## PANIC2021 Conference



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## Measurements of hadronic B and D decays at Belle and Belle II (20+5)

Wednesday 8 September 2021 13:00 (25 minutes)

[This talk is a combination of several submitted abstracts, including the following.]

In the Belle II experiment, we have accumulated integrated luminosity of more than 100 fb<sup>-1</sup> after starting the physics data taking in 2019. It is comparable to the data sets used for the  $B^0$  lifetime  $\tau_{B^0}$  and mixing  $\Delta m_d$  measurements in the BABAR and Belle. To demonstrate high accuracy measurements using the decay time difference of the  $B^0$ - $\bar{B}^0$  system which is one of the most essential inputs of the time-dependent CPviolation study at the *B*-factory experiment, we measure  $\tau_{B^0}$  and  $\Delta m_d$  with resolution function refined for the high-statistics data. Since most of the CP-eigenstates are not flavor non-specific, we determine the flavor of  $B^0$  meson using the remnants based on multivariable analysis after reconstructing the signal. It is validated using the control samples of hadronic decays  $B \rightarrow D^{(*)}h$  (h = K or  $\pi$ ) and effective tagging efficiency is estimated. We present results of these studies related to the CP violation measurements with high-statistics data samples. We also report about the reconstruction of the decays used for the CP violation and a measurement of the time integrated mixing parameter,  $\chi_d$ .

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