

Tuning Pythia for Forward Particle Production at the FPF

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Event generators have largely been used for central physics predictions at the LHC and parameters regarding hadron production in these generators have been tuned using central physics data. In particular, Pythia has proven to be a reliable generator for central measurements, but its prediction for forward particle production shows disagreement with LHCf data, which points to a need for a Pythia tune for the FPF. Furthermore, flux uncertainty predictions at the FPF have been obtained by using the spread of different event generators which is a pragmatic but statistically ungrounded approach. In this talk, I discuss our work to obtain a Pythia tune for future forward physics studies. Using LHCf data we tune a subset of Pythia's parameters to more accurately reproduce the forward particle flux without spoiling the success in the central region, and we also obtain a flux uncertainty in a data-driven way. This tune can be used for future studies both within and beyond the Standard Model.

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