## Phenomenology 2021 Symposium



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## Tau physics prospects at Belle II

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The Belle II experiment is a substantial upgrade of the Belle detector and will operate at the SuperKEKB energy-asymmetric e+e- collider. The design luminosity of the machine is  $8 \times 1035$  cm-2s-1 and the Belle II experiment aims to record 50 ab-1 of data, a factor of 50 more than its predecessor. From February to July 2018, the machine has completed a commissioning run and main operation of SuperKEKB has started in March 2019. Belle II has a broad  $\tau$  physics program, in particular in searches for lepton flavour and lepton number violations (LFV and LNV), benefiting from the large cross section of the pair wise  $\tau$ lepton production in e+e- collisions. We expect that after 5 years of data taking, Belle II will be able to reduce the upper limits on LF and LN violating  $\tau$  decays by an order of magnitude. Any experimental observation of LFV or LNV in  $\tau$  decays constitutes an unambiguous sign of physics beyond the Standard Model, offering the opportunity to probe the underlying New Physics. In this talk we will review the  $\tau$  lepton physics program of Belle II.

## **Summary**

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