

KMI Colloquium

Hunting for new physics with rare kaon decays

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Abstract :

J-PARC KOTO is a dedicated experiment to search for new physics beyond the Standard Model with a rare kaon decay mode, $K_L \rightarrow \pi^0 \nu \nu$. The decay mode is highly suppressed in the Standard Model, and the theoretical error on the branching ratio is also small. Thus if the decay is observed and its measured branching ratio is higher than the prediction, it signifies the existence of physics beyond the Standard Model. Experimentally, it is extremely challenging to look for only two photons without a clue of parent neutral K_L . In the seminar, experimental techniques, and the analysis and detector upgrades will be presented.