

# Search for New Physics via the $K_L \rightarrow \pi^0 \nu \bar{\nu}$ decay at the J-PARC KOTO experiment

*Tuesday, July 28, 2020 5:52 PM (15 minutes)*

The purpose of the KOTO experiment, being conducted at J-PARC (Ibaraki Japan), is to search for New Physics via the rare decay  $K_L \rightarrow \pi^0 \nu \bar{\nu}$  using the high intensity  $K_L$  beam provided by the 30-GeV proton synchrotron.

The  $K_L \rightarrow \pi^0 \nu \bar{\nu}$  decay is suppressed in the standard model, and its observation may reveal hints of new physics.

The signature of  $K_L \rightarrow \pi^0 \nu \bar{\nu}$  is two  $\gamma$ 's from a  $\pi^0$  and no other particles in the detectors surrounding the decay region.

For the data collected between 2016 and 2018, a blind analysis technique was adopted to avoid human bias in the determination of the selection criteria.

We unblinded the signal region in the summer of 2019, and observed candidate events.

Since then, we have been checking our software and hardware, and possibilities of backgrounds that we might have missed.

In this presentation, we report the progress in the analysis and the obtained feedback from the data taken in 2019 and 2020.

## I read the instructions

### Secondary track (number)

03

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