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Status and Prospects of the J-PARC KOTO Experiment

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For the first time in history, the ultra-rare KL->pi0nunubar decay, also known as the “Golden Mode”, can be experimentally probed at the level of its Standard Model predicted branching ratio of 3x10^{-11}. This milestone is being pursued through a two-stage approach by the KOTO experiment and its successor KOTO II at J-PARC. The current KOTO experiment has entered a phase of stable data collection and is expected to reach a sensitivity below O(10^{-10}) for probing the KL->pi0nunubar decay within the next 2–3 years, benefiting from the upgraded accelerator Main-Ring at J-PARC. KOTO II is designed to determine the central value of BR(KL->pi0nunubar) within the coming decade. In this presentation, we would like to outline the current status and physics potential of KOTO, and also present the future plan for KOTO II.

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