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Influence of string interactions on strangeness yields in dense systems in Pythia8/Angantyr

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In this talk, we present our ongoing work on the inclusion of string interactions, namely rope hadronization and string shoving in heavy ion (PbPb and XeXe) collisions, as an alternative to QGP. Both string shoving, which is the repulsion between two strings, and rope hadronization, where strings in close proximity form higher-order colour multiplets, have been earlier observed to explain QGP-like effects in p-p collisions such as final state collective flow and strangeness enhancement.
The main challenge involved in implementing such mechanisms in dense environments is that the majority of strings in dense systems lie in random spatial orientation, which makes calculating the force among all strings during an event a complex problem.
In our approach, we use a special Lorentz frame, where a pair of string pieces are in parallel planes with respect to each other. Hence, for a whole Pythia/Angantyr event, every possible string pair is boosted to this frame to calculate the shoving and rope effects.
This novel approach of string shoving and rope hadronization can produce the cumulative result of generating QGP-like effects in dense environments, for both small and large systems. In this talk, we present our new implementation - the Gleipnir framework - in Pythia8/Angantyr and results from strangeness yield analyses performed in high-multiplicity p-p and heavy-ion collisions with comparison to data for both minimum bias and jet triggered events.

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