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Study of QGP formation with percolation

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Abstract

In the Color string percolation model, the transverse momentum (pT) of the particles created is closely related to the temperature extracted from the pT spectrum reported by collider experiments. As a first approach, the pT spectrum is described as a thermal distribution, which fails to accurately reproduce the data regarded to the production of high-pT particles. In this work, we introduce a nonextensive framework to describe the pT spectrum on the entire reported pT range, carrying out corrections to the estimations of the temperature due to the production of high-pT particles, and then, modifying the phenomenology of the Color String Percolation Model. These corrections help determine the conditions for quark–gluon plasma (QGP) formation, including finite-size effects.

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