Poster session 2 – Tuesday 5 July

P2.030 **Prompt atmospheric neutrino flux and its theoretical uncertainties**

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Atmospheric neutrinos can be produced from the decays of charmed hadrons as well as from pion and kaon decays. The neutrinos from the heavy quark associated hadrons are called the prompt neutrinos while those from the pion and kaon are called the conventional neutrinos. The flux of the charm induced prompt neutrinos dominates the conventional neutrino flux at the high energies above about 1 PeV. These are the important backgrounds to the astrophysical neutrino search.

Using the most recent PDFs and the cosmic ray spectrum, we evaluate the charm induced prompt atmospheric muon neutrino fluxes including nuclear corrections. Their impact is investigated in different frameworks: perturbative QCD and the dipole models. With the results from the various models, we estimate the comprehensive uncertainties. The b quark contributions to the prompt neutrino flux and the prompt atmospheric tau neutrino flux are also presented.