

Time dependent CP-violation measurements at Belle II

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Time dependent CP-violation phenomena are a powerful tool to precisely measure fundamental parameters of the Standard Model and search for New Physics. The Belle II experiment is a substantial upgrade of the Belle detector and will operate at the SuperKEKB energy-asymmetric e^+e^- collider. The accelerator has already successfully completed the first phase of commissioning in 2016 and first electron positron collisions in Belle II are expected for April 2018. The design luminosity of SuperKEKB is $8 \times 10^{35} \text{ cm}^{-2}\text{s}^{-1}$ and the Belle II experiment aims to record 50 ab^{-1} of data, a factor of 50 more than the Belle experiment. This dataset will greatly improve the present knowledge, particularly on the CKM angles β and α by measuring a wide spectrum of B-meson decays, including many with neutral particles in the final state. In this talk we will present estimates of the sensitivity to β in the golden channels $B \rightarrow c\bar{c}s$ and in the penguin-dominated modes $B^0 \rightarrow \eta' K^0, \phi K^0, K_S \pi^0(\gamma)$. A study for the time-dependent analysis of $B^0 \rightarrow \pi^0 \pi^0$, relevant for the measurement of α , and feasible only in the clean environment of an e^+e^- collider, will also be given.

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