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MCEq - numerical code for inclusive lepton flux calculations

Saturday, August 1, 2015 3:30 PM (1 hour)

The flux of atmospheric leptons is the main background for measurements of astrophysical neutrinos. This natural beam can be used in studies of neutrino phenomenology at very high energies, such as in searches for sterile neutrinos or the determination of the mass hierarchy. The success of the measurements crucially depends on the precision of theoretical calculations. The presented open-source code enables researchers to calculate lepton fluxes at high computational speed and high precision, while granting access to the majority of physical parameters of the calculation. The program makes it easy to study the influence of hadronic interactions, decays of heavy quarks, models of the primary cosmic-ray flux and atmosphere. We will use the new version of the interaction model SIBYLL 2.3 to calculate predictions for various inclusive flux observables using the matrix cascade equation (MCEq) approach.

Collaboration

– not specified –

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