

ICEHAP Seminar

Sep. 26th, Friday, 2pm, 2014

place: Fac. of Sci. Bldg 2, 2F, room No.209

Dr. Masato Shiozawa,

(Institute for Cosmic Ray Research, University of Tokyo.)

"Neutrino oscillation study with atmospheric neutrinos in Super-Kamiokande"

abstract

Atmospheric neutrinos have been playing important roles in understanding neutrino properties. In Super-Kamiokande, we have been performing precise measurement of the 2-3 mixing angle and mass squared difference predominantly by muon neutrino disappearance. In addition to that, muon to tau neutrino oscillation channel was established by confirming tau neutrino appearance in the atmospheric neutrinos. We also have good opportunity to study the mass hierarchy and leptonic CP violation by investigating possible electron (and muon) neutrino flux changes. Super-K analysis is being improved especially to enhance the discrimination power of the mass hierarchy by statistical neutrino-antineutrino separation and by combining with reactor and LBL results. We can also test various exotic scenarios such as oscillations between active and sterile neutrinos, and possible Lorentz invariance violation. Latest results of atmospheric neutrino studies in Super-Kamiokande will be reported in this talk.