

## Atmospheric neutrino flux calculation in low energies

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Atmospheric neutrinos are significant signals for studying neutrino oscillation physics and also serve as important backgrounds in the searches for diffuse supernova neutrino background, proton decay, dark matter and other rare processes. To address the unknown questions in neutrino oscillation physics and to discover rare events, accurate predictions of atmospheric neutrino flux in the GeV and even lower energy ranges are required. In this talk, I will present the latest results on calculation of atmospheric neutrino fluxes at JUNO, Super-Kamiokande, Jinping and TRIDENT sites. The calculation scheme is based on the methods in [Honda et al. Phys. Rev. D 92, 023004 (2015)], with some improvements for greater precision in the low energy ranges.

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