

# FLASY 2018: 7th Workshop on Flavour Symmetries and Consequences in Accelerators and Cosmology



Contribution ID: 19

Type: **not specified**

## Time dependent CP-violation in B decays at Belle II

Monday 2 July 2018 11:00 (30 minutes)

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 and first electron positron collisions in Belle II have just been recorded. The design luminosity of SuperKEKB is  $8 \times 10^{35} \text{ cm}^{-2}\text{s}^{-1}$  and the Belle II experiment aims to record  $50 \text{ ab}^{-1}$  of data, a factor of 50 more than the Belle experiment. This dataset will greatly improve the present knowledge, particularly on the CKM angles  $\beta$  and  $\alpha$  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  $\beta$  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  $\alpha$ , and feasible only in the clean environment of an  $e^+e^-$  collider, will also be given.

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**Session Classification:** Morning Session II