Contribution ID: **302** Type: **Parallel session talk**

# Measurements of $CP$ violation in $B$ decays at Belle II

*Saturday 20 July 2024 17:45 (15 minutes)*

The Belle II experiment has collected a 362 fb$^{-1}$ sample of $e^+e^- \to B\bar{B}$ decays at the $\Upsilon(4S)$ resonance. The asymmetric-energy SuperKEKB collider provides a boost to the $B$ mesons in the laboratory frame, enabling measurements of time-dependent $CP$ violation. We present measurements of both time-dependent and direct $CP$ violation in hadronic $B$ decays. Among the new results, we measure $CP$-violating parameters related to the determination of the least well-known angle of the unitarity triangle, $\phi_2$ (also known as $\alpha$), using the decays $B^0 \to \rho^+\rho^-$ and $B^0 \to \pi^0\pi^0$. In addition, the penguin-sensitive $B^0 \to J/\psi\pi^0$ decay is studied; the results from this mode constrain the systematic effects related to the determination of the unitarity-triangle angle $\phi_1$ (also known as $\beta$).

## Alternate track

## I read the instructions above

Yes

**Primary authors:** VAHSEN, Sven (University of Hawaii (US)); Dr NAKAZAWA, Yu (KEK IPNS)

**Presenter:** Dr NAKAZAWA, Yu (KEK IPNS)

**Session Classification:** Quark and Lepton Flavour Physics

**Track Classification:** 05. Quark and Lepton Flavour Physics