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Probing neutrino decay scenarios by Hyper-Kamiokande and its second detector in Korea

We study the signatures of decaying neutrino scenario in T2HKK experiment. Considering a combination of disappearance and appearance channels, for a normal mass ordering and assuming that the heaviest neutrino eigenstate decays, we show by performing an χ^2 analysis, that the ν_3 lifetime divided by its mass can be constrained to $\tau_3/m_3 > 9.4 \times 10^{-11}$ s/eV at 95% CL (preliminary result). We also perform a combined analysis of T2HKK and T2HK experiments, aiming to obtain an stronger bound. The effect of neutrino decay on the determination of oscillation parameters, $\sin^2\theta_{23}$ and Δm^2_{31}, will be discussed.

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