

# Study of $B$ and $B_s$ Decays at Belle

*Tuesday, 28 July 2020 16:15 (15 minutes)*

We present the study of  $B_s$  decays using  $121.4 \text{ fb}^{-1}$  of data collected at  $\Upsilon(5S)$  resonance with the Belle detector at the KEKB asymmetric-energy electron-positron collider. We search for  $B_s \rightarrow \eta' \eta$  and  $B_s \rightarrow \eta' K_S^0$ , which are suppressed in the standard model (SM) and can receive contribution of physics beyond the SM. We also report the first model-independent measurement of  $B(B_s \rightarrow D_s X)$  using  $B_s$  semileptonic tagging; this is necessary for measuring absolute rates and branching fractions of other  $B_s$  decays. In addition, we present precise measurements of the branching fraction and CP asymmetry in  $B \rightarrow \phi \phi K$  decays using Belle data that corresponds to 772 million  $B\bar{B}$  pairs. These decays are mediated by the  $b \rightarrow s$  FCNC transition, where one can observe large CP violation due to interference of potential new-physics amplitudes appearing in the loop with the  $b \rightarrow c$  tree-level transition of  $B \rightarrow \eta_c K$ ,  $\eta_c \rightarrow \phi \phi$ .

## I read the instructions

## Secondary track (number)

**Primary author:** NELLIKUNNUMMEL, Nisar (BNL)

**Presenter:** NELLIKUNNUMMEL, Nisar (BNL)

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

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