

Status and Prospects of J-PARC KOTO Experiment

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Abstract: KOTO experiment at J-PARC aims to measure the rare $K_L \rightarrow \pi^0 \nu \bar{\nu}$ decay. This decay is a CP-violating process, and its theoretical branching ratio can be precisely calculated with only a few percent uncertainties in the standard model. Therefore, it offers a clean ground for probing new physics by looking for the decay amplitude deviations. KOTO plans to achieve this goal in the coming ten years, based on the J-PARC's beam-intensity upgrade in 2021, new detectors to manage background level, and a new DAQ system to tolerant the higher trigger rate. In this talk, I will recap the current analysis status, detector/DAQ upgrades, and the future plans of KOTO.