G. Akeroyd, S. Moretti, T. Shindou and M. Song, Phys. Rev. D 103 (2021) no.1, 015035.

1st preferred time slot for your oral presentation

13:00-15:00 JST (6:00-8:00 CEST, 0:00-2:00 EDT, 21:00-23:00 PDT)

2nd preferred time slot for your oral presentation

19:00-21:00 JST (12:00-14:00 CEST, 6:00-8:00 EDT, 3:00-5:00 PDT)

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Session Classification: F-4: Higgs properties

Track Classification: Parallel sessions: Topical Groups: Session F: Higgs properties