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Measuring Atmospheric Neutrino Mixing Without Unitarity

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With neutrino physics becoming more precise comes the opportunity to validate the unitary nature of the lepton mixing matrix which underpins it. While the assumption of unitarity for the 3×3 matrix is exploited in neutrino oscillation measurements, deviations of unitarity could hint at several neutrino mass generation models which are reliant on such. Efforts have been made to present global fit results with the best precision achieved for the electron row from reactor and long-baseline neutrino data while atmospheric neutrino measurements can be utilised to better constrain the muon and tau rows. This talk presents sensitivities from atmosperic neutrino Monte Carlo simulations of the 50 kiloton Super-Kamiokande water-Cherenkov detector in Gifu, Japan to the mixing matrix parameters.

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