



Contribution ID : 1212

Type : **Poster**

Physics and Astrophysics with Upward-going Muons in Super-K

Abstract content

The high end of the neutrino spectrum observable with the Super-Kamiokande experiment is seen as upward-going muons from ν_μ interactions in the rock surrounding the detector. Division of these neutrino-induced events into those which stop in the detector, those which cross the detector, and those with catastrophic energy losses creates three data samples, with typical parent neutrino energies of 10 GeV, 100 GeV, and 1 TeV (assuming an atmospheric neutrino energy spectrum). These neutrinos are used to study not only atmospheric neutrino oscillations but also search for possible astrophysical point sources and indirect detection of WIMPs via their annihilation in the cores of the Earth and Sun. While these data do provide constraints to the observed atmospheric neutrino oscillations, no astrophysical or WIMP signal has been seen.

If this papers is presented for a collaboration, please specify the collaboration

Super-K

Summary

Reference

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Session Classification : Posters 3 + Coffee

Track Classification : HE.2.2