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New results from the atmospheric neutrino oscillations at Super-Kamiokande

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Super-Kamiokande (SK) is the world's largest underground water Cherenkov detector which has been studying the atmospheric neutrino oscillations since 1996. Atmospheric neutrinos are famous for covering a wide energy range, have both neutrinos and antineutrinos, with electron and muon flavours, which oscillate to tau neutrinos and are sensitive for matter effects in the earth.

In this talk we would like to present updated results on atmospheric neutrino oscillations using five SK periods (data collected from SK-I to SK-V, years 1996-2020). The data analysis has beed improved by expanding the fiducial volume (FV) of the SK, by adding neutrino interactions taking place 1m from the detector walls. This allowed us to increase the data statistics up to 20 %, and thanks to improvement to the reconstruction algorithms we were able to keep systematics uncertainties still satisfactory.

Attendance type

In-person presentation

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