

On the Charm Contribution to the Atmospheric Neutrino Flux

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We revisit the atmospheric neutrino flux at high energies where the decay of charmed hadrons produced in cosmic ray airshowers is expected to dominate the flux. The forward production of charmed hadrons can potentially increase the predicted flux but it is relatively uncertain due to lack of forward coverage from modern colliders. Using archival data, IceCube atmospheric neutrino flux measurements, and a model independent parametrization of forward charm production we draw an upper limit of the charm contribution to the atmospheric neutrino flux. We find this upper limit cannot accommodate the observed PeV neutrino flux or create additional structures in the neutrino spectrum.

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