

SIMULATION OF ATMOSPHERIC NEUTRINO FLUXES WITH CORSIKA

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The simulation program CORSIKA originally designed for the four dimensional simulation of extensive air showers has been modified for the calculation of atmospheric neutrino fluxes. A detailed simulation of the geomagnetic cut-off with GEANT using the International Geomagnetic Reference Field, tables of the geomagnetic field, a description of the solar modulation, an elevation model for the whole Earth, and various atmospheric models for different climatic zones and seasons have been added to standard CORSIKA in order to allow the simulation of low energy primary particles. Different hadronic interaction models are compared on the basis of recent results for the flux and the charge ratio of atmospheric muons. The verified models are used to calculate separately the neutrino fluxes from the lower and upper hemisphere for Super-Kamiokande. The results of CORSIKA confirm the existence of the Atmospheric Neutrino Anomaly.