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Sub-TeV hadronic interaction model differences and their impact on air showers

Thursday 4 August 2022 17:00 (20 minutes)

In the sub-TeV regime, the most widely used hadronic interaction models disagree significantly in their predictions of particle spectra from cosmic ray induced air showers. We investigate the nature and impact of model uncertainties, focussing on air shower primaries with energies around the transition between high and low energy hadronic interaction models, where the dissimilarities are largest and which is well within the energy range probed by accelerator measurements. Our studies underline the importance of interactions in the energy regime where the switching between models occurs. We also show the effect of the choice of model on the number of hadronic interactions within cosmic ray induced air showers of higher energies.

Preferred track

Cosmic Rays and Astrophysics

Subfield

Attending in-person?

Yes

On behalf of collaboration?

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