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First time-dependent analysis of $B^0 \rightarrow K^0 \pi^0$ decays at Belle II

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The $B^0 \rightarrow K^0 \pi^0$ decay is mediated by flavor-changing neutral currents, which are suppressed in the standard model (SM), and it provides an indirect route to search for beyond-the-SM particles. The decay is a key factor in improving the sensitivity of the $K-\pi$ isospin sum-rule. The first time-dependent analysis of the decay within Belle II is performed using a sample of e^+e^- collisions corresponding to $189.8 fb^{-1}$ of integrated luminosity recorded at the $\Upsilon(4S)$ resonance. We measure the decay branching fraction $\mathcal{B}(B^0 \rightarrow K^0 \pi^0) = [11.0 \pm 1.2 (stat.) \pm 1.0 (syst.)] \times 10^{-6}$ and direct CP violation asymmetry $A_{CP}(B^0 \rightarrow K^0 \pi^0) = -0.41^{+0.30}_{-0.32} (stat.) \pm 0.09 (syst.)$.

Session

Quark and Lepton Flavour Physics

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