

## New Hadronic Interaction Models and Air Shower Physics

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The interpretation of EAS measurements strongly depends on detailed air shower simulations. CORSIKA is one of the most commonly used air shower Monte Carlo program. The main source of uncertainty in the prediction of shower observable for different primary particles and energies being currently dominated by differences between hadronic interaction models even after the update taking into account the first LHC data. As a matter of fact the model predictions converged but at the same time more precise air shower and LHC measurements introduced new constraints.

This year a new generation of hadronic interaction models is released in CORSIKA. Sibyll 2.3c, DPMJETIII-17.1 will be available in 2017 with improved description of particle production and in particular the production of charmed particles. The impact of these hadronic interaction models on air shower predictions will be presented and compared to the first generation of post-LHC models EPOS LHC and QGSJETII-04.

The performance of the new models on standard air shower observable is derived. Due to the various approach in the physics treatment, there is still large differences in the model predictions but it can already be partially resolve by the comparison with the latest LHC data.

### Relevant topics

cosmic ray

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