

Atmospheric Neutrinos in MINOS

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Abstract. The MINOS far detector [1], located in the Soudan mine in Northern Minnesota, was built to study neutrino oscillation parameters using a beam of neutrino from Fermilab known as the NuMI (Neutrinos at the Main Injector) beam. The detector has also been used to study atmospheric neutrinos. Studies have been made with contained events [2] and with muons from neutrino interactions outside the detector [3]. Several continuations of these analyses are ongoing. MINOS now has more than 25 Kton-years of exposure for contained event atmospheric neutrino studies. In addition, MINOS has studied its ability to separate ν_μ neutral current events from ν_e charged current events. Results that are blessed at the time of the ICRC meeting in Łódź will be shown.

Keywords: atmospheric neutrino

REFERENCES

- [1] D.G. Michael et al. (260 authors), *The magnetized steel and scintillator calorimeters of the MINOS experiment*, Fermilab-Pub-08-126, Nucl.Instrum.Meth.A596:190-228(2008), Issue 2, 1 November 2008, arXiv:0805.3170.
- [2] P. Adamson et al. (252 authors), *First observations of separated atmospheric ν_μ and $\bar{\nu}_\mu$ events in the MINOS detector*, Phys. Rev. D 73, 072002, (2006), Issue 7, 1 April 2006; also hep-ex/0512036.
- [3] P. Adamson et al. (199 authors), *Charge-separated atmospheric neutrino-induced muons in the MINOS far detector*, Fermilab-Pub-07-012-E, Phys.Rev.D75:092003 (2007), Vol. 75, No. 9, 1 May 2007; also hep-ex/0701045.