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Constraining ultra-high-energy cosmic ray models with cosmogenic neutrino predictions

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With our newly-developed code for ultra-high-energy cosmic ray (UHECR) propagation, CRPropa, the flux of neutrinos due to interactions of UHECRs with extragalactic background light can be predicted. These cosmogenic neutrinos cover a wide energy range, from below PeV energies up till 100 EeV. The recent measurements in the PeV range and limits at higher energies from IceCube are starting to constrain UHECR models. When combined with predicted secondary photon fluxes and photon background measurements by, e.g., Fermi LAT even stronger constrains can be obtained. In this way the source evolution and UHECR composition can be investigated.

Summary

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