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Heavy Ion Collisions with General Purpose Event Generators

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We present the first results from extending the Pythia model for Multiparton Interactions to collisions of heavy nuclei. The Pythia MPI model is a very well established description for pp minimum bias events, and using it to extrapolate to heavy ion collisions is therefore desirable.

In order to break HI collisions down to constituent proton collisions, we discuss extensions of the Glauber model, to also include diffractive excitation, which we find to bear some importance when calculating final states. We subsequently introduce a framework in which a pA collision is broken down into a single pp collision spanning the whole available rapidity range for the collision, and several spanning a smaller range, similar to the old Fritiof model for soft collisions, plus diffractive excitations. We find that this description reproduces centrality inclusive -and exclusive data rather well, and provides a good starting point for testing microscopic, QCD based models of collectivity. We finally discuss the prospects of including rope hadronization, corrections to the Lund string in busy environments, to account for collective effect

Summary

We present the first results from extending the Pythia model for Multiparton Interactions to collisions of heavy nuclei. We find that this description reproduces centrality inclusive -and exclusive data rather well, and provides a good starting point for testing microscopic, QCD based models of collectivity.

Presentation type

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