

## First results and prospects for tau LFV decay $\tau \rightarrow e + \alpha(\text{invisible})$ at Belle II

*Tuesday, September 28, 2021 2:35 PM (20 minutes)*

The Belle II experiment at SuperKEKB, an asymmetric  $e^+e^-$  collider, aims at a total integrated luminosity of  $50 \text{ ab}^{-1}$ , to pursue a rich program of Standard Model and Beyond the Standard Model physics. In its first year of operation, approximately  $10 \text{ fb}^{-1}$  were collected at the Upsilon(4S) resonance, with about  $100 \text{ fb}^{-1}$  expected by the end of 2020. This results in a sizeable sample of tau pairs, enabling detailed studies of Standard and Beyond the Standard Model measurements, including searches for Lepton Flavor Violating (LFV) decays. One of the first channels where competitive limits are expected is the  $\tau \rightarrow e + \alpha(\text{invisible})$  process, where  $\alpha$  is a Goldstone boson. Here, the currently best limit has been obtained by ARGUS with an integrated luminosity of  $475 \text{ pb}^{-1}$ . Belle II is expected to be able to improve on this result already with the data recorded. This contribution will discuss selected analysis details and present first preliminary results and the prospects for future larger datasets.

### What is your topic?

Lepton universality and flavour violation

**Primary authors:** LIBBY, James (Indian Institute of Technology Madras (IN)); DE YTA HERNANDEZ, Alejandro (Cinvestav)

**Presenter:** DE YTA HERNANDEZ, Alejandro (Cinvestav)

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