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Measurement of neutrino induced upward muons in MINOS

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Abstract content

We found 140 neutrino-induced muons in 854.24 live days in the MINOS far detector, which has an acceptance for neutrino-induced muons of 6.9e6 cm**2 sr. We looked for evidence of neutrino disappearance in this data set by computing the ratio of the number of low momentum muons to the sum of the number of high momentum and unknown momentum muons for both data and Monte Carlo expectation in the absence of neutrino oscillations. The ratio of those ratios is 0.65 ^+0.15_-0.12 (stat) +/- 0.09 (syst), which is consistent with an oscillation signal. The data were fit for the oscillation parameters and the null oscillation hypothesis is excluded at the 94% confidence level. We separated the muons by charge in both the data and Monte Carlo events and found the ratio in both samples. The ratio of those ratios is consistent with CPT conservation.

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

the MINOS collaboration

Summary

Reference

Proceedings of the 30th International Cosmic Ray Conference; Rogelio Caballero, Juan Carlos D'Olivo, Gustavo Medina-Tanco, Lukas Nellen, Federico A. Sánchez, José F. Valdés-Galicia (eds.); Universidad Nacional Autónoma de México, Mexico City, Mexico, 2008; Vol. 5 (HE part 2), pages 1299-1302

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