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Testing Physics Beyond the Standard Model using Atmospheric Neutrinos and AMANDA-II

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Abstract content

Several phenomenological models of physics beyond the Standard Model predict flavor mixing in the neutrino sector in addition to conventional mass-induced oscillations. In particular, violation of Lorentz invariance, violation of the equivalence principle, and quantum decoherence can each result in observable distortions in the high-energy atmospheric neutrino spectrum. We report on a search with the AMANDA-II detector for these deviations in the atmospheric muon neutrino spectrum. Data from 2000 to 2005 were used in the analysis, representing an exposure of 1006 days and over 4000 candidate muon neutrino events.

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

IceCube 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 1295-1298

Primary author(s) : Mr. KELLEY, John (University of Wisconsin, Madison)

Presenter(s) : Mr. KELLEY, John (University of Wisconsin, Madison)

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