

Status of $K_L^0 \rightarrow \pi^0 \gamma \gamma$ in the KOTO Experiment at J-PARC

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$K_L^0 \rightarrow \pi^0 \gamma \gamma$ has been predicted by $O(6)$ calculation in chiral perturbation theory (ChPT) with the inclusion of the vector meson exchange terms. An effective coupling constant α_V was introduced to incorporate with the vector meson contributions. This decay mode is also crucial for the determination of the direct CP violation amplitude of $K_L^0 \rightarrow \pi^0 l^+ l^-$. Fermilab E832 and CERN NA48 had measured the branching ratio and pole parameter α_V around 1.3×10^{-6} and -0.4 respectively.

In 2017, a trigger based on the number of EM-shower clusters by Clock Distribution and Trigger (CDT) module was commissioned to collect $K_L^0 \rightarrow \pi^0 \gamma \gamma$ events more effectively. The analysis status based on 2017 run data will be presented.

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