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Flow correlations to constrain the properties of the initial conditions

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In this work, we propose a new flow correlation observable that provide valuable information about the geometrical properties of the QGP at the thermalization time. An event-by-event analysis within a longitudinal tube initial condition model shows that emitted particles high p_t higher than 1 GeV are extremely sensitive to the level of granularity present in the initial conditions. Therefore, we studied the effect of the width and the energy content of the tubes in the correlation of flow calculated in different p_t cuts.

On the other hand, we are able to extract the values of these parameters from the NEXSPHERIO model. Furthermore, we applied this analysis to STAR experimental data in order to constrain the properties of the QGP generated at AuAu RHIC collisions.

The knowledge about the geometrical properties of the initial conditions provides an important step in phenomenologically relating the final observables obtained experimentally and theoretical QCD predictions.

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