Contribution ID: **43** Type: **not specified**

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

Monday, June 22, 2020 4:05 PM (20 minutes)

In the sub-TeV regime, popular hadronic interaction models disagree in their predictions for post-first interaction and ground-level particle spectra. These model differences generate a significant source of inherent uncertainty in their experimental utilization.
We investigate the nature and impact of such differences through a simultaneous analysis of ground level particles and first interaction scenarios. We focus on initialized events at energies close to the transition between high and low energy hadronic interaction models, where the discrepancies have been shown to be maximal. We find the models to diverge as more concrete shower scenarios are compared, pointing to characteristic differences in the models phenomenology. Finally, we discuss an argumentation for the scaling of such differences and their decrement at higher initial energies.

Authors: PASTOR GUTIÉRREZ, Álvaro (MPIK); Dr SCHOORLEMMER, Harm (MPIK); Dr PARSONS , Dan (Humboldt University of Berlin)

Presenter: PASTOR GUTIÉRREZ, Álvaro (MPIK)

Session Classification: CORSIKA Workshop