Contribution ID: **44** Type: **Afternoon Session**

CP Violation sensitivity study of $B^0 \to \pi^0\pi^0$ at the Belle II Experiment.

Friday 21 April 2017 18:00 (15 minutes)

The measurement of the time-dependent CP violation parameters for B-meson decays is crucial for tightening the constraints on the unitarity triangle and for the search of new physics beyond the Standard Model. A clean environment for the study of B decay channels is provided by B-factories. With a design luminosity of $8 \cdot 10^{35}\mathrm{cm}^{-2}\mathrm{s}^{-1}$, leading ultimately to an integrated luminosity beyond 50 ab^{-1}, the new B-factory SuperKEKB will exceed the record instantaneous luminosity of its predecessor KEKB by a factor 40.

The new Belle II detector will exploit the expected high statistics data sample thanks to a major upgrade of the tracking system, including a novel pixel vertex detector in its innermost part. Additionally, the detector capabilities will be complemented by substantial improvements in the reconstruction software.

We develop a strategy for CP violation analysis in order to maximally exploit the new data set and to characterize the sensitivity of Belle II for various benchmark B decay channels. Here we focus on the decay channel $B^0 \to \pi^0\pi^0$, which plays an important role in the precise determination of the unitarity angle α.

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