

Abstract Submitted
for the HAW05 Meeting of
The American Physical Society

Transverse momentum distributions and string percolation study in p+p, d+Au, and Au+Au at 200 GeV TERENCE TARNOWSKY, BRIJESH SRIVASTAVA, Purdue University, STAR COLLABORATION — Multiparticle production at high energies is described in terms of color strings stretched between the projectile and target. These color strings hadronize, producing the observed particles. As string density increases, overlap among the strings leads to cluster formation. At some critical density a macroscopic cluster appears, spanning the entire system. This marks the percolation phase transition. Data from pp, d+Au and Au+Au at 200 GeV has been analyzed to experimentally determine the percolation density parameter, ρ . This value is obtained by parameterization of 200 GeV pp data. The resultant particle pt spectrum from pp collisions was fit with a power law. Values of the fit parameters are used in d+Au and Au+Au analysis. For 200 GeV Au+Au collisions, the value of ρ is determined to lie above the critical percolation threshold. while for 200 GeV d+Au collisions it is below the critical value. This supports the idea of string percolation, which at high enough string density is a possible mechanism to explore the hadronic phase transition to a quark-gluon plasma (QGP).

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Date submitted: 26 May 2005

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