

IMPROVEMENTS IN THE FLUKA CALCULATIONS OF THE ATMOSPHERIC NEUTRINO FLUXES

G. Battistoni (1), A. Ferrari (2), T. Montaruli (3) and P. Sala (2)

(1) INFN, Milano, Italy, (2) CERN, Geneva, Switzerland, (3) INFN and Dipartimento di Fisica dell'Università, Bari, Italy.

The recent upgrades in the 3-dimensional calculation of the atmospheric neutrino flux based on the FLUKA Monte Carlo code are presented. These include a more precise evaluation of the geomagnetic cutoff, the inclusion of solar modulation and the extension to higher energy, allowing the use of this computation also for upward-going muon production. We also discuss the possible effect of considering nuclear projectiles, as embedded in a next upgrade of the interaction model of FLUKA, thus overcoming the superposition model approximation.