

Abstract Submitted
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Searching for the QCD Critical Point with the Energy Dependence of p_t Fluctuations JOHN NOVAK, Michigan State University, STAR COLLABORATION — If systems produced in relativistic heavy-ion collisions pass near the QCD critical point while cooling, the correlation length of the system may diverge due to the phenomena of critical opalescence. The transverse momentum distribution, being related to the state variable temperature, might be sensitive to this change in correlation length. Non-monotonic behavior with changing incident energy or centrality of any transverse momentum observable that is sensitive to the correlation length could thus be indicative of the QCD critical point [1]. Accordingly, we report measurements related to transverse momentum fluctuations such as $\langle \Delta p_{t,i} \Delta p_{t,j} \rangle$ as a function of event centrality and incident energy for Au+Au collisions at $\sqrt{s_{NN}} = 7.7, 11.5, 19.6, 27, 39, 62.4,$ and 200 GeV using the STAR detector at RHIC. The results are compared to UrQMD model predictions and previous experimental measurements.

[1] H. Heiselberg, Phys.Rept. 351, 161 (2001).

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