



Recent results of the atmospheric neutrino analysis in SK

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Super-Kamiokande started its operation in 1996. Since then, more than 3000 days of atmospheric neutrino data has been collected. In the beginning, we have obtained Δm^2_{23} and θ_{23} with two flavor oscillation using the zenith angle distribution of observed leptons. Afterwards, we have extracted L/E distribution from observed quantities to deduce the oscillation parameters. Continuous efforts to understand the data samples, it is possible for us to use not only the single ring events but multiple ring events and energetic events. Also, electronics upgrade in 2008 expands the dynamic range of charge measurements and improves the detection efficiency of electrons from the muon decays. As a result, we can perform more precise analysis of neutrino oscillation parameters, like three flavor oscillation analyses to study the value of θ_{13} , mass hierarchy problem, CP violation, possible non-standard interactions of neutrino and so on. Especially, recent measurements of θ_{13} from the accelerator and reactor experiments are complementary to the results from the atmospheric neutrino analysis. In this presentation, we will report the latest results from the oscillation analysis using the atmospheric neutrino samples in Super-Kamiokande.

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