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Study of the criticality for QGP formation in AA and pp collisions

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In the Color String Percolation Model, the QGP formation is associated with the emergence of the percolation cluster of color strings. Then, the estimation in the thermodynamic limit of phenomenological observables is suitable for heavy ion collisions, where a large number of particles are produced. In order to extrapolate these estimations to small systems, such as pp collision, finite size effects are studied by considering the nucleon number of the projectiles. In particular, we found that the transition temperature of the QGP formation is greater for small systems than for large ones. Under this scheme, we estimated $\sqrt{s}$=3.7(5) TeV, $\sqrt{s}$=185(15) GeV, and $\sqrt{s}$=182(15) GeV as the minimal center of mass energy required for QGP formation in pp minimum bias, AuAu, and PbPb collisions, respectively. These estimations are consistent with the energies at which the QGP has been experimentally observed. Predictions on OO collisions for QGP formation are also reported.

Alternate track

1. Heavy Ions

I read the instructions above

Yes

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