

Neutrinos from charm: forward production at the LHC and in the atmosphere

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Theoretical predictions of the prompt atmospheric neutrino flux have large uncertainties associated with charm hadron production, by far the dominant source of prompt neutrinos in the atmosphere. The flux of cosmic rays, with its steeply falling energy spectrum, weights the forward production of charm in the evaluation of the atmospheric neutrino flux at high energies. The current LHCb experiment at CERN constraints charm production in kinematic regions relevant to the prompt atmospheric neutrino flux. The proposed Forward Physics Facility has additional capabilities to detect neutrino fluxes from forward charm production at the LHC. We discuss the implications of the current and planned experiments on the development of theoretical predictions of the high energy atmospheric neutrino flux.

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Collaboration

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Subcategory

Theoretical Results

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