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Search for a visible Z' dark boson in $\mu\mu\mu\mu$ final state with Belle II

The Standard Model (SM) of particle physics is currently the best known description of the fundamental constituents of matter and their interactions. However, among other things, it cannot explain the existence of dark matter, and some experimental results deviate from SM predictions, suggesting the possibility of including New Physics by extending the SM. Possible extensions are known as dark sector, and the $L_\mu - L_\tau$ model, introducing a Z' dark boson with $M \approx \mathcal{O}(\text{MeV-GeV})$, is particularly interesting. In this presentation, the analysis strategy and the preliminary results obtained on Monte Carlo for the search for the visible decay of a Z' with the Belle II detector in the process $e^+e^- \rightarrow \mu^+\mu^-Z'$, $Z' \rightarrow \tau^+\tau^-$ will be presented. The Belle II experiment, located at the asymmetric e^+e^- collider SuperKEKB, is a substantial upgrade of the Belle/KEKB experiment. Belle II aims to record 50 ab^{-1} of data over the course of the project. During the first physics runs in 2018-2020, around 100 fb^{-1} of data were collected.

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